# **Introduction to Emergent Math Lessons**

This resource is designed to assist you in providing math instruction to students who are emergent learners in math. These students are most likely still working on developing their attention during instruction, mode of communication, engagement during instruction, and underlying math concepts.

When providing instruction to emergent learners, the most important thing to remember is to provide high quality modeling and the opportunity for students to engage, respond, and develop their thinking skills. Adults in the classroom should refrain from completing the tasks for the student. If a student does not respond, use this as an opportunity to experiment with light, sound, touch, and movement to engage the student in the task. Provide a fun and engaging learning environment. Use math instruction as another opportunity to improve communication.

The lessons are organized into the following categories: Attributes, Set/Separateness, Patterns, Composing/Decomposing, and Part/Whole. Within each category, the lessons are then divided into Initial Precursor lessons and Distal Precursor lessons.

Information you provide during the First Contact Survey or through observations you make during instruction will help you determine which set of lessons you should begin. Generally, students who have little or no ability to communicate or are just beginning to use the Core Vocabulary will begin with the Initial Precursor level. Most of the lessons focus on teacher modeling and opportunities to seek engagement from the student. The skills and concepts relate to foundational skills that can apply across subjects/content areas. Students who have shown some success with the Core Vocabulary and are developing their initial math and communication skills should be provided instruction at the Distal Precursor level. These lessons focus on more math related concepts and skills, but the teacher will continue to provide large amounts of modeling during instruction.

#### Each lesson is laid out in the following order.

- Purpose:The learning targets as well as Essential Elements are described in this<br/>section. Most lessons address Essential Elements at multiple grade<br/>levels within a grade band. This will allow teachers to provide<br/>instruction to small groups that include students at different grade<br/>levels.
- Materials:All materials required for the lesson will be listed here. Hyperlinks to<br/>materials made specifically for the lesson as well as outside links to<br/>other resources are also provided. In the case of concrete materials,<br/>links for purchasing or referencing those materials are also listed.

Anchor Activity:	This is an opportunity to build background knowledge or connect to previous lessons. The teacher will also state the purpose of the lesson and teach/model the concepts/skills.
Think and Do:	The student will be presented with an activity similar to the one modeled by the teacher during the Anchor Activity. The student will complete the activity as independently as possible with little to no adult direction.
Apply:	During this phase, the student will have the opportunity to communicate their thinking strategies and receive feedback from the teacher.
Teacher/Student Act	<i>ions:</i> Directions are stated in black. Teacher comments are denoted in <b>purple bold</b> , and possible student comments are denoted in <b>teal bold</b> .
AAC Suggestions:	This column includes the words from <u>36 Location Universal Core</u> <u>Communication Board</u> that can be modeled for students during instruction. ( <u>http://www.project-core.com/36-location/</u> )
Notes:	This column provides links and Think Abouts when providing the instruction that may be specific to certain parts of the lesson. Examples include how to modify for students with vision or physical limitations or ways to progress through future lessons on the same topic.

Resources are also provided for Formative Assessment. This can be found at the bottom of each lesson plan or in the main topic folder. A copy can be made for each student for each topic area. This provides a way to track how the student is progressing in regards to responses and accuracy. This may be used as a way to create an IEP goal and/or progress monitoring.

EMERGENT SET 1 (K-5 Target EEs)

Attribute Lesson Plans

# **Initial Precursor**



\*Based on Claire Greer's work at ATLAS, University of Kansas.

#### Purpose

To build up the student's familiarity with multiple attributes across multiple items and knowledge of "same" and "different."

Once the student has learned a wide range of attributes, you may use this lesson:

IP: K-5 Recognize Attribute values
 <u>https://docs.google.com/document/d/11DstzhelfL-ltvkW17LkF0f04fYH0j1XUwj-HSd</u>

 WjG4/edit

#### Materials

- CORE vocabulary board and/or AAC device for each student
- For this example lesson: A bumpy yellow ball, a bumpy blue ball, and a bumpy blue mat
- Variety of concrete objects in sets of 3 with one common characteristic each set should have two items that are very similar and one item that still has the characteristic but is different in some way. (Examples are given below in the materials column.)
- Copy of the Formative Assessment for the student

**Example Routine:** Repeat this routine daily for 2-3 minutes. Proceed through all 15 sessions to teach two opposite attributes, in this case "bumpy" and "smooth." Then select two more opposite attributes and repeat the routine.

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Say: "We can use words to tell about things. I have hair (eyes). What color hair (eyes) do you have?"	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, you, look</i>	*Allow wait time appropriate for the student's needs. IF no response, model with the student's form of communication (i.e. AAC, braille, signing).

<i>Establish a purpose</i> <u>Say:</u> "We use these describing words to tell about things and organize them. This helps us decide if things are the same or different. Today we will learn about the describing word 'bumpy'."	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	
<ul> <li>Teach and model the concept</li> <li>Round 1: Present the bumpy, yellow ball and say "This is bumpy." (Proceed through next steps before switching items.)</li> <li>Round 2: Present the bumpy blue ball and say "This is bumpy." (Proceed through next steps before switching items.)</li> <li>Round 3: Present the bumpy mat and say "This is bumpy." (Proceed through the next steps.)</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <b>On, here</b> Ex: <b>"Bumps <u>on here</u>."</b>	
<b>Students think about what to do:</b> Ensure that the item is within reach of the student. Wait for the student to respond to the item.		Wait time should be based on knowledge about the student's processing time.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> Allow the student to explore, and say "This is bumpy," to the student every so often (10 seconds or so).	Model using student's form of communication. For example: AAC, Braille, signing. <b>On, here</b> Ex: <b>"Bumps</b> <u>on</u> <u>here</u> ."	Even if the student does not want to touch the item, continue with the prompts and make sure the item is within visual range (if student is sighted) or you may touch the item to the student's arm or part of body that is non-aversive to the student.
APPLY		
<i>Students describe what was done.</i> Ask student to tell what the item felt or looked like.	Model using student's form of communication. For	

	example: AAC, Braille, signing. Ex: <b>"Bumps <u>on</u> <u>here</u>."</b>
Get feedback If the student responds with the correct attribute, acknowledge by saying, "Yes, it is bumpy." If the student gives an answer that does not make sense or does not respond at all, acknowledge the attempt, and say, "This is bumpy."	Model using student's form of communication. For example: AAC, Braille, signing. Ex: <b>"Bumps <u>on here</u>."</b>
Make explicit what the students were thinking and doing Explain to the student in his/her mode of communication that by feeling and looking at the items he/she can describe the characteristics of the item(s).	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, it</i>
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct	· I

Below is a sample of how one can work through a set of attributes so comparisons can be made between two opposite attributes. The items listed are either commonly found or listed on the **Collections List** tab found here:

Attribute Session # Materials (Examples) 1 bumpy bumpy, yellow ball; bumpy, blue ball; bumpy mat 2 2 different sheets of sand paper, avocado (or other bumpy food) bumpy 3 2 different bumpy rocks, bumpy place mats (legos, tube sock, bumpy piece of clay artwork, etc.) 4 bumpy Combination of 3 items as above, communication device (core vocab if necessary) 5-10 Piece of paper, folder, smooth piece of food, (ribbon, plate, etc.) smooth 11-15 bumpy vs smooth Use of above materials plus others

https://dynamiclearningmaps.org/erp\_ie/iowa-math.

#### Please see the **K-5 Attribute Vocabulary document**

(https://docs.google.com/document/d/1Q2HfFVQhijylTwzQ\_NHtY0cQepb-rjvcFb-7y9Jln7E/e dit) for a list of paired attributes to teach future lessons.

### MATH ESSENTIAL ELEMENTS LESSON PLAN Same But Different



#### Purpose

To increase students' understanding of the concepts of **same** and **different**. Develop language and provide opportunities to practice using Core vocabulary and/or AAC device.

#### **Essential Elements Addressed:**

- M.EE.3.OA.9 Identify arithmetic patterns. IP Recognize same and different.
- M.EE.3.MD.1 Tell time to the hour on a digital clock. IP Attend. Recognize different.
- **EE.1.MD.3.d** Demonstrate an understanding that telling time is the same every day

#### Materials

- Sets of concrete objects that are the same in some ways and different in some ways. Refer to the images in the link provided within the lesson plan as examples for selecting your concrete objects.
- Pictures from link provided below either projected on computer or whiteboard or printed on paper
- CORE vocabulary board and/or AAC device for each student
- Copy of the Formative Assessment for the student

#### Frequency/Duration: At least once weekly up to short sessions each day.

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Say: "Things can be the same and different. We can describe things using attributes to tell how they are the same and how they are different."	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	
<i>Establish a purpose</i> <u>Say:</u> "Telling how things are the same and different can help us put things in groups or categorize things."	Model using student's form of communication. For example: AAC, Braille, signing.	

	Same, different	
<b>Teach and model the concept</b> Select a set of objects or an image from the link https://www.samebutdifferentmath.com/early- numeracy (or select your own). <u>Model</u> telling how the two items are the same and how they are different.	Model using Core board or AAC device Same, different, on, that, in, here, up, open, more	Begin with concrete objects until the student demonstrates attention to the objects consistently and is able to show some level of understanding of the activity. If objects are used, encourage the student to explore the objects. If images are used, make sure they are large enough and have enough contrast that students with vision impairments may see them clearly. Then move to the images of things that are familiar to the student.
THINK AND DO		
<pre>Students think about what to do: Ask the student to share one way the objects or images are the same/different. (In the beginning you may only work with one at a time, e.g. just ask for same) "How are these the same?" "How are these different?" Students do:</pre>	Model using student's form of communication. For example: AAC, Braille, signing. Same, different Model using student's	In the beginning, just ask for either <b>same</b> or <b>different</b> during a single session. Once there is a clear understanding of each, then you may ask for both in one session. Adults are not to
<ul><li>Solve the problem</li><li>Build the model</li><li>Find the matching shapes</li></ul>	form of communication. For example: AAC, Braille, signing.	provide any coaching at this point.

<ul> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> Provide wait time appropriate for that student. Observe student. Student provides answer using their mode of communication.	Same, different, on, that, in, here, up, open, more	Adults should observe the student's responses and make notes (refer to FA below).
APPLY		
<ul> <li>Students describe what was done.</li> <li><u>Ask</u> the student to tell what they did. If no response (give plenty of wait time), then model a <b>Think Aloud</b> using the student's mode of communication.</li> <li>"How did you decide?"</li> <li>Student should tell how they decided (thinking process) on their answer.</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. Look, it, do, like, not, more, open	Adults are not to provide any coaching at this point. Adults should observe the student's responses and make notes (refer to FA below). Only direction prompts may be repeated.
Get feedback Provide feedback. Bring attention to the thinking process more than the correctness of the answer in the beginning. Try to look for connections demonstrating that the student understands the concept.	Use the student's method of communication to share feedback. You, it, some, same, different, more	
Make explicit what the students were thinking and doing Explain how the student's thinking process went, expanding on their description of the process. Model the correct language.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, it, do, like</i>	

#### Formative Assessment (option)

- \_\_\_\_ Did not attend/no response
- \_\_\_\_ Attended/no response
- \_\_\_\_ Attended/response incorrect
- \_\_\_\_ Attended/response partially correct
- \_\_\_\_ Attended/response fully correct

*Routine Planner, created by Shawna Veit, Special Education Consultant, Oakland Public Schools* <u>https://docs.google.com/document/d/1xgNAGHy1Xc3IC2JfYMxsnNcWzmrKC0enHKpSLF1SV24/edit</u>

MATH ESSENTIAL ELEMENTS LESSON PLAN



#### Purposes

To increase student's attention to coins, to increase student's experiences with coins, and to increase student's understanding of the value of coins

- **EE.2.MD.8** Recognize that money has value.
- M.EE.4.MD.2.d Identify coins (penny, nickel, dime, quarter) and their values. IP Attend.
- M.EE.5.MD.1.c Indicate relative value of collections of coins. IP Recognize Attribute values.

- CORE vocabulary board and/or AAC device for each student
- Copy of the Formative Assessment for the student
- Collection of real coins

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide a collection of real coins to the students to explore. Other options would be to put the coins in a feely bag/cloth bag to allow them explore with only the sense of touch. Ask for guesses as to what they are looking at/touching. "What are these?" "What are they used for?" "Where have you seen these?"	Model using student's form of communication. For example: AAC, Braille, signing. <i>What, you, it, do</i>	If students tend to put things in their mouth, place the coins in a see through plastic bag to reduce the choking hazard. If the student still has trouble with joint attention, try different ways to gain attention - use light, jingle the bag, move it in interesting ways, touch the coins to the student's (Note: ask permission or give warning) hand, arm, cheek, etc. Possibly pretend to make it

		appear out from behind their ear. Experiment with different actions that may attract attention to the coins.
<i>Establish a purpose</i> <u>Say:</u> "This is money. These are coins. We use money to buy things we need and things we want. When we go to the store, we need different amounts of money to buy things."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Want</i>	
Teach and model the conceptSay: "These are coins, one kind of money.They all have different values."Hold up each coin, state the name and value, and allow the students to explore the coin while you repeat the name and value about every 10 seconds for approximately one minute. Encourage verbal students to repeat.Repeat for each coin."This is a penny. It is worth 1 cent." "This is a nickel. It is worth 5 cents." "This is a dime. It is worth 10 cents."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Different</b> This is a time that adults can model finding the page that allows access to the money and coin vocabulary.	
THINK AND DO		
Students think about what to do: Show a coin, label it and state it's value and ask students to find one in their pile that is the same. Show a coin, label it and state it's value and ask students to find one in their pile that is different.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, same, different</i>	Allow appropriate wait time.
Students do:		Students may indicate their choice by
Solve the problem		

<ul> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		pointing, eye gaze, touching, picking up, peer assisted scanning with choices, etc.
Students should find the correct coin.		
APPLY		
Students describe what was done. Ask students how they knew which one to pick. Students should say something like: "I looked at it. I looked at that."	Model using student's form of communication. For example: AAC, Braille, signing.	This may require wait time.
	Why, look	
<i>Get feedback</i> Compare the student's choice to the original coin. Point out attributes that make it same or different.	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, not, on	The goal is to refer the students back to attributes and practice identifying "same" and "different" with coins to build familiarity with coins.
Make explicit what the students were thinking and doing		
Explain how the student's thinking process went, expanding on their description of the process. Model the correct language.		
Formative Assessment (option)		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

## MATH ESSENTIAL ELEMENTS LESSON PLAN Notice What is New – Mystery Box



#### Purposes

- To increase the student's awareness when something new appears
- To develop foundational skills for future instruction in telling time, geometry, data interpretation, and probability
- M.EE.3.OA.9 Identify arithmetic patterns. IP Recognize same and different.

- CORE vocabulary board and/or AAC device for each student
- Copy of the Formative Assessment for the student
- Odd shaped box, bag, or a curtain to hide an item
- Interesting things students have not seen before cool toy, colorful picture, item with interesting features, etc. Be creative and use this as an opportunity to find things the students are interested in.

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Put the novel/interesting item in a box, bag, or behind a curtain in the classroom.		<ul> <li>Examples:</li> <li>Bubble wrap</li> <li>Interesting mobiles</li> <li>Feather boas of multiple colors</li> <li>Fun hats or sunglasses</li> <li>Toys like expandable balls or items that make sounds or light up</li> </ul>
<i>Establish a purpose</i> Place the box in an area where it will be noticed by all students.		Consider those in wheelchairs whose line of sight is diminished or those with vision impairments. Options might include placing the box near their

		workspace (rotate through each child's work space if necessary to give them all a chance to "Notice" the box.
Teach and model the concept		
Ignore the box/bag. Do not call attention to it.		
THINK AND DO		
<i>Students think about what to do:</i> Allow the students to go about their day.		Ideally the adults will not say anything. In the beginning the students may not know how to "Notice" and then communicate about it. If it is nearing the end of the day and no student has noticed it, then allow an adult to play the part of noticing the box/bag in an excited way.
Students do:	Model using student's form of	
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>	communication. For example: AAC, Braille, signing. <i>What, it, look, want,</i> go, in, do, here	
At some point at least one of the students should get curious and ask what it is.		
APPLY		

<i>Students describe what was done.</i> Allow the students to open the box/bag and interact with the item.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Open, look, it, what,</b> <b>like, not</b>	For students still working on joint attention, use this as an opportunity to practice/explore gaining joint attention through novel experiences.
Get feedback		
Be enthusiastic with the students. Make this a playful fun experience.		
Make explicit what the students were thinking and doing	Model using student's form of	
Explicitly state that " noticed that something was new in the classroom.That is called being curious. Being curious helps us	communication. For example: AAC, Braille, signing.	
learn and have fun!"	I, look, you	
Formative Assessment (option)		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

### MATH ESSENTIAL ELEMENTS LESSON PLAN Same or Different



#### Purposes

To increase students' understanding of the concepts of **same** and **different**. Develop language and provide opportunities to practice using Core vocabulary and/or AAC device.

#### **Essential Elements Addressed:**

- M.EE.3.OA.9 Identify arithmetic patterns. IP Recognize same and different.
- M.EE.3.MD.1 Tell time to the hour on a digital clock. IP Attend. Recognize different.

- Sets of paired "concrete" objects that are the same or different. For example: a bowl and a fork, or two pencils.
- List of Common Materials Used to Administer Testlets. This can provide items to use during this lesson.
  - <u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>
- CORE vocabulary board and/or AAC device for each student
- Copy of the Formative Assessment for the student

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Refer to something that is the same between two people, for example hair color. For example, say: "Joe and I both have brown hair. We have the same hair color. But Joe and I have shoes that don't look alike. He has athletic shoes and I have sandals. We have different shoes."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Same, not same, he</i>	Since this lesson also addresses " <b>Attend</b> " consider using novel items or use this as an opportunity to try out multiple items for which you can get an attend response from any students for whom joint attention is still a concern.
<i>Establish a purpose</i> <u>Say:</u> "Knowing if things are the same or different can help us make good choices and learn how to do things."	Model using student's form of communication. For	

	example: AAC, Braille, signing. <i>Same, different, do</i>	
Teach and model the conceptSay: "Things can be the same or they can bedifferent."Hold up two items that are the same, forexample two unsharpened pencils. Say: "Thesetwo pencils are the same. They have thesame color. They are the same length. Theyare both unsharpened."Point to the bowl and fork. Say: "These twothings are different. The bowl is round andyou can put things in it like ice cream. Thefork is different from the bowl. The fork haspoints on it called "tines," and you use it topick up food."	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, in, on, up	For students whose learning target is "Attend" continue to model Core vocabulary and descriptive language while at the same time trying novel ways to grab the student's attention through movement, light, sound, touch, etc.
THINK AND DO		
Students think about what to do: Ask the student to point to the item that is the same. For example: Present a pencil and marker. Say: "This is a pencil." while pointing to the pencil. Say: "This is a marker." while pointing to the marker. Hold up another marker. Say: "Show me which is the same."		If the purpose is to increase attention, select items, or try different novel items, and use touch, movement, light, sound to get an attend response from the student. In the beginning, focus on only one skill each day to reduce confusion. As the student becomes more accurate, you may ask for both skills in the same session.
Students think about what to do: Ask the student to point to the item that is the same. For example: Present a pencil and marker. Say: "This is a pencil." while pointing to the pencil. Say: "This is a marker." while pointing to the marker. Hold up another marker. Say: "Show me which is the same." Students do: • Solve the problem	Model using student's form of	If the purpose is to increase attention, select items, or try different novel items, and use touch, movement, light, sound to get an attend response from the student. In the beginning, focus on only one skill each day to reduce confusion. As the student becomes more accurate, you may ask for both skills in the same session. Allow appropriate wait time. There should be no coaching at this

<ul> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should indicate the correct choice.	example: AAC, Braille, signing. <i>It, same, different,</i> <i>that</i>	
In the example the student should point to the marker.		
APPLY		
Students describe what was done. Ask: "How did you know?" or "Why?"	Model using student's form of communication. For example: AAC, Braille, signing. You, same, different, why	Wait time is important. The goal is to teach the student to explain their thinking and that we want to hear from them. For students at the emergent level, there may be few responses. Through multiple practice opportunities paired with modeling in the next steps, students should begin to make an attempt to communicate.
<i>Get feedback</i> Let the student know the correct answer.	Model using student's form of communication. For example: AAC, Braille, signing.	
Make explicit what the students were thinking and doing Model how to explain thinking. For example: "I looked at both things. The markers were both white and the pencil was different."	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, look, same,</i> <i>different</i>	This is the opportunity for teacher think aloud and modeling.
Formative Assessment (option) Did not attend/no response Attended/no response		

- \_\_\_\_ Attended/response incorrect \_\_\_\_ Attended/response partially correct \_\_\_ Attended/response fully correct

MATH ESSENTIAL ELEMENTS LESSON PLAN



#### **Purposes**

(\*See standards listed below.)

- To develop student's ability to notice what is happening
- To develop student's ability to notice new or different actions/activities
- To develop student's foundational skills for telling time
- M.EE.3.MD.1 Tell time to the hour on a digital clock. IP Attend. Recognize different.

- Visual schedule
- Visual timer

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge		
Select one of the videos listed below the lesson plan to introduce the topic of time.		
<i>Establish a purpose</i> <u>Say:</u> "We pay attention to the time so we know when to do things like go to school, stop doing our work, or go see a movie. We look at clocks to see what time it is."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Go, look, it, see, stop,</b> <b>different</b>	Whenever possible use activities in the example that are familiar and enjoyable for the students.
<b>Teach and model the concept</b> If a visual schedule has not been used with the students, tell the students about the schedule and the order and how to use it based on its design.	Model using student's form of communication. For example: AAC, Braille, signing. When, stop, look, finished, do, different	Link to information about visual schedules: <u>https://www.google.co</u> <u>m/url?q=https://www.</u> <u>pathstoliteracy.org/blo</u> <u>g/calendar-boxes-and-</u> <u>schedule-systems-liter</u>

Model how the visual timer works. Say something like: "We can set the timer for the length of time we need to work. As the time passes, the colors change. As we get closer to having no time left, it turns red and then buzzes to let us know we need to stop."

Set it for the length of time you need for a short activity and model using it.

g=AFQjCNENmSgE-0m r94YECP3XofVhfTg 6Q The visual schedule should be accessible to the student at all times as possible. Think of this like someone's dav planner. You can't use it if it isn't near your workspace. Adjust the teaching of the visual timer to the specific model that you have. See below for possible models. https://www.timetimer .com/ https://theautismhelp er.com/visual-timers-y ou-can-use-in-your-cla ssroom/ https://www.amazon.c om/Learning-Resource <u>s-Tracker-Visual-Timer</u> /dp/B0007DHU0S/ref= asc df B0007DHU0S/? tag=hyprod-20&linkCo de=df0&hvadid=16714 1005679&hvpos=&hvn etw=g&hvrand=13098 <u>35911057484554&hvp</u> one=&hvptwo=&hvqm t=&hvdev=c&hvdvcmd l=&hvlocint=&hvlocph y=9017921&hvtargid= pla-308467960210&ps c=1&language=en US

acy-tools&sa=D&ust=1

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THINK AND DO		
<ul> <li>Students think about what to do:</li> <li>A) Throughout the day, refer to the student's visual schedule asking the student to point to "What is next?" or "What did we just do?"</li> <li>B) Use a visual timer, assign one student per day as a timekeeper. Their job is to gain an adult's attention when the timer runs out.</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. What, do, finished, when, stop, finished, more	These should be done every day throughout the day. Model, model, model.
<ul> <li>Students do:</li> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> A) Student should indicate the correct answer. B) Student should indicate the stopping point of the activity.		The student can point to the appropriate task on their visual schedule, verbalize it, or use their AAC. The student may use a buzzer, their AAC device, a Big Mack switch, or their voice. Adults should not prompt until absolutely necessary and then
APPLY		
<ul><li>Students describe what was done.</li><li>A) The student is to describe how he/she knew the correct answer.</li><li>B) The student tells how he/she knew to tell teacher/adult.</li></ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, finished, stop</i>	Wait time is important. Look expectantly for an answer. This is an additional opportunity to let the student know you want to hear from him/her.
Get feedback Refer to the visual schedule and/or the timer to compare answers. Ask other students for input. "How do we know?" Refer to the expectations of others who might be waiting or maybe the students have an exciting activity they want to do.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why, stop, finished,</i> <i>do, more, not</i>	This is an opportunity to model again the use of the visual schedule and/or visual timer. Use as many clues in your feedback as you can about how the

Draw attention to how much time has passed. Refer to other clues such as the bell system or a particular class walking by or even where the shadows are on the ground.		students can recognize the passage of time.
Make explicit what the students were thinking and doing Model the thinking/actions you are looking for. For example: <b>"You heard the timer noise so</b> you knew time was up and we had to stop."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Stop, you</b>	If there was not response from the students, this is an additional opportunity for reteaching and modeling how to complete the task.
<i>Formative Assessment (option)</i> <ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

- Cluck o'clock by Kes Gray
   <a href="https://www.youtube.com/watch?v=lUhK42DYUjo">https://www.youtube.com/watch?v=lUhK42DYUjo</a>
- Telling Time Children's Book Collection | Discover Epic Children's Books, Audiobooks, Videos & More (You will need to set up a free account.) https://www.getepic.com/collection/168622/telling-time
- Telling Time to the Half Hour and Hour Song | 1st Grade & 2nd Grade https://www.youtube.com/watch?v=MaVgBjVh4b8

# **Distal Precursor**

#### DP: K-5

MATH ESSENTIAL ELEMENTS LESSON PLAN



#### Purposes

The students will be grouping 2 or more items based on an attribute and then participating in the creation of a bar graph or line plot.

- M.EE.3.OA.9 Identify arithmetic patterns.
- **M.EE.3.MD.3** Use picture or bar graph data to answer questions about data.
- **M.EE.5.MD.2** Represent and interpret data on a picture, line plot, or bar graph.

- Items that can be grouped together based on attributes Refer to the collections list for the appropriate grade level found here:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: (grade 6 list) 4 erasers, 4 craft sticks, 2 plastic cups, 4 glue sticks, 4 rulers, 2 packs of gum, 4 connecting cubes (all same color)
- **Blank bar graph.** If you need a template, find one here: <u>https://www.timvandevall.com/templates/blank-bar-graph-template/</u>
- CORE vocabulary board and/or AAC device for each student
- Copy of the Formative Assessment for the student

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge For each item, allow the student to look at, touch, and manipulate the items while the adult describes the item (attempt to elicit descriptors from the student) and its uses. For example: "This is an eraser. We use it to erase mistakes. It is a rectangular prism and it is pink."	Model using student's form of communication. For example: AAC, Braille, signing. Look, on, here, same, different, turn, that	This step is very important to allow the student to explore items that might be novel. This will help the student be focused during the instruction. It also allows the teacher to work on joint attention for students who are still struggling in this area.

		Use movement, light, sound, intonation of voice to gain attention. Opportunities for language development and practice with finding words in their AAC device beyond the Core vocabulary are also provided during this time.
<i>Establish a purpose</i> "Today we will organize these things based on their attributes, then make a graph to show how we classified them."	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, look, on	
<ul> <li>Teach and model the concept</li> <li>Remove all items except for 3 erasers and 2 craft sticks.</li> <li>Place the items in a group.</li> <li>Model a Think Aloud as you group them based on an attribute.</li> <li>"I see that all these (erasers) are pink and these are brown (craft sticks). I can put all of the erasers in one group and all of the craft sticks in another group because they are different. I have organized my things into groups."</li> <li>Model making a bar graph by labeling the side with the item names, then counting the items in each group. "There are 1-2-3 erasers. I will color in one block for each eraser to show how many erasers I have. There are 1-2 craft sticks. I will color in one block for each eraser to show how many erasers I have. I have organized and classified my things. I made the bar graph so I can show others how many I have and I can</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, same, here, on,</i> <i>it</i>	For students who are visually impaired, provide a tactile version of the graph. Ex: Place the items on a larger form of the graph. Picture cards are provided below and in the folder.

<ul><li>compare the groups."</li><li>Repeat once or twice more with other items.</li></ul>		
THINK AND DO		
<ul> <li>Students think about what to do:</li> <li>(Part 1) Place 2 cups and 3 connecting cubes in front of the student.</li> <li>Direct the student to look at the items and put them in a group based on an attribute they choose. "Here are some cups and cubes. Organize them in two different groups."</li> <li>(Part 2) Once the items have been organized, provide feedback on this portion of the activity as described in the apply section for lesson part 1.</li> <li>Then provide the student with a blank (or partially filled in with labels) bar graph template.</li> <li>Say "Now let's make a bar graph to classify your objects into groups. Which group would you like to graph first?"</li> <li>Wait for student to indicate his/her choice. (See notes about choice making.)</li> <li>"How should we label that group?" You may provide two choice cards, one labeled with a picture and word for cups and one with a picture and word for cubes. (See below for graphics.)</li> <li>How many do we have?</li> <li>Which boxes should we color in?</li> <li>Repeat for the second group.</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>Some, put</i>	You may offer a template (two circles or squares) that gives them a specific area in which to place each set of items. If the student does not make a choice, use this as an opportunity to work on joint attention and choice making. Use light, sound, and movement to gain attention to the choices. Repeat the direction to make a choice. At the first indication of making a movement or sound, connect that to the choice you believe the student was indicating. In other words, attribute meaning to their vocalization or movement.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		Allow processing time. Student may use pointing, eye gaze, touching, peer assisted scanning, etc. Adults are not to provide any coaching at this point.
<ul> <li>(<u>Part 1</u>) Allow the student to group the items according to his/her choice.</li> <li>If there is no response from the student</li> </ul>		the student's responses and make notes (refer to FA

after additional prompts to begin, move on below). to the Apply portion of the lesson and use Only direction Think Aloud/modeling. prompts may be • (Part 2) If the student does not make a repeated. choice for any of the questions above, provide wait time, prompt again, provide more wait time, and then if there is still no response, complete a Think Aloud for only that question before moving on to the next question. (See notes for another option when student does not make a choice.) • Example Think Alouds: "I will choose to graph the cups first. First I count them, 1-2, and then I color one box for each cup above the label on the graph, 1 (color) and 2 (color). Then I need to graph the cubes. First I count the cubes. 1-2-3 cubes. Then I color one box for each cube above the cube label on the graph. 1 (color) - 2 (color) - 3 (color) . My graph is done." APPLY These **Think Alouds** Students describe what was done. Model using student's form of will reference the <u>Ask</u> the student to tell what they did. If no communication. For description of the response (give plenty of wait time), then model example: AAC, Braille, thinking process - the a **Think Aloud** using the student's mode of how vs the what was signing. communication. done. Put, here, on, look, Example: "I knew I needed to graph each same, different, do group of the same thing. I had to count how many in each group. I counted 2 cups so I colored two boxes above the cup label. I counted 3 cubes so I colored 3 boxes above the cubes label." Student should tell how they decided (thinking process) on their answer. Example: "First I had to put things that were the same in one group. Then I made another group of things that were the same. Cups and cubes are different shapes so they had to go into different groups. Then I had to make my graph show how many were in the

different groups. Graphs are pictures that show how many of each group. I can use a graph to classify and compare things."		
Get feedback	Model using student's	
Provide feedback. If there was no answer, then model using a Think Aloud.	form of communication. For example: AAC, Braille,	
Example: <b>"To make a graph we need to know</b> <b>how many of each thing we have. We put the</b> <b>things in groups that have the same</b> <b>attributes like shape or color. We label our</b> <b>graph for each group. Then we count how</b> <b>many are in each group and record that on</b> <b>our graph.</b> "	signing. <i>Put, same, here, it</i>	
Bring attention to the thinking process more than the correctness of the answer in the beginning. Try to look for connections demonstrating that the student understands the concept.		
Make explicit what the students were thinking and doing	Model using student's form of	
Explain how the student's thinking process went, expanding on their description of the process. Model the correct language.	communication. For example: AAC, Braille, signing.	
Example: "I see you looked at the cubes and cups. You saw that the cubes were square and the cups were round so you made two different groups. You put all of the cubes in one group because they had the same shape. You put all of the cups in a different group because they all had the same shape. You knew you had to count each group so you could color in the correct number of boxes for each group."	l, see, you, pupt, same, different	
Formative Assessment (option)		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

#### DP: K-5

MATH ESSENTIAL ELEMENTS LESSON PLAN Classify Same 2-Dimensional Shapes with Different Size and/or Orientation



#### Purposes

The student will be able to analyze shapes and recognize when two dimensional shapes are the same when they are in a different orientation or of a different size.

This is lesson two of two lessons.

- Lesson one can be found here:
  - DP: K-5 Classify same 2 dimensional shapes with same size and orientation <u>https://docs.google.com/document/d/1mym8GD3Yf2N8QHB1kIIR7D0pEnoYy</u> NFfXa1TMtMRBQs/edit
- **M.EE.5.G.1-4** Sort two-dimensional figures and identify the attributes (angles, number of sides, corners, color) they have in common.

#### Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative assessment for each student
- Shapes of different sizes (2 big and 2 small of each shape) rectangle, square, circle, triangle, rhombus
- Here is more information about spatial visualization and imagery foundational skills: <u>https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail</u> <u>s/12</u>

(\*Note: This lesson can also be done with a variety of items such as crackers, silverware, writing utensils, articles of clothing, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete the shared reading activity. Link is provided in the notes.	Model using student's form of communication. For example: AAC, Braille, signing.	https://shared.tarheelr eader.org/shared/read /cats-in-all-shapes-and -sizes

Comments should relate to how the cats are different. It could include descriptions of their positions and colors.	Different	
<i>Establish a purpose</i> <u>Say:</u> "Today we will find two shapes that are the same, but they may have a different	Model using student's form of communication. For example: AAC, Braille,	
<ul> <li>size or are in a different position."</li> <li>Teach and model the concept</li> <li>Place three shapes in front of the student. For example, a large square, a small square, a large circle. Allow the student to interact with the shapes. Compare all three shapes noting the differences and similarities.</li> <li>For example: "Here is a large square. It has four sides that are all the same length. Here is a small square. It also has 4 sides that are all the same length. Here is a large circle. It has no sides. It is a different shape."</li> </ul>	<pre>kample: AAC, Braille, signing. Model using Core board or AAC device It, same, look, different, more, not more</pre>	This is an opportunity to work on joint attention and engagement through the use of light, sound, touch, and movement. For most students, you may need to work on different size and different orientation in separate sessions. This example lesson only addresses
(squares are in the same orientation). Model selecting the two squares that have the same shape but a different size. For example: <b>"This large square and this small square both have the same shape.</b> <b>They are both squares. The circle is different."</b> Repeat with several more combinations.		different sizes as written. If you wish to work on orientation, then begin with same size shapes, but orient them differently by tilting them a bit. When comparing, demonstrate how the shapes can be turned and laid on top of each other. Once they are understanding, then you can combine the skills.

THINK AND DO		
Students think about what to do: Place a large and a small shape of one kind with a different shape in front of the student. Allow the student to interact with the shapes while you talk about the attributes of the shapes. Point to one of the two similar shapes. <u>Say:</u> "Point to the shape that is similar to this one."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, same, look</b>	Provide ample wait time based on knowledge about the student's processing needs.
Students do: • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should indicate the shape that has the same name.		Provide wait time appropriate for that student. Adults are not to provide any coaching at this point. Adults should observe the student's responses and make notes (refer to FA below). If the student has physical limitations, eye gaze, a pushing stick, or verbal/AAC to direct an adult may be used. If there is no response, use this as an opportunity to improve joint attention and engagement through the use of light, sound, touch and movement.
APPLY		
Students describe what was done.Ask: "How did you decide?"Student may say: "I look." "It same." "Itmore." "It not more."	Model using student's form of communication. For example: AAC, Braille, signing.	Adults are not to provide any coaching at this point. Adults should observe the student's

	You, do	responses and make notes (refer to FA below). Only direction prompts may be repeated.
Get feedback Provide feedback. If the student is correct, acknowledge it and move on to the next step. For example: "Great job! Both of these have 4 sides. They are different sizes, but they are both squares. They are similar." If the student is incorrect, reteach the concept using the script in the teaching section. Pay special attention to noting the attributes that make the shapes similar and dissimilar given the choices. For example: "This shape has 4 sides and this shape has 3 sides. They are the same size, but they have a different number of sides. They are different shapes. Squares have 4 sides. Triangles have 3 sides. Squares and triangles are different shapes."	Use the student's method of communication to share feedback. Same, different, look, on, it, here	Bring attention to the thinking process more than the correctness of the answer in the beginning. Try to look for connections demonstrating that the student understands the concept.
Make explicit what the students were thinking and doingExplain how the student's thinking process went, expanding on their description of the process. Model the correct language.For example: "I say you look at the size of the shapes. I saw you look/feel the sides. You found the two shapes that had the same shape. Great job!"	Model using student's form of communication. For example: AAC, Braille, signing. Same, do, look, it, on	
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect		
\_\_\_\_ Attended/response partially correct \_\_\_\_ Attended/response fully correct

MATH ESSENTIAL ELEMENTS LESSON PLAN Classify Same 2-Dimensional Shapes with Same Size and Orientation



## Purposes

The student will be able to analyze shapes and recognize when two dimensional shapes are the same when they are in the same orientation or size.

This is one of 2 lessons.

- The second lesson can be found here:
  - DP: K-5 Classify same 2 dimensional shapes w/different size and/or orientation <u>https://docs.google.com/document/d/1ZG\_iTFnxNHZNVHsE-JTJ2e-BqUCTog6</u> XydmuLJFjplk/edit
- **M.EE.5.G.1-4** Sort two-dimensional figures and identify the attributes (angles, number of sides, corners, color) they have in common.

#### Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative assessment for each student
- Shapes of different sizes (2 big and 2 small of each shape): rectangle, square, circle, triangle, rhombus
- Here is more information about spatial visualization and imagery foundational skills: <u>https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail</u> <u>s/12</u>

(\*Note: This lesson can also be done with a variety of items such as crackers, silverware, writing utensils, articles of clothing, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete shared reading activity, noting the pictures that are exactly the same.	Model using student's form of communication. For example: AAC, Braille, signing.	https://shared.tarheelr eader.org/shared/read /same-same

	Same, different	
<i>Establish a purpose</i> <u>Say</u> : "Today we will find two shapes that are the same size and are in the same position."	Model using student's form of communication. For example: AAC, Braille, signing.	
Teach and model the concept Place 2 identical large squares in the same orientation in front of the student. "These squares are the same. They are the same shape and size." Lay them on top of one another to show how they match up. Allow the student to interact with the two shapes to feel how they are the same. Place one of the large squares back on the table and add one small square. While holding up the remaining large square, say "I will find the matching square. I need to find the one that is the same." Hold the shape next to each of the other shapes and compare the size. For example: "This square is bigger than that square. It is not the same. It is different." or "This square is the same size as that square. They can fit right on top of each other. They are the same. This one is the match." Repeat several more times, modeling as above.	Model using Core board or AAC device. Same, look, here, different	This is also an opportunity to work on joint attention and engagement through the use of light, sound, touch, and movement.
THINK AND DO		
Students think about what to do:Place two different shapes in front of the student. Allow the student to interact with the shapes. Talk about the attributes of the shapes.Hold up another shape that matches the size and orientation of one of the two shapes.Say: "Show me which shape is the same."	Model using student's form of communication. For example: AAC, Braille, signing. <i>What, same</i>	Provide ample wait time based on knowledge of the student's processing needs.
<ul><li>Solve the problem</li></ul>	Model using student's form of	Adults are not to provide any coaching

<ul> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>	communication. For example: AAC, Braille, signing.	at this point. Prompting and repeating of directions as needed.
Student should indicate the matching shape (same size, same orientation)		Adults should observe the student's responses and make notes (refer to FA below). Students with physical limitations may use
		eye gaze, a pushing stick, and/or verbal/AAC to direct an adult.
		If there is no response from the student, this is an opportunity to work on joint attention and engagement through the use of light, sound touch, and movement.
APPLY		
Students describe what was done.Ask: "How did you decide?"Student should tell how they decided (thinking process) on their answer.They may respond with: "I look." "It on."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why, you, it</i>	Adults are not to provide any coaching at this point. Adults should observe the student's responses and make notes (refer to FA below). Only direction prompts may be
<i>Get feedback</i> Provide feedback.	Use the student's method of communication to	Bring attention to the thinking process more than the correctness

If the student is correct then acknowledge the answer and move on to the next step. For example: <b>"Yes. It matches the size and</b> <b>orientation. Great job!"</b> If the student is incorrect, lay the shapes on top of each other and note how they don't match. Allow the student to feel the differences. Repeat the above teaching script.	share feedback. <i>Same, it, look</i>	of the answer in the beginning. Try to look for connections demonstrating that the student understands the concept.
Make explicit what the students were thinking and doingExplain how the student's thinking process went, expanding on their description of the process. Model the correct language.For example: "I saw you look and feel the shapes. You chose the one that was the same size. It fit exactly on the other one. It is also in the same orientation. Great job finding the match!"	Model using student's form of communication. For example: AAC, Braille, signing. <i>Same, look, it, on</i>	
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Contrast Objects/Sets



#### Purposes

Students will be able to create a set and then create a second set that has the same amount. The student will then be able to change one of the sets to make it different from the other set.

• M.EE.3.OA.9 Identify arithmetic patterns.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- Writing materials pencils, pens, markers, crayons, colored pencils, whiteboard markers, writing technologies (alphabet flip charts, paint/draw program, Clicker, etc.), drawing paper, notebook paper, whiteboards, etc. (*Get creative! This is a chance to have the students try different methods for mark making. Experiment!*)
- List of materials to make different sets during instruction can be found here:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson counting cubes (enough for all students to make multiple sets of at least 5 in each set, plus some with which to model)
- Number strip: 0-10 (regular number line, number cards, ruler, etc.)
- Writing materials to practice mark making

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge	Model using student's form of	For students who have physical limitations,
<u>Musical writing utensils:</u> Provide a variety of writing utensils and paper to do mark making practice.	example: AAC, Braille, signing.	gaze, peer assisted scanning, or verbal/AAC to direct
Have a song cued up on the computer (based on what the students seem to enjoy). Play the music.	Same, different	an adult to select the materials. This is also an opportunity for a student to experiment
Encourage students to use one particular		with different technologies for

<ul> <li>utensil/writing material (ie pencil or marker) until the music stops. Then they are to select another option to write with/on. Begin the music again. Allow them to practice mark making until the music stops. Then allow them to select a different utensil/material to use while the music plays.</li> <li><u>Ask questions:</u> <ul> <li>"Which one did you like to use most?"</li> <li>"What do you notice about your marks?"</li> <li>"What are some differences you see?"</li> </ul> </li> <li>You may also comment on things you noticed. For example: "I noticed Johnny made bigger marks with the crayon than when he used the marker."</li> </ul>		writing, such as IPad coloring applications, <b>Creatability</b> (https://experiments.w ithgoogle.com/collecti on/creatability), finger crayons, etc. The focus here is to have them make marks then change the utensil. Draw their attention to the changes. This idea/skill will be carried through this lesson.
<i>Establish a purpose</i> "Today we will change one set to be different from another set."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, different</i>	
Teach and model the concept "Remember how you changed what you wrote with every time the music changed? You made different marks when you changed from a pencil to a marker. We can also change sets or groups of things to make them different." Make a set of 5 cubes. Count them out loud, encouraging the students to count with you (either out loud or in their heads.). "1-2-3-4-5" Make another set of 5 cubes. Count them out loud, encouraging them to count with you again (either out loud or in their head.). "1-2-3-4-5. I have two sets that are the same. I can make the second one different. Watch." Remove 2 cubes. Count them as you remove them, encouraging the students to count as described. "1-2. I took away two cubes from this set. Now the two sets are different.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Different, look</b>	While the lesson states to have the students find the number on the number strip, this is an opportunity to have them practice their mark making and try writing the numbers. The expectation is to make a mark, not necessarily have the mark look exactly like the numeral. Students with eye gaze technology can practice using their number page.

Let's see how they are different." Count the first set again as above and label the set with a number 5. Model writing the numeral. Encourage the students to find it on their number strip. "Let's count the second set. 1-2-3. It is now different from the first set. We took some away. It now has less. It has only 3 cubes." Model writing the 3 and labeling the set. Encourage the students to find the number 3 on their number strip. Repeat this process at least 2 more times with different set sizes. Make sure you show that they can add to the second set as well.		
THINK AND DO	_	
<ul> <li>Students think about what to do:</li> <li>Provide the students with the cubes.</li> <li>Say: "Make a set with your cubes." (Allow the students to decide how many.) "Count how many are in your set "Label it with a number."</li> <li>Say: "Make another set that is the same as the first one."</li> <li>Say: "Now change your second set so it is different."</li> <li>Say: "Count the second setLabel it with a number."</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. Look, same, different, more, not, some	
Students do:		Allow wait time for
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or
label.		to work on joint attention (see below).
Give wait time between each question as needed for the student.		Students with physical limitations may use eye gaze, pushing sticks, and/or

		verbal/AAC to direct an adult to assist. Peer assisted scanning or writing the numbers may be used when labeling.
APPLY		
Students describe what was done.Ask: "How was your second set different?""How do you know?"We are looking for the actions they went through to get the answer. Example: "I looked at it." or "It felt different."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, different</i>	Allow wait time based on your knowledge of the student's needs.
Get feedback Compare the student's comments to the items. In this case count the sets with the student. Model finding the correct number if there was a mistake. If the student was correct, acknowledge it and move on to the next step. For example: "Great job counting and changing your sets!"	Model using student's form of communication. For example: AAC, Braille, signing. Look, different, do, here, it	
Make explicit what the students were thinking and doing         Describe what you saw the student do.         Example: "I saw you make a set of You pointed to each cube as you counted. Then you put some more cubes in the second set to make it different. It now has more. Great thinking!"         Formative Assessment (ontion)	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, see, more, put,look,</i> <i>different, do, here, it</i>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Pormative Assessment (option)     Did not attend/no response     Attended/no response     Attended/response incorrect     Attended/response partially correct     Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Make Direct Comparison of Two Lengths



#### Purposes

Students will be able to directly compare lengths of two objects by matching one item against another (e.g., placing them side by side). Students should already be familiar with the attributes of long and short.

Lesson routines to directly teach this understanding can be found here:

- IP: K-5 Attribute Introduction Lesson Routine <u>https://docs.google.com/document/d/1\_crmZ7rkmBMjD4kTj384\_g3fBFAmShdOtFFt4</u> <u>65QQP8/edit</u>
- **M.EE.3.MD.4** Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items that can be used during instruction can be found here:
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this lesson: Pencils of various lengths, string or ribbon (cut into various lengths)
- Compare/longer/shorter vocabulary card: <u>https://docs.google.com/document/d/1feX\_KQm4Ba3s4JvBt-jNjXfh5jgE6cNTr9L4990</u> <u>QPWQ/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide opportunities for matching activities such as puzzles that require shapes be put in specific places, placing attribute blocks on matching attribute blocks, lining up pencils next to each other.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, here, same,</b> <b>different</b>	These activities can be done with other adults in the room and as transition activities. Fine motor and visual motor skills will be practiced as well. Reviews on basic attributes can be done at the same time.

<i>Establish a purpose</i> "Today we will compare the lengths of different items."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, same, different</i>	
<ul> <li><i>Teach and model the concept</i></li> <li>Present the materials for the students to interact with for a few minutes. Encourage them to practice lining up the items next to each other.</li> <li>Model how to line them up and compare.</li> <li><i>"Here are two pencils. I want to compare their lengths. I want to see if one is longer than the other. First I lay them next to each other. I make sure that their ends are lined up."</i></li> <li><i>"Next I see if they look the same or different. If they start and end at the same places, then they are the same length. If one keeps going past the other, then that one is longer."</i></li> <li>Model several different pairings of pencils and/or strings that show same length and different lengths. Refer to the vocabulary cards as you tell which one is shorter or longer.</li> <li>For example: <i>"Here are two pencils. When I line up the ends, I see that one stops before the other one. The one that stops is shorter."</i></li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>Here, look, same, different, put</i>	Due to poor fine motor skills, students may struggle more with placing the items than with the actual comparison. Feel free to spend more time on this part as it will allow for development of fine motor and visual motor skills that apply to many daily living skills. You might provide a visual such as a line or the edge of a small whiteboard to assist the students in lining up the ends of the items. This can be faded to a line and then nothing.
THINK AND DO		
Students think about what to do: Provide the student with 2 items such as two pencils (same and different lengths on different repetitions). Say: "Compare the pencils."	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, look	In the early stages, make sure there is a distinct difference in sizes or the items are exactly the same length. As the student becomes proficient

Some follow up questions could include: <b>"Are</b> they the same or different? Is one longer? Is one shorter? Which one?"		provide items with smaller differences.
Students do:		Allow wait time for
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		your knowledge of the student's needs. There should be no adult coaching at this time_other than
The student should arrange the two items so they sit right next to each other with at least		prompts to respond or to work on joint attention.
should be able to state if the items are the same length or different lengths. Depending on knowledge of attributes at this time, they should also be able to tell which one is shorter/longer.		The student may use eye gaze and/or verbal/AAC to direct an adult.
		Use this time to observe and record notes about the student's responses.
APPLY		
Students describe what was done.	Model using student's	Allow wait time based
<u>Ask:</u> "How do you know?"	communication. For	the student's needs.
We are looking for the actions they went through to get the answer. Example: "More."	example: AAC, Braille, signing.	
Not more. Same. It here.	Why	
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: <b>"Yes.</b> <b>They are different. This one is shorter."</b>	Model using student's form of communication. For example: AAC, Braille, signing.	
	Different, same, more, not more	

Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You lined up the pencils next to each other. You looked at them. You saw one had more. Great job comparing!"	Model using student's form of communication. For example: AAC, Braille, signing.	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Make Direct Comparison of Two Masses



#### Purposes

Students will be able to compare two items of similar size, but different masses (feeling of heaviness) and determine which is heavier and which is lighter. Students should already be familiar with the attributes of heavy and light.

Lesson routines to directly teach this understanding can be found here:

- IP: K-5 Attribute Introduction Lesson Routine <u>https://docs.google.com/document/d/1\_crmZ7rkmBMjD4kTj384\_g3fBFAmShdOtFFt4</u> <u>65QQP8/edit</u>
- M.EE.4.MD.2.b Measure mass or volume using standard tools

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items that can be used during instruction can be found here:
  - Educator Resource Page IE | DLM <u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>
- Heavy/Light vocabulary card: <u>https://docs.google.com/document/d/1pag\_b60r2paPzDFFDBcaNI8CuJY8OLUBycG0I</u> <u>ijl318/edit</u>
- Objects of various weights: books (light and heavy), piece of cloth, small hand weights, pieces of fruit, etc.
- *Optional:* balance scale (At this level, it is important for this experience to be as concrete as possible. Encourage the students to feel the different weights, but for some students the scale may be more appropriate.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide opportunities to pick up many different things (1 at a time) of differing weights. Ask the students to describe how it feels. Encourage the use of heavy/light vocabulary.	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	Take a walk around the classroom and/or school to find different things to pick up and experience.

Cotton balls, real weights, balls, books, pieces of paper, etc.		
<i>Establish a purpose</i> "Today we will compare the masses/weights of two different items. We will decide if they weigh the same or different. We will see which one is lighter and which one is heavier."	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, more, not	
Teach and model the conceptPresent the materials for the students to interact with for a few minutes. Encourage them to practice picking up the items safely. If they can hold one in each hand, that is ideal.Select two items that have distinctly different weights. Model how to hold two items to feel how they weigh.Say: "Here are two items. I hold one in each hand and feel which arm gets tired first or gets pulled down more easily. That item is the heaviest. I feel like I could hold this other item longer. It is lighter." Place the items on the table and label them with the correct card. Assist each student with comparing the same items. Repeat the script above from the perspective of the student.Select two items on the table and label them with the correct card.Assist each student with comparing the same items. Repeat the script above from the perspective of the student.Place the items on the table and label them with the correct card.Assist each student with comparing the same items. Repeat the script above from the perspective of the student.Place the items on the table and label them with the correct card.Assist each student with comparing the same items. Repeat the script above from the perspective of the student.	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, more, not, put, here, up, in	For students with physical limitations who may not be able to use their hands safely, consider using cloth or plastic bags to hold the item. The bags can then be held easier on their hands or arms. Safety is important here. Adults may need to 'spot' for the student. Selection of items can be adjusted based on the physical limitations. Consult the OT/PT for options. Students may also hold one at a time. This is appropriate for students who can hold that muscle memory for a period of time. They may need multiple opportunities to hold each item to fully/accurately compare. Note that students who have a side with a known weakness may

		have difficulty with this. Other options could include hand-under-hand with an adult who provides the appropriate "feeling" or moving straight to teaching the use of a balance scale.
THINK AND DO		
Students think about what to do:         Place two items in front of the student.         Say: "Compare the masses/weights of these two items."         Some follow up questions could include:         "Which one is heavier? Which one is lighter?"	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, you, do	Consider the student's physical abilities. See suggestions above based on needs.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should pick up both items, preferably both at the same time. (Accommodate as necessary - see notes) The student should indicate if the items are the same weight or different weights. If possible, the student should indicate which is heaviest and/or which is lightest.		Anow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention. The vocabulary cards can be used for labeling. Verbal/AAC may also be used to direct an adult. See notes above for accommodations options for students with physical limitations.
		Use this time to observe and record

		notes about the student's responses.
APPLY		
Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "It more." "It not more." "Put." "Same." "Different."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i>	Allow wait time based on your knowledge of the student's needs.
Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Great job comparing! Yes this one is heavier." If the student was incorrect, re-teach/model following the script above.	Model using student's form of communication. For example: AAC, Braille, signing. <i>It, same, different,</i> <i>more, not</i>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You held each item. You found the one that made your arm tired faster. That one was heaviest."	Model using student's form of communication. For example: AAC, Braille, signing. <i>It, same, different,</i> <i>more, not, you, up</i>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Make Direct Comparison of Two Volumes



## Purposes

Students will be able to compare two items of different volumes, and determine which is more and which is less.

• M.EE.4.MD.2.b Measure mass or volume using standard tools

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this lesson: At least 4 different containers of varying or similar volumes (2 should be similar and the other two can be different), substance with which to fill such as rice or beans (**\*Note:** This lesson can also be done with boxes and unit cubes.)
- More/less/same vocabulary cards: <u>https://docs.google.com/document/d/1f2irH4fkjKLmtz6UmpxPWT2q7h0SxIRNPU2R</u> <u>yb7ipuE/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge	Model using student's form of communication. For	Use this as an opportunity to talk about attributes
Provide opportunities for filling and pouring using different substances and different sizes/types of containers.	example: AAC, Braille, signing.	related to the items and substances. If they have already
Sand/water tables, measuring cups/spoons, bowls, scoops, water, rice, beans, flour, etc.	In, more, not, here, look, same, different	completed the lesson on comparing weights, include that
Review full and not full.		terminology during discussions.
<i>Establish a purpose</i> "Today we will be comparing the volume of two different containers. We will determine	Model using student's form of communication. For example: AAC, Braille,	

if they are the same or different. We will decide if one has more or less volume than	signing.	
the other."	More, not, in,, put, same, different	
Teach and model the conceptPlace the materials in front of the students and allow them to interact with the containers and substance. Practice filling and pouring.Select two containers that have the same volume. Say: "Volume is how much a 	Model using student's form of communication. For example: AAC, Braille, signing. <i>Put, in, here, up,</i> <i>same, different</i>	Filling and pouring are important fine motor skills that need to be developed to build independence. If the students have weaknesses in this area, be sure to spend plenty of time allowing them to practice filling and pouring independently. You may add prompts for the students to estimate which container has more and which has less volume.
<ul> <li>Model pouring the substance from one container to the other. "These two containers have the same or similar volumes. The substance went up to the same spot on both containers." Label them with the card that says 'same'.</li> <li>Select two containers that are different volumes. Say: "Volume is how much a container can hold. We find the total volume by filling the container to the top."</li> <li>Demonstrate filling the larger of them. "Sometimes we can compare volume by looking at both containers. If they are the</li> </ul>		
same size and shape, they are probably the same volume. Sometimes, the containers look different and it is hard to tell. One way we can compare is to fill one container then pour the substance into the other container.		

If the substance goes up to the same spot, they have the same volume."		
Model pouring the substance from one container to the other. "When I try to fill the second container, some of my substance spills over. There is too much in the first container. It can't all fit in the second container. The first container has more volume. The second container has less volume." Label the containers with 'more' and 'less' accordingly.		
Model 2-3 more times.		
THINK AND DO		
Students think about what to do:Present the student with 2 containers and the substance with which to fill them.Say: "Compare the volumes."Follow up questions could include: "Which one has more volume? Which one has less volume?"	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, you, do</i>	If necessary, use hand-under-hand to assist with pouring. The student may use eye-gaze and/or verbal/AAC to direct an adult.
Students do:		Allow wait time for
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should fill one container and then use that amount of substance to fill the other container.		your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention.
The student should use that information to answer the questions and indicate relative volumes.		If necessary, use hand-under-hand to assist with pouring. The student may use eye-gaze and/or verbal/AAC to direct an adult.

		Use this time to observe and record notes about the student's responses.
APPLY		
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Example: "I put in."It go not in."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i>	Allow wait time based on your knowledge of the student's needs.
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: " <b>Yes</b> , <b>that container has more volume than this</b> <b>container. Great job comparing!</b> "	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, in</i>	
Make explicit what the students were thinking and doingDescribe what you saw the student do.Example: "You filled the first container. That amount did not fill the second container. You are right the second one can hold more. It has more volume than the first. Great job comparing!"	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, in</i>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)         Did not attend/no response         Attended/no response         Attended/response incorrect         Attended/response partially correct         Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Order Objects



## Purposes

Students will begin to group two items in the same set based on their attributes (e.g., two tigers, bumpy ball and bumpy gravel, red spoons). Students may create a set and then create a second set that has the same amount. Then, they can change one of the sets to make it different. As the students group two or more items, the educator will demonstrate the representation in a bar or picture graph and encourage students to actively participate in the creation of the graph.

- M.EE.3.OA.9 Identify arithmetic patterns.
- **M.EE.3.MD.3** Use picture or bar graph data to answer questions about data.
- **M.EE.5.MD.2** Represent and interpret data on a picture, line plot, or bar graph.

## Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items that can be used during instruction:
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Bag of Lifesavers and M & M's (mixed together)
- Graph paper for making a bar graph, markers/colored pencils
  - Other options:

https://nces.ed.gov/nceskids/graphing/classic/bar\_pie\_data.asp?ChartType=b ar

• Bar Graphs Printable Worksheets

https://www.education.com/worksheets/bar-graphs/

• Number line/chart for student to indicate quantity and/or support counting

(**\*Note:** This lesson should be repeated with a variety of items. Possibilities include - rocks or animal pictures (science), toy cars of different types, books, writing implements, foods, cooking utensils, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
<ul> <li>Activate prior knowledge or build new knowledge</li> <li>Provide an assortment of random items such as writing utensils, cooking utensils, books, toys, snacks, et.</li> <li>Ask the students to describe each item using at least two different attributes.</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, more not, on, here, in	If students need a review please refer to this lesson: <b>IP: K-5</b> <b>Attribute</b> <b>Introduction Lesson</b> <b>Routine</b> (https://docs.google.co m/document/d/1 crm Z7rkmBMjD4kTj384_g 3fBFAmShdOtFFt465Q QP8/edit)
<i>Establish a purpose</i> "Today we will be organizing things according to their attributes."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Put, in, same,</i> <i>different</i>	
<ul> <li>Teach and model the concept</li> <li>Pour the candies into a bowl.</li> <li><u>Ask:</u> "What do you notice?" (This step is meant to engage the students without having them directly touch the candies.)</li> <li>Engage in a brief discussion about what they see in the bowl. "Is there just one kind of candy or more than one kind of candy?"</li> <li>Scoop out a small handful of candies. Model through a think aloud making at least two different sets.</li> <li>For example: "I see several different colors here. I also see two different shapes of candies. First I am going to sort them by shape. Watch. There are some small solid candies. I will put them in one pile. There are some larger candies that have holes in</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>Put, here, more, not,</i> <i>some, all, in, same,</i> <i>different</i>	If there are nutritional concerns or using candies could cause challenging behaviors, consider using non-food items such as a mix of crayons from several boxes. If you have a student with a vision impairment and the candies are too similar in shape for the student to discriminate between, use items that have a different shape to them such as a mix of connecting cubes and counting tiles.

them. I will put them in a separate pile. I can make a bar graph to organize and keep track of the attributes of my candies. I need to label my graph with those attributes. So far I have small, solid candies (Model writing that label.) and larger candies that have a hole. (Model writing that label.) Now I need to count each group Count with me. (Count the small candies out loud.) I will color in that many boxes on my graph to show how many small candies I have. Now I will count the larger candies out loud.) I will color in that many boxes on my graph to show how many small candies out loud.) I will color in that

"I can sort my candies a different way. I notice there are different colors. I can put them in sets by color. (Model sorting them into sets by color.) Now I can count each set and put that information on my graph. Let's count the reds first. Count with me. (Model counting out loud.) I need to make another bar for the red candies. Watch me label it. Now I can color in the boxes to show how many red candies I have."

Continue modeling as above with the remaining colors.

When the graph is complete, do a think aloud modeling what you notice about the graph. (At this point, the students are not expected to describe the graphs. This is for modeling and exposure purposes only.) For example, you may notice that the bars showing the different shapes are larger than the bars showing the colors. Or that there are more red candies than brown candies.

# THINK AND DOStudents think about what to do:<br/>Provide the student with a small amount of<br/>mixed candies.Model using student's<br/>form of<br/>communication. For<br/>example: AAC, Braille,<br/>signing.If the student has<br/>some counting skills at<br/>this point, allow them<br/>to count as high as<br/>they can. Otherwise

Say: "Sort the candies into at least two sets." After the student sorts, model making a bar graph for showing the student's results. Encourage the student to count with you. Say: "Sort the candies again, but make different groups."	You, put, different, same, here	encourage them to count in their head.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or
The student should make at least two sets of candies based on an attribute of their choosing. After modeling the creation of the first part of the bar graph, and the request to resort, the student should again make at least two sets of candies based on a different attribute of their choosing.		If it is not apparent how the student sorted the candies, ask them to describe/indicate in some way how the candies in each group are similar. Sometimes students notice things that we don't.
APPLY		
Students describe what was done. Ask: "What did you do?" We are looking for the actions they went through to get the answer. Example: "I put same. I put different."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, do, why</b>	Allow wait time based on your knowledge of the student's needs.
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: <b>"You</b> organized your candies into sets. Great job!"	Model using student's form of communication. For example: AAC, Braille, signing.	

	You, make, put	
Make explicit what the students were thinking and doingDescribe what you saw the student do.Example: "You sorted by size and then you sorted by color. Those are two different attributes. By noticing those differences, you organized your candies. Great job!"	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, make, put</b>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize Measurable Attributes



## Purposes

Students will be able to recognize the different attributes of coins (e.g., size, color).

Students will be able to recognize attributes such as the beginning and ending of an activity; things that are accomplished first then next; and specific time concepts such as day, night, today, tomorrow, and yesterday. *Students will work on sorting materials based on a given rule (e.g., attribute) and with the educator's support, they will begin to create and communicate their own rules for sorting the materials.* 

- **M.EE.3.MD.1** Tell time to the hour on a digital clock.
- **M.EE.4.MD.2.a** Tell time using a digital clock. Tell time to the nearest hour using an analog clock.
- **M.EE.4.MD.2.d** Identify coins (penny, nickel, dime, quarter) and their values.
- **M.EE.5.MD.1.a** Tell time using an analog or digital clock to the half or quarter hour.
- **M.EE.5.MD.1.b** Use standard units to measure weight and length of objects.

#### Materials

- Copy of a Core Vocabulary board for each student
- Copy of the Formative Assessment for each student
- List of materials that can be used during instruction:
  - Educator Resource Page IE | DLM

https://dynamiclearningmaps.org/erp\_ie/iowa-math

- Select multiple items that show that concept: selection of various coins; multiple pictures of morning, day, and night; several items that represent snack time; etc. (Use the items your students are familiar with at school and at home.)
- When? In the Morning https://tarheelreader.org/2019/12/30/when-in-the-morning/
- <u>https://tarheelreader.org/2016/02/11/school-days-6/</u>
- Day and Night https://tarheelreader.org/2015/03/05/day-and-night-6/
- https://tarheelreader.org/2009/10/01/the-calendar/
- https://tarheelreader.org/2009/11/05/money-9/
- https://tarheelreader.org/2009/10/21/money-6/

(\***Note:** While this lesson encompasses different concepts, the underlying lesson is the same.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete as shared reading activity with one of the books listed above based on which concept you wish to teach.	Model using student's form of communication. For example: AAC, Braille, signing.	See above for possible Tar Heel readers to use during the shared reading activity.
<i>Establish a purpose</i> "Today we will learn how to recognize"	Model using student's form of communication. For example: AAC, Braille, signing.	Insert which concept you will focus on. For example: different types of coins, day, morning, night, or a specific activity like snack time.
<b>Teach and model the concept</b> Present the students with concrete items related to the concept. For example the coins you will be teaching or the items that are laid out for snack time. Proceed to describe the concept. <b>"This isWe can look for attributes that tell us it is"</b> Describe a second related item. For example if you just discussed morning, then you could discuss the attributes of night. Model recognizing the correct concept. For example: Lay out a penny and a dime. <u>Say:</u> "Hmmm which one is the penny? Well I know pennies are copper in color and they have smooth sides. That one is silver and has a rough edge. That can't be the penny. This copper one with the smooth sides is the penny." Repeat as necessary.	Model using student's form of communication. For example: AAC, Braille, signing. <i>It, same, different, on, here, some, all</i>	When describing the concept remember to use all of the senses to give students with vision and hearing impairments an opportunity to recognize the attribute.

THINK AND DO		
Students think about what to do:         Place two different related representations of a concept (e.g., picture of day, picture of night)         Say: "Show me"	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, get</b>	If the student has a vision or hearing impairment, include a sensory opportunity so the student may recognize it. For example, if you are doing morning vs. night you might provide sounds or a list of activities that occur at those times rather than a photo.
Students do: • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should indicate the appropriate item/concept/time.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention. Use this time to observe the student and record their responses. Peer assisted scanning, eye gaze and/or verbal/AAC to direct an adult may be used by the student to indicate their choice.
APPLY		
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Their answers	Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.

should relate to the concept being practiced. Example: Identifying snack time could sound like, <i>"It put here. Some. Open."</i>	Why	
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: <b>"Yes</b> , <b>that is snack time."</b>	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You looked for the clues or the attributes. You saw the napkin and the box of crackers. We see those at snack time."	Model using student's form of communication. For example: AAC, Braille, signing. You, make, get, in , here, same, different, some, all, put	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize Money



#### Purposes

Students will be able to distinguish between coins and other objects and begin to state the names and values of coins.

• **M.EE.5.MD.1.c** Indicate relative value of collections of coins.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of materials that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Real coins (pennies, nickels, dimes, quarters), collection of other objects (e.g., counting cubes, fake coins, paper clips, cotton balls, crayons, etc.)
- Yes/No Chart <u>https://docs.google.com/document/d/1x7qIRbMwU7zIGliIOU3PShuQKWsaZFH\_q-W1</u> <u>2MzgliU/edit</u>
- Coin pictures <u>https://docs.google.com/document/d/1X4P5ZgIMsZ7o6KwaNLvaCQdq\_HtOe3T\_Cwi</u> <u>G3r2BTDI/edit</u>
- S is for Shopping https://tarheelreader.org/2015/04/27/s-is-for-shopping/

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Shared reading activity: <u>S is for Shopping</u> Comments should be about their favorite stores, what they like to buy, etc.	Model using student's form of communication. For example: AAC, Braille, signing. You, like, want, get, more, some, all	Students should be provided regular experiences with handling money. The school store, community outings, and cafeteria lines all provide opportunities for students to hold money and experience giving the money to

		someone in exchange for an item they want.
<i>Establish a purpose</i> "Today we will learn to tell coins from other objects."	Model using student's form of communication. For example: AAC, Braille, signing. Not, some, same, different	
<b>Teach and model the concept</b> Place the collection of items in front of the students (real coins, fake coins, and other random items). Allow them to interact with the items. Talk about the different attributes of each of the items in relation to size, color, texture, sound, etc.Separate the real coins from the rest of the items.Point to the collection of coins. Say: "This is money. When we want to buy something like a toy car or a candy bar, we need to use money. Money has value that can buy us things we need and want."Hold up a penny. 'This is called a penny. It is copper-colored and has a smooth edge. It has a value of one cent." Allow the students to touch and investigate the penny. While they are doing so, repeat "This is a penny." approximately every 10 seconds.Repeat this process with each coin. Mix the real coins with the other random objects (Do not include the fake coins at this point. See notes.)Model sorting the items onto the Yes/No chart. Coins will be placed on the 'yes' side and the remaining objects will be placed on the 'no' side. You may also model (think aloud) using	Model using student's form of communication. For example: AAC, Braille, signing. <i>It, same, different,</i> <i>some, all, here, on, it</i>	At this point it is not necessary for the students to commit to memory the name and value of each coin. The goal is for them to recognize real money within a collection of items. It is important, however, to begin familiarizing them with the names and values as that is the next step. Once the students can select the real coins from a set of objects that does not include the fake coins, you may then add the fake coins into the mix. This may require some additional instruction. Note the weight difference and the differences between plastic and metal, such as the luster (shininess) and texture.

the <u>Coin pictures</u> as a reference during your sorting.		
THINK AND DO		
Students think about what to do: Present the students with a collection of real coins and other objects (no fake coins in the beginning stages). Also provide them with the Yes/No Chart and Coin pictures. The use of the coin pictures should be faded as the student gains proficiency in sorting. Say: "Put the coins in the 'Yes' column and put the other items in the 'No' column."	Model using student's form of communication. For example: AAC, Braille, signing. <b>you, put, in, here, not</b>	Once the students can select the real coins from a set of objects that does not include the fake coins, you may then add the fake coins into the mix. This may require some additional instruction. Note the weight difference and the differences between plastic and metal, such as the luster (shininess) and texture.
Solve the problem • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The students should sort the items correctly.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work. Students may use eye gaze and/or verbal/AAC to direct an adult. Students may also use a pushing stick if they have physical limitations.
APPLY		
Students describe what was done. <u>Ask:</u> "How do you know?"	Model using student's form of communication. For	Allow wait time based on your knowledge of the student's needs.

We are looking for the actions they went through to get the answer. Example: <b>"I look." "I</b> want."	example: AAC, Braille, signing. <b>Why</b>	
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: "Yes, these are all coins. We can use them to buy things. Those are not coins. We can't use them to buy things."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Not, get, all</b>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You looked for the round shiny objects that matched the pictures. You knew you could use them to buy things. These are all coins."	Model using student's form of communication. For example: AAC, Braille, signing. Look, get, here, not, some, all, put	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct	·	<u>.</u>

MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize Patterns



#### Purposes

The student will be able to recognize patterns in words, symbols, numbers, images, routines, and the environment, and then create their own patterns.

- M.EE.4.OA.5 Use repeating patterns to make predictions.
- M.EE.5.OA.3 Identify and extend numerical patterns.

#### **Materials:**

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items that can be used during instruction:
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson:
  - Multi colored square counting tiles: <u>https://www.eaieducation.com/Product/503472/Color\_Tiles\_Plastic - Set\_of\_</u> <u>40.aspx?&gclid=EAIaIQobChMI7JqHjOWY6wIVhOF3Ch1TUQeAEAQYAyABEgKY</u> <u>uPD\_BwE&&gclid=EAIaIQobChMI7JqHjOWY6wIVhOF3Ch1TUQeAEAQYAyABEg</u> <u>KYuPD\_BwE</u>
  - Or pattern blocks
    - Concrete

https://www.amazon.com/Learning-Resources-Plastic-Pattern-Blocks/ dp/B00004WKPP/ref=asc\_df\_B00004WKPP/?tag=hyprod-20&linkCode= df0&hvadid=167150204809&hvpos=&hvnetw=g&hvrand=9825536423 65825116&hvpone=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvloci nt=&hvlocphy=9017921&hvtargid=pla-308215898282&psc=1

- Or virtual
   Pattern Shapes by the Math Learning Center
   https://apps.mathlearningcenter.org/pattern-shapes/
- The Patterns Practice Song | Math Songs | Scratch Garden (https://www.youtube.com/watch?v=MBjjxSx45-Q)
- Jack Hartmann "Pump Up the Pattern" video https://www.youtube.com/watch?v=hoFhVdYsmPg
- <u>https://tarheelreader.org/2009/10/21/patterns-of-natural-events/</u>
- Yes/No Response Card <u>https://docs.google.com/document/d/11JdXsPRBXRtBoRNkjxA3aM7U-bkJab0gzUFe-c</u> <u>rATHw/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
<ul> <li>Activate prior knowledge or build new knowledge</li> <li>Select one of the videos to view or the Tar Heel reader book from above.</li> <li>Complete a shared reading activity with the book. Comments should be about how the events happen repeatedly and in the same order. Elicit which times of day or seasons the student's like most. Talk about the activities that can be done during those times.</li> <li>Watch the video and have the students participate in the actions or filling in the missing item to complete the pattern.</li> <li>You may also review a routine that the students know very well, such as hand-washing or morning routine. Ask the students to recite or act out the routine.</li> <li>Have fun!</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. Look, same, different, not	Accommodations for <i>The Patterns Practice</i> <i>Song</i> could include providing students with concrete objects that match those used in the video. The Jack Hartmann video is a great opportunity to get the students moving and feel patterns. Even those who have physical limitations can participate as fully as they can. Collaborate with your OT/PT on specific ways your student can participate.
Establish a purpose "Today we will learn to find patterns." Teach and model the concept	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look</i> Model using student's form of	Once you have taught them what a pattern
students. Allow them to interact with the materials for a few minutes. Talk about the attributes of the materials such as shape and color. Encourage them to sort and arrange them in different ways. When you are ready, gather the tiles or blocks,	communication. For example: AAC, Braille, signing. <i>Make, same, different,</i> <i>some, all, not, put</i>	is, provide multiple opportunities for students to find patterns in the environment. Examples to look for include: carpet or tile
Say: "We learned about some patterns in the \_\_\_\_\_\_ (book we read/video we watched). Patterns are all around us. When we know a pattern or a routine, it makes us feel safe and smart. When we know the pattern, we know what comes next if something is missing. We can also make patterns with blocks, words, symbols, numbers, and pictures. Watch me make a pattern with these blocks."

#### Make a simple AB pattern.

"One kind of pattern I can make is to just alternate two different things. It is called an AB pattern. Square, triangle, square, triangle, square, triangle. I know it is a pattern because I use the same shapes over and over again. I can predict which shape comes next and continue the pattern."

Give the students the same shapes. "Now your turn. You make the same pattern I made."

Next make a row of random shapes. There should be no pattern present.

"This is not a pattern. None of the shapes repeat in an organized or predictable way. I don't know which shape to put next."

Give the students those same shapes. **"Make a** line of shapes like mine. See how they don't repeat? This is not a pattern."

Repeat the modeling 2-3 more times.

patterns, room number patterns, desk/chair arrangements, bulletin board frames, etc. Come up with a signal the students could use to indicate they have found a pattern.

If you have a student with a vision impairment, the concrete pattern blocks will work the best for this lesson.

For the active participation, students may use eye gaze, a pushing stick, or verbal/AAC to direct an adult.

A template showing the pattern may be helpful here as well.

You may provide as much or as little help is needed here. The goal is to get them actively participating and begin to understand the repetitive nature of the pattern through kinesthetic input.

In future lessons, use other materials such as letters, numbers, symbols, food items, toys, etc. Repetition with variety. Use the same script, just replace the

		with another item as listed above. Music is another place patterns occur. Explore this website <b>Creatability</b>
		(https://experiments.w ithgoogle.com/collecti on/creatability) and/or work with your music teacher to collect samples of music that have distinct patterns. The students can hold up the response card to indicate whether or not they hear a pattern. Once they have the AB pattern understood,
THINK AND DO		move on to directly teaching the remaining patterns (AABB, ABC, ABCD, etc.).
Students think about what to do:	Model using student's	
Place two lines of tiles/pattern blocks in front of the student. One should be a clear pattern and one should be a random line of tiles/pattern blocks.	form of communication. For example: AAC, Braille, signing.	
Say: "Show me the pattern."	100 00	
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> </ul>		Allow wait time for processing based on your knowledge of the student's needs.
<ul><li>Put them in order</li><li>Interpret the data, etc.</li><li>Describe/share answer</li></ul>		There should be no adult coaching at this time, other than

The student should indicate the pattern.		prompts to respond or to work. Use this time to make observations and record the student's responses. The student may use eye-gaze or peer-assisted scanning to select their answer. Students who have vision impairments should have the opportunity to explore the pattern. The pieces may need to be secured by glue or velcro to ensure consistency.
APPLY		
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Example: "I look." "Same, not same, same, not same."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i>	Allow wait time based on your knowledge of the student's needs.
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: <b>"Yes,</b> <b>that is a pattern."</b> If the student is not correct, re-teach/model using the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You did it</b>	
Make explicit what the students were thinking and doing Describe what you saw the student do.	Model using student's form of communication. For example: AAC, Braille, signing.	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure

Example: <b>"You looked. You saw that the</b> blocks repeated."	You, look, same, different	and reinforce the thinking process.
Formative Assessment (option)		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

#### DP: K-5

MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize Point



# Purposes

Students will be able to feel where line segments begin and end.

• **M.EE.4.G.1** Recognize parallel lines and intersecting lines.

# Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of materials that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson:
  - Variety of cards that have different lengths/positions of lines with endpoints.
  - Lines with Points
     https://docs.google.com/document/d/1JBDBhXUIfC9IaRQr90vuehG6sQ2pvO-gTE-Xta4UCzc/edit
     You will need to add the end points on some of the images. (For some students, the use of raised dots will be helpful.)
- <u>https://tarheelreader.org/2011/04/07/draw/</u>
- Art materials:paper, markers, crayons, string, glue, etc.

(\*Note: At this level, the students only need to understand that points are at the beginning or ending of a line. They do not need to identify or understand that a line is a series of points.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete a shared reading activity using the provided Tar Heel reader. Comments should be about drawing and lines. Lines start and stop.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Go, finished</b>	https://tarheelreader. org/2011/04/07/draw/ Students who have physical limitations should also be provided opportunities to draw. This mark-making is important in their

Provide the students with art materials and let them draw. Draw their attention to when they start and stop lines. Begin to mention that these are called points.		development of math and literacy concepts. Experiment with different mediums and technologies. Placing tennis balls on markers or using a touch screen in a draw program may allow a student to participate in these activities. Collaborate with your OT/PT to problem-solve.
<i>Establish a purpose</i> "Today we will learn about points on lines."	Model using student's form of communication. For example: AAC, Braille, signing. <i>It, here, go, finished</i>	
<b>Teach and model the concept</b> Use some of the students' drawings to begin defining 'point.' Use your finger to show where the point is. Allow the students to explore and find them on their own drawings. You may use hand-under-hand to help them find the points. <u>Say:</u> "Sally drew this line in purple. She started here. Where she started is called a point. Where she ended is also called a point. Both of them are called endpoints. A point is where we start or finish a line. It is one spot or point." Model finding the point on 2-3 other pictures or the <u>Lines with Points</u> document.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Go, finished, here, it</i>	Provide multiple objects and tactuals, helping the student explore them and guide the student using hand-under-hand to find the points. Students with visual impairments will need bumps added to the ends of raised lines to feel the endpoints and the line. String and googly eyes can provide a fun tactual.

THINK AND DO		
<i>Students think about what to do:</i> Place a line in front of the student. <u>Say:</u> <b>"Show me a point."</b>	Model using student's form of communication. For example: AAC, Braille, signing. <i>Where, go, finished, it</i>	
Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should indicate either endpoint on the line.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work. Use this time to observe and record the student's responses. The student may use peer-assisted scanning or a pointing stick to indicate their answer.
APPLY		
Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "It go. It finished. It here."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i>	Allow wait time based on your knowledge of the student's needs.
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: <b>"Yes</b> , <b>that is a point."</b>	Model using student's form of communication. For example: AAC, Braille, signing.	

	You, did	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You looked. You found where the line started. That is a point. Great job!"	Model using student's form of communication. For example: AAC, Braille, signing.	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

#### DP: K-5

# MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize Structure of a Picture or Bar Graph



# Purposes

Students will actively participate in the creation of picture and bar graphs. Students will be able to identify a picture graph and a bar graph.

• M.EE.4.MD.4.b Interpret data from a picture or bar graph

# Materials

- Copy of Core Vocabulary board for each student
- Copy of formative assessment for each student
- List of materials that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- Bar Graph/Picture Graph or Not? <u>https://docs.google.com/document/d/1mBMWGeR6625LdX2I5aMMoSQu2aQjk24YX</u> <u>TtwhkoHF5E/edit</u>

Collection of various graphs for the students to decide if it is a bar graph or not. As you make various kinds of graphs, it is suggested that you keep them as samples for the future to use during practice activities or progress monitoring.

- Items to sort for the creation of a picture or bar graph. Ex: toys, types of books, snack items students like
- **Survey Questions to get you started** (You may also collect other kinds of data.): <u>https://docs.google.com/document/d/1ERKOZyl\_R3m24haNooP1vxAkBDJwBL\_YaA1</u> <u>gTfQbDo/edit</u>)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide items to sort or a survey question for the students to ask peers and adults.	Model using student's form of communication. For example: AAC, Braille, signing.	
Once the items have been sorted or the surveys have been collected, move on to the next portion of the lesson.	You, do, it, here, like, not	

<i>Establish a purpose</i> "Today we will learn about picture graphs."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, I, make, it</b>	When you work on a bar graph, change the wording.
<b>Teach and model the concept</b> Using the sorted materials or the survey results, model creating a bar graph or a picture graph. Bar graphs are made up of bars showing how many responses or items are in each group. Picture graphs are made up of pictures that represent an amount of each item. Select one of the types to create. For this example we will make a picture graph we first need to decide on the pictures. In this case, we sorted some fruits into 3 different categories. We have apples, bananas, and oranges. We will use a picture of an apple, a picture of a banana, and a picture of an orange on our picture graph. I will label the categories along the side here. (Model writing in the labels.) Now we need to count how many fruits are in each category. Let's start with apples. 1-2-3. 3 apples. I will put 3 pictures of an apple picture represents each apple we counted. Now we need to count the bananas. I-2-3-4. 4 bananas. I will put 4 pictures of a banana across the row that says bananas. Finally, we will count the oranges. Notice the picture graph uses pictures of the items we sorted. It has rows. This is a picture graph."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Here, it, same,</i> <i>different, more, on,</i> <i>look</i>	In future lessons directly teach the other type of graph. Modeling of the creation of different kinds of graphs should be provided on a regular basis to provide context. The students will then practice identifying the different types of graphs. For students with vision impairments, use tactile graphs using tiles, textured fabric, or other items. The structure of the graph (labels and rows/columns should be raised as well).

THINK AND DO		
Students think about what to do: Place at least two, but no more than three graphs in front of the student. At least one should be the target type, for example, picture graph. Say: "Show me the picture graph."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, look, where, it</b>	For students with vision impairments, use tactile graphs using tiles, textured fabric, or other items. The structure of the graph (labels and rows/columns should be raised as well).
Solve the problem Build the model Find the matching shapes Put them in order Interpret the data, etc. Describe/share answer The student should indicate the correct target graph.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work. Use this time to observe and record the student's responses. The student may use peer-assisted scanning, eye gaze, or verbal/AAC to direct an adult.
APPLY		
Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "It go here (indicating across)." "It same. It different."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i>	Allow wait time based on your knowledge of the student's needs.

Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Yes. This is a picture graph." If the student was incorrect, re-teach or model following the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You did it</b>	
Make explicit what the students were thinking and doingDescribe what you saw the student do.Example: "You looked for the pictures. You know picture graphs have pictures and go across. Great job finding the picture graph."	Model using student's form of communication. For example: AAC, Braille, signing. <i>It, go, here, same</i> <i>different, look</i>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct	<u>.</u>	

COMPOSING/DECOMPOSING LESSON PLANS

Composing/ Decomposing **Lesson Plans** 

**EMERGENT SET 1** (K-5 Target EEs)

# **Initial Precursor**

# MATH ESSENTIAL ELEMENTS LESSON PLAN Number or Not?



# Purposes

Students will improve their ability to distinguish between numbers for counting and math activities and letters for reading and writing activities. This is a combined literacy and math lesson.

• **EE.K.CC.1** Starting with one, count to 10 by ones - request more of something, distinguish between letters and numbers

# Materials

• **Prior foundational skill activities can be found here** (you can sign up for a free account):

https://learningtrajectories.org/index.php/learning\_trajectories/get\_details/64

- Core Vocabulary board for each student
- Formative Assessment document for each student
- Variety of letter- and number-shapes (Repetition of this activity using different fonts, colors, and textures is important to generalize this skill.):
  - Number and letter resources: <u>https://docs.google.com/document/d/1iVG\_0A0KtZVrVmcw-wKiwsZyf-WBpp7</u> <u>GYu2IEA-s1Gk/edit</u>
- Basket labeled "NUMBERS" and a basket labeled "LETTERS"
- Hand shape labeled "NUMBERS" and a hand shape labeled "LETTERS"
- Alphabet strip:

https://www.google.com/search?source=univ&tbm=isch&q=free+alphabet+strips+to +print&sa=X&ved=2ahUKEwjV0--4seHqAhXFB80KHcIBAOYQsAR6BAgKEAE&biw=128 0&bih=641

• Number strip:

https://www.google.com/search?q=free+number+strips+to+print&tbm=isch&ved=2a hUKEwiy87S7seHqAhVQ0KwKHc8DC4gQ2-cCegQIABAA&oq=free+number+strips+to +print&gs\_lcp=CgNpbWcQA1DhoQFYzrABYP-1AWgAcAB4AIABTIgBggSSAQE4mAEAo AEBqgELZ3dzLXdpei1pbWfAAQE&sclient=img&ei=oXcYX\_KeI9CgswXPh6zACA&bih=6 41&biw=1280

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge         View video: Is It a Number or a Letter?   Jack Hartmann         https://www.youtube.com/watch?v=nDfTS0bfsk         U	Model using the student's form of communication. <b>You, up, here, look, it</b>	In the video, he asks the kids to stand up or sit down. You may wish to adapt these directions (use a visual as a reminder) based on the physical/verbal actions that your students can do. *It is important to include word work instruction throughout the day to help support this standard and skill during literacy activities.
<i>Establish a purpose</i> <u>Say:</u> "We will practice finding letters and numbers."	Model using the student's form of communication. <i>Look, it</i>	
<ul> <li>Teach and model the concept</li> <li>Say: "We use letters to write and read words. Here are some letters." Show letters of the alphabet and name them.</li> <li>Model writing a student's name, saying the letters as you write them.</li> <li>Allow the students to hold the letter shapes and feel them.</li> <li>Say: "We use numbers to count and solve math problems." Show the digits 0-10.</li> <li>Count a small group of items (perhaps the number of students in the classroom) and write the number while saying it.</li> </ul>	Model using the student's form of communication. <i>Look, it, some, put, in,</i> <i>here, I</i>	This is an opportunity to increase/improve joint attention and/or engagement of students. Play with light, sound, touch, and movement to gain the student's attention during these activities.

Allow the students to hold the number shapes and feel them.		
Say: <b>"Watch as I sort these into a letters</b> <b>group and a numbers group."</b> Sort a collection of letters and numbers into baskets labeled "letters" and "numbers."		
THINK AND DO		
Students think about what to do:	Model using the	
<i>Option 1:</i> Provide the student with a mixed pile of letters and numbers. Ask them to sort into the correct basket.	communication.	
<i>Option 2:</i> Ask the student to go on a hunt with his hands. When he/she finds a letter or a number, the student should use the appropriately labeled hand shape (see materials list) to point to it.	some, all	
Students do:		There should be no
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		point other than to prompt the student to complete the task. You may model with your own set. <u>Say:</u> "I
<i>Option 1:</i> Student sorts letters into the letters basket and numbers into the numbers basket. <i>Option 2:</i> Student finds and correctly labels numbers and letters in the environment.		will put my letters in the letter's basket. You put your letters in the letter's basket too. Watch me."
		If there is no student response, this is an opportunity to increase/improve joint attention and/or engagement of students. Play with light, sound, touch, and movement to gain the student's attention during these activities.

APPLY		
Students describe what was done. Say: "Tell me what you did." Students might say: "I looked." "I put."	Model using the student's form of communication. <i>I, look, put, in</i>	
Get feedback Compare the student's sorting to model letters and numbers. Look for items that match correctly. You may use the strips to compare. Example: "I see you put the letter 'a' in the letters basket. That is correct. This is the letter 'a.' We use it to spell words like your name, Andrew." Example: "I see you put the number '2' in the numbers basket. That is correct. We use numbers to count. There are 2 baskets here."	Model using the student's form of communication. <i>I, look, put, in</i>	If there is no student response, this is an opportunity to increase/improve joint attention and/or engagement of students. Play with light, sound, touch, and movement to gain the student's attention during these activities.
Make explicit what the students were thinking and doingExplain the activity and what they were learning/practicing.Example: "You looked at each one and decided if it was a letter used for reading and writing or a number for counting. 'A', 'T,' and 'M' are letters. '1,' '2,' and '3' are numbers."	Model using the student's form of communication. You, look, put, in, all, some	
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct	1	1

# MATH ESSENTIAL ELEMENTS LESSON PLAN "Combine"



# Purposes

The student will develop further understanding of combining (composing) things into sets. Students will also develop their ability to notice how the size of the sets changes with each combining (composing)action. Please use the vocabulary that matches your goals.

(\*Please note there is a shared reading component and possible science connections through the cooking activities included in this lesson plan.)

- **EE.K.OA.1** Represent addition as "putting together" or subtraction as "taking from" in everyday activities
- **EE.1.OA.1.**a Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), or acting out situations
- **EE.1.OA.2** Use "putting together" to solve problems with two sets
- **EE.1.OA.5.a** Use manipulatives or visual representations to indicate the number that results when adding one more.
- **EE.1.NBT.4** Compose numbers less than or equal to five in more than one way
- **EE.2.OA.4** Use addition to find the total number of objects arranged within equal groups up to a total of 10
- **EE.2.NBT.5.b** Using concrete examples, compose and decompose numbers up to 10 in more than one way
- **EE.2.NBT.6-7** Use objects, representations, and numbers (0-20) to add and subtract.
- **EE.2.MD.5** Increase or decrease length by adding or subtracting
- **EE.2.MD.6** Use a number line to add one more unit of length
- **M.EE.3.OA.8** Solve one-step real world problems using addition or subtraction within 20.
- **M.EE.4.OA.3** Solve one-step real-world problems using addition or subtraction within 100

# Materials

- Core Vocabulary board for each student
- Number strip for each student
  - Number line access resources: <u>https://docs.google.com/document/d/1bZJQ5SHTqPr8cg84oXoz2OP07fIBOZX</u> <u>YLI- j3MDISQ/edit</u>
- Copy of Formative Assessment document for each student
- Ingredients for a recipe
  - Resources can be found here: <u>https://accessiblechef.com/#backtotop</u>
- Items to count

- Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: 5 yellow counting cubes, 5 red counting cubes, 10 2-sided probability counters. (The number of yellow and red will change depending on which side is visible.)
  - Learning Resources Two-Color Counters, Red/Yellow, Educational Counting, Sorting, Patterning, and Probability Activities, Set of 200, Grades K+, Ages 5+ <a href="https://www.amazon.com/Learning-Resources-Color-Counters-Yellow/dp/B0">https://www.amazon.com/Learning-Resources-Color-Counters-Yellow/dp/B0</a>
- <u>017D9BDG</u>
   Sorting mat: <u>https://docs.google.com/document/d/1IDd44XVFjhwukHKCRcKczwT58vN9Asfz4-fob</u> <u>hEdWiE/edit</u>
- Combine/compose vocab card: <u>https://docs.google.com/document/d/19wGXuWxViK5LPEHTO5n\_QO\_lhNFUjOJEoez</u> <u>68sRPP5I/edit</u>
- Chart paper and markers

(Students should have opportunities to sort and combine real life items as well. Items could include, but are not limited to: books, toys such as cars or blocks, snack items, games, articles of clothing, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
<ul> <li>Activate prior knowledge or build new knowledge</li> <li>Begin with a shared reading activity (see notes for an option)</li> <li>Cooking activities lend themselves to understanding "combining."</li> <li>Select a fun recipe to make during class and talk about combining the ingredients.</li> </ul>	Model using student's form of communication. <i>I, you, put, here, in,</i> <i>some, all, more, not</i> <i>more, up, that, in</i>	Shared reading activity: https://shared.tarheelr eader.org/shared/read /easter-rice-bubble-ne sts While cooking, use terms to describe the attributes of each of the items. Include color, texture, smell, quantity, etc. These kinds of activities work well for engaging students and improving joint

		attention. While cooking, use sight, sound (music), movement, and touch to encourage engagement and attention.
Establish a purpose	Model using student's	
Say: "We will be "combining" or "composing" smaller sets or groups of items into bigger	communication.	
things like we took the ingredients we had and made"	Put, more	
Teach and model the concept	Model using student's	
Say: "When we put things together we "combine" them or "compose" them."	communication.	
Place 5 red counting cubes and 5 yellow counting cubes on the table in clearly marked sets. Use the sorting mat listed above as needed.	Put, more, not more, here	
Say: "There are 2 sets of cubes. One set is yellow. 1-2-3-4-5 yellow cubes. One set is red. 1-2-3-4-5 red cubes. I can combine them into one set because they are all cubes. 1-2-3-4-5-6-7-8-9-10 cubes all together. I started with two small sets. Then I combined them. I now have one large set. When I combine sets or groups of things I make a larger set. The set then has more."		
Repeat with at least two more variations of groupings using the cubes and the counters. Model counting and Think Aloud about how the sets changed in size when they were combined.		
THINK AND DO		
<i>Students think about what to do:</i> Place two sets of items in front of the student. For example a set of 3 red counters and a set of 2 yellow counters.	Model using student's form of communication. <b>Put, you, it, here, in</b>	Provide ample wait time based on your knowledge of the student's processing needs.

Ask the student to count the items in each set. Possibly provide assistance by counting out loud while you ask the student to count in their head and demonstrate 1:1 correspondence.

Ask the student to combine (compose) the two sets.

Ask the student which was larger, one of the first sets or the final set.

#### Students do:

- Solve the problem
- Build the model
- Find the matching shapes
- Put them in order
- Interpret the data, etc.
- Describe/share answer

Student should count each set and then combine and count the large set

\*As the student makes the sets, either draw each result or have another identical set of items for comparison during the feedback stage. Students with physical limitations can use eye gaze, a stick to help move items, or use verbal/AAC directions such as *"put here"* or *"put in."* 

It may be helpful to take pictures or draw what the student did to help them compare from their first set to the final combined set. You may have a second set of materials that stays in its original state so the student can more easily make a comparison.

Other than assistance with counting, (the focus is on combining at this point rather than counting skills) or prompts to complete the task, there should be no adult coaching at this time.

Provide ample wait time based on your knowledge of the student's processing needs.

If the student does not engage with the materials, work on joint attention and engagement by using sight, sound, light, touch, and movement to gain the student's

		attention and encourage exploration of the materials.
APPLY		
Students describe what was done. Say: "Tell me what you did." Example: "I counted." "I put together."	Model using student's form of communication. <i>I, put</i>	Provide ample wait time based on your knowledge of the student's processing needs.
Get feedback Using another set identical to the student's set or a drawing, compare the student's result to how it should look. Ask: "Which had more?"	Model using student's form of communication. <i>More, not more, here,</i> <i>it</i>	Ask the student to count in their head as you count.
Make explicit what the students were thinking and doing Expand on their thinking processes. Make it "visible." "You first counted each set (model counting) and then you put them all together because you knew combine (compose) means to put them together. Then you counted all of them. Great job combining!"	Model using student's form of communication. <b>You, put, here, it,</b> <b>some, more</b>	Ask the student to count in their head as you count.
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Partition/Decompose



# **Purposes**

Students will understand the vocabulary term "partition." Depending on your classroom, you may also use the term "decompose." This is a foundational lesson to prepare them for future lessons requiring them to partition sets in different ways. Once they can "partition" or "decompose" a set and demonstrate understanding of the term, they can move on to:

• IP: K-5 Partitioning/Decomposing Lesson Routine <u>https://docs.google.com/document/d/1X0yOWsNOJelqSUIj49Bi0zB\_oDaNv-L1Kemzs</u> <u>sq5MM/edit</u>

#### **Materials**

- Core Vocabulary board for each student
- Copy of Formative Assessment document for each student
- Items that can be easily "partitioned" (ex: puzzle pieces, crackers or other foods that break apart, snap-together cubes, Tangrams, pentominoes, attribute/pattern blocks)
- Partition/Decompose Vocab card: <u>https://docs.google.com/document/d/1HQa37WPj6Y51Pb\_ccge1Bm1hb5\_AFNziMrb</u> <u>a\_uYwxls/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide the students with a selection of items from the list above. Ask them to put the pieces of each item together and then take the pieces apart. You can work on this during snack time by asking a student to take a group of crackers and separate them into piles for each of the other students.	Model using the student's form of communication. <i>I, you, some, here, all</i>	This kind of activity should be done in multiple settings and frequently across the day/week. Talk about taking things apart or putting them together. Talk about sharing equally. This is an excellent opportunity to work on joint attention and engagement. Use light, sound, movement, and touch

		in novel ways to gain the student's attention.
Establish a purpose		
<u>Say:</u> "We will learn the term "partition/decompose" and what to do when I say that word."		
Teach and model the concept	Model describing the	This is an excellent
Show the vocabulary card and say the word " <b>partition"</b> or " <b>decompose.</b> "	action of partitioning using the student's form of	opportunity to work on joint attention and engagement. Use
Using one of the items, for example the puzzle,	communication.	light, sound, movement, and touch
demonstrate how to take it apart.	All, some, here, in put	in novel ways to gain
As you are taking it apart say "partition" or "decompose."		attention.
Example: "The puzzle was put together and now I want to partition (decompose) it into separate pieces. I can put all of the straight edge pieces together in a pile. I can put all of the middle pieces together in a pile. I partitioned (decomposed) the puzzle."		
Model with many different items.		
<u>Say:</u> "When I ask you to partition or decompose something, I want you to take it apart and make groups."		
"Say the word in your head with me - partition (decompose)."		
THINK AND DO		
Students think about what to do:	Model describing the	
Provide the student with an item that can be taken apart.	action of partitioning using the student's form of	
<u>Say:</u> "Partition (decompose) this into groups, please."	communication. <b>Put, here, some, you</b>	

<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		There should be no adult coaching at this time. Feedback will come later.
Students should take it apart.		time based on your knowledge of the student's processing needs.
		not make groups that make sense or even make groups. The idea is for them to understand that when you say "partition" or decompose" they know to take it apart.
APPLY		
Students describe what was done.		Provide ample wait
Example: "I took it apart." or "I broke it."		time.
<ul> <li>Get feedback</li> <li>Model partitioning or decomposing a similar item.</li> <li>Ask the student to compare their result with your result. "Does yours look like mine?"</li> <li>"How is it the same?" "How is it different?"</li> </ul>	Model describing the action of partitioning using the student's form of communication. <i>Look, same, different,</i> <i>it, you, l</i>	If the student did not respond, then use this as an opportunity to work on joint attention/engagement or ask the student to copy you. "Make yours look like mine." or "I will partition (decompose) mine. You do the same to yours."
Make explicit what the students were thinking and doing Example: <b>"You knew that partition</b>	Model describing the action of partitioning using the student's form of	

it apart when I said "partition" (decompose). Great job, partitioning (decomposing)."	You, put, some	
Formative Assessment (option)		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Partitioning/Decomposing



# Purposes

Students will develop their ability to separate a collection of items into two distinct sets based on a given characteristic. Students will also develop their ability to notice how the size of the sets changes with each partitioning action. Students should understand the term **partition**. Here is a lesson that teaches the term:

- IP: K-5 Partition/Decompose Lesson Routine <a href="https://docs.google.com/document/d/1158S2aJ2DvTyunFnxrruOn9Ue-S50pkcVjHw3">https://docs.google.com/document/d/1158S2aJ2DvTyunFnxrruOn9Ue-S50pkcVjHw3</a> <a href="phi44Qw/edit">pN44Qw/edit</a>
- **EE.K.OA.1** Represent addition as "putting together" or subtraction as "taking from" in everyday activities
- **EE.1.OA.1.**a Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), or acting out situations
- **EE.1.OA.5.b** Apply knowledge of "one less" to subtract one from a number
- **EE.1.NBT.6** Decompose numbers less than or equal to five in more than one way
- EE.2.OA.3 Equally distribute even numbers of objects between two groups
- **EE.2.NBT.5.b** Using concrete examples, compose and decompose numbers up to 10 in more than one way
- **EE.2.NBT.6-7** Use objects, representations, and numbers (0-20) to add and subtract.
- **EE.2.MD.5** Increase or decrease length by adding or subtracting
- **M.EE.3.OA.8** Solve one-step real world problems using addition or subtraction within 20.
- **M.EE.4.OA.3** Solve one-step real-world problems using addition or subtraction within 100

# Materials

- Core Vocabulary board for each student
- Number strip for each student
  - Number line access resources: <u>https://docs.google.com/document/d/1bZJQ5SHTqPr8cg84oXoz2OP07fIBOZX</u> <u>YLI- j3MDISQ/edit</u>
- Copy of Formative Assessment document for each student
- Items to count
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: 5 yellow counting cubes, 5 red counting cubes, 10 2-sided probability counters. (The number of yellow and red will change depending on which side is visible.)

 Learning Resources Two-Color Counters, Red/Yellow, Educational Counting, Sorting, Patterning, and Probability Activities, Set of 200, Grades K+, Ages 5+

https://www.amazon.com/Learning-Resources-Color-Counters-Yellow/dp/B0 017D9BDG

- Sorting mat: <u>https://docs.google.com/document/d/1IDd44XVFjhwukHKCRcKczwT58vN9Asfz4-fob</u> <u>hEdWiE/edit</u>
- Chart paper and markers

(Students should have opportunities to sort real life items as well. Items could include, but are not limited to: books, toys such as cars or blocks, snack items, games, articles of clothing, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
<ul> <li>Activate prior knowledge or build new knowledge</li> <li>Ask: "How could we make smaller groups out of our class?"</li> <li>Discuss answers/Think Aloud: "We could make groups of boys and girls." Proceed to move the students into that grouping.</li> <li>"We could make groups based on hair color." Proceed to moves students into that grouping.</li> <li>Allow the student to touch and feel the items to be used in the lesson. Talk about their attributes (color, shape, size, texture, use)</li> </ul>	Model using student's form of communication. <i>Put, some, here</i>	For a shared reading activity: https://shared.tarheelr eader.org/shared/read /how-to-sort Allow for processing time. This is an excellent opportunity to work on engagement and joint attention. When sorting students into groups you could use music and silly movements to increase their engagement. This can also be applied when they are feeling the sorting items. Use light, sound, touch, and movement to engage them in the activity.

<i>Establish a purpose</i> "We will be making groups or <i>partitioning</i> <i>sets</i> . Partitioning can help us share things and solve problems."	Model using student's form of communication. <i>Get, more</i>	
Teach and model the conceptSay: "We can make different groups by looking at the different attributes (color, shape, size, texture, use) and placing similar items into each group."Place the items on the table.Model: "I can use color to partition my items into groups. I see red things and yellow things. I will make two groups." Proceed to make the groups. Then count the items in each group and tell how many are in each group. For example: "I counted 10 yellow items and 10 red items."Repeat at least two more times with different groupings. State the characteristic by which you are sorting. Then sort. Next count the items in each set. Think Aloud if the sets got larger or smaller.	Model using student's form of communication. <i>I, put, some, here</i>	This is another opportunity to work on joint attention and engagement. Use light, sound, touch, and movement with the items to engage them in the activity.
THINK AND DO		
<ul> <li>Students think about what to do:</li> <li>Place the items in front of the student and ask them to sort by a given characteristic.</li> <li>The student may also choose by which characteristic they wish to sort. Provide the sorting mat as necessary.</li> <li>The student (with help if necessary) should count how many in each set.</li> </ul>	Model using student's form of communication. <i>I, put, some, here</i>	The teacher can keep track on chart paper the different ways in which the student sorts and how many are in each set. This make comparing sets and noticing differences easier in the later steps of the lesson.
<ul><li><i>Students do:</i></li><li>Solve the problem</li></ul>	Model using student's form of communication.	There should be no adult coaching at this time.

<ul> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should sort and then count the items in each set. After at least two sorts have been done, <u>ask:</u> <ul> <li>"Which way of sorting had bigger sets?"</li> <li>"Which way of sorting had smaller sets?"</li> </ul>	More, not more	Prompts to engage and complete the task can be given. This is another opportunity to work on joint attention and engagement. Use light, sound, touch, and movement with the items to engage them in the activity.
APPLY		
<ul> <li>Students describe what was done.</li> <li><u>Ask:</u> <ul> <li>"How did you decide to sort your groups?"</li> <li>"How did you know one set was bigger?"</li> <li>"How did you know one set was smaller?"</li> </ul> </li> </ul>	Model using student's form of communication. <b>You, more, not more, some, here</b>	
Get feedbackFor each sort, model counting the items and helping the student check for accuracy. Compare the sets from one sort to the other using the diagrams.Model the language, counting and 1:1 correspondenceFor example: "I counted 6 (1-2-3-4-5-6) in this set and 14 (count to 14) in this set. The set with 14 has more things. It is bigger. It has more. You had the same answer. Great job counting."	Model using student's form of communication. <b>You, more, not more, some, here</b> Also model finding the numbers on the student's number line.	Ask the student to count in their head as you count.
Make explicit what the students were thinking and doingExpand on their thinking processes. Make it "visible."Example: "I saw you look (feel) the items and compare their shape. Then you put all of the cubes in one group and all of the counters in		

another group. Then you put them in rows and touched each one to count the total. You partitioned the large set into smaller sets."	
Formative Assessment (option)	
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>	

# MATH ESSENTIAL ELEMENTS LESSON PLAN Perceptual Subitizing



# Purposes

Students will develop the ability to quickly identify small amounts of objects (1-3).

(\*Please note that this is a combined literacy and math lesson. It begins with a shared reading activity.)

- **EE.1.OA.1.**a Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), or acting out situations
- **M.EE.4.NBT.3** Round any whole number 0-30 to the nearest ten. (perceptual subitizing)
- **M.EE.5.NBT.4** Round two-digit whole numbers to the nearest 10 from 0—90 (perceptual subitizing)

# Materials

- Core Vocabulary board for each student
- Number strip for each student
  - Number line access resources: <u>https://docs.google.com/document/d/1bZJQ5SHTqPr8cg84oXoz2OP07fIBOZX</u> <u>YLI-\_j3MDISQ/edit</u>
- Copy of Formative Assessment document for each student
- Items to count
  - Educator Resource Page IE | DLM (This lesson SHOULD be repeated frequently with all small quantities of items.) <u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>
- For this example lesson: 3 connecting cubes

• Other subitizing activities can be found here (you will need to create a free account to access the resources): <a href="https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail">https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail</a>

<u>s/1</u>.

- Information about shared reading can be found here:
  - Texts Resources: <u>https://docs.google.com/document/d/1dYCbX9mkEcTiX2QvtynWt3DLP9U\_hu</u> <u>dDwWsER5W3ZZg/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Begin with the shared reading activity. Ask students to count things (e.g. hands, feet, books, etc.) they are familiar with: <b>"How many</b> do you have?"	The shared reading link has Core vocabulary access along the bottom with example comments in the top left corner of the pages. Model using the student's number line. Model using the student's form of communication. <b>You, all, some, it, on</b>	https://shared.tarheelr eader.org/shared/read /counting-from-1-to-5
<i>Establish a purpose</i> "Today we will practice counting up to 3 things quickly."		
Teach and model the conceptPlace one cube in front of student. "I see one cube." Touch the cube while saying "one".Say: "I am going to count the cube again.When I say it out loud, you say it in your head: 'one.'Repeat this process with "two" and "three."	Model using the student's number line. Model using the student's form of communication. <i>I, you, it, one, two,</i> <i>three</i>	Remind the student to say the numbers in their head as they touch the number on their number line (or equivalent). This is also an opportunity to work on joint attention with the student. Use novel items, light, touch, movement and sound to encourage attention to the counting activity.

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Students think about what to do: "I will quickly show you some cubes in my hand. Then I will ask you how many." Show some cubes (1, 2, or 3) in the palm of your hand for 1-3 seconds. *Repeat this activity frequently in short sessions to develop this skill.	Model using the student's form of communication. <i>I, you</i>	The amount of time you allow the student to look will be dependant on your knowledge of the student's processing time. It should be no more than a few seconds as the goal is to increase their ability to instantly recognize small quantities. For vision impaired students, place the cubes in their hand or tap them on the table one at a time.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		There should be no adult coaching at this time. Feedback will be given in the next section. Prompts to provide an answer or use the
Student should look at cubes, then indicate how many he/she saw.		number line may be given. Provide ample wait time based upon your knowledge of the student's processing needs. This is also an opportunity to work on joint attention with the student. Use novel items, light, touch, movement and sound to encourage attention to the counting activity.

APPLY		
<i>Students describe what was done.</i> If the student gives an answer or makes a vocalization or movement, <u>ask:</u> <b>"How did you</b> <b>know?"</b>		Try to attribute meaning to any action the student makes during this time. We want to encourage responses.
Get feedback Show the student the cubes again and ask the student to count with you (if non-verbal, ask that they count in their head). <u>Ask:</u> "Does it match?"	Model using the student's number line. Possibly placing the items on the number line to show the connection. Model using the student's form of communication. <i>It same?</i>	This is also an opportunity to work on joint attention with the student. Use novel items, light, touch, movement and sound to encourage attention to the counting activity.
Make explicit what the students were thinking and doing "I saw you look at (listen for) the cubes. You thought about how many there were."	Model using the student's form of communication. <i>I, see, you, here</i>	
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct	·	<u>.</u>
# **Distal Precursor**

### DP: K-5

# MATH ESSENTIAL ELEMENTS LESSON PLAN Decompose Numbers Based on 10



### **Purposes**

When given a set of more than 10 items, the students will be able to make a group of 10 and some more (e.g., bundles, ten-frames, number line, arrays, etc.). Teen numbers are an important part of understanding this concept.

- **M.EE.4.NBT.3** Round any whole number 0-30 to the nearest ten. (perceptual subitizing)
- **M.EE.5.NBT.4** Round two-digit whole numbers to the nearest 10 from 0-90 (perceptual subitizing)

### **Materials**

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- Ten-frames, connecting cubes, bundling sticks, number line
- For this example lesson: Ten-frame and counters
- Two-digit number cards: Use numbers with which the students have been counting. Index cards and markers can be used to make them.

(**\*Note:** As the student becomes proficient with teen numbers, move onto numbers containing more than one ten.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide the student with the ten-frames and counters. Ask them to show single digit numbers with the counters on the ten-frame. You may also want to practice rote counting as high as they can.	Model using student's form of communication. For example: AAC, Braille, signing. Same, put, here, some, all, more, not	If you regularly do traditional calendar time and it includes a place value activity, this would be a great time to start including it if you haven't already.

		Encourage non-verbal students to count in their head and keep track on a number line or chart.
<i>Establish a purpose</i> "Today we will learn to show two-digit numbers with these ten-frames and counters."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Make, here, put</i>	When using the other materials, substitute the name of the materials for the ten-frames and counters reference.
<b>Teach and model the concept</b> Present the materials in front of the students. Allow them to interact with the materials. Present a number on a number card. For example, 15. <u>Say:</u> "This is fifteen. It is a two-digit number." Refer to the ten-frames. "Two digit numbers have a ones place and a tens place. In the number 15 there is one ten and 5 ones. We need to completely fill one ten-frame to show the one ten. We then put the other five ones in the other ten-frame. One ten plus five ones equals fifteen." Model with several other numbers using similar language.	Model using student's form of communication. For example: AAC, Braille, signing.	Fine motor skills can be practiced through the picking up and placing of the materials. For vision-impaired students, provide a tactile place value mat. Gluing string on the ten-frame can help the student find the different sections. Alternatively you may use a 3D box. Number cards should be presented in braille for students who are learning braille. It might be helpful to have the students copy your work as you do it after the first time you model. Prompt them to make theirs look/feel like yours.

# THINK AND DO

Students think about what to do:Place two ten-frames and the counters in front of the student.Show the student a two digit number. Say the number aloud.Say: "Show me the number."Begin with the teens numbers and then add in numbers greater than 20.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, put, make, here</b>	
Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should use the correct number of ten-frames and counters to represent the two-digit number.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work. The student may use eye gaze and or verbal/AAC to direct an adult. Use this time to make observations and record the student's responses.
APPLY		
Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "I look." "More."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i>	Allow wait time based on your knowledge of the student's needs.

<b>Get feedback</b> If the student was correct, acknowledge it and move on to the next step. For example: <b>"Yes.</b> <b>You made 12. One ten and 2 ones is 12."</b> If the student was incorrect, re-teach/model using the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, make</b>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "Yes. Twelve has one ten and two ones. You filled one ten-frame to show the ten. You put two counters in the other ten-frame to show the ones. One ten and two ones equals twelve."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, here, same</b>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Demonstrate Concept of Addition



### **Purposes**

When given a real-world problem, students will be able to show their understanding of addition by using problem types such as joining and part-part-whole.

- **M.EE.3.OA.8** Solve one-step real world problems using addition or subtraction within 20.
- **M.EE.4.OA.3** Solve one-step real-world problems using addition or subtraction within 100

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- 3 five-frames for each student, including one with which to model if necessary
  - **Five Frame PDF** https://lrt.ednet.ns.ca/PD/BLM/pdf files/five and ten frames/five frame.pdf
- Items to count. A list of ideas can be found here:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson at least 5 cubes for each student plus 5 more with which to model
- A simple recipe plus its ingredients: <u>https://accessiblechef.com/recipes/</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge	Model using student's form of	This recipe is simple enough to do in an
Make a simple recipe, either one you are familiar with or you may try one from the link provided.	communication. For example: AAC, Braille, signing.	and provides an end product that can provide some sensory
While making the recipe, use the word 'combine' multiple times as the ingredients are added to help the students understand the meaning.	Put, all, in here, some	input and strengthening of finger muscles. https://accessiblechef. com/recipes/cloud-do ugh/

<b>Establish a purpose</b> Say: "Just like combining ingredients to make a recipe, we can combine other items together to make something bigger."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, in, more</b>	
<b>Teach and model the concept</b> Place connecting cubes and the five-frames in front of the students. Allow them to interact with the items. Demonstrate how to put one cube in each box. Allow the students to try. <u>Say:</u> "Combine means put together into one group. We combined the ingredients in the recipe above to make We can do the same thing with objects in sets. Watch." In one five-frame, count out loud while you place 2 cubes. "1-2." In the other five frame, count out loud while you place 3 cubes. "1-2-3." Place a third five-frame below the two others. <u>Say:</u> "I can combine these two five-frames into one. Watch." Model taking each of the cubes from its original five-frame and placing it into the new five-frame. Count each cube as you move it. "1-2-3-4-5. I combined these two five-frames into one. I had 2 cubes in the first one and 3 cubes in the second one. That makes a total of 5 cubes all together. This is more." Model at least 2 more times with other amounts such as 1 + 3, 2 + 2, etc. Use the above script as a guide. Provide context as you model additional problems. Use the student's interests. For example: "Sue likes cookies. She has one cookie. Her friend gives her two more cookes. How many cookies does she have altogether?"	Model using student's form of communication. For example: AAC, Braille, signing. <i>Put, make, in, here</i>	Allow vision-impaired students to feel each group or use tactile five-frames matching the problem you are modeling. These could be made by gluing counters onto cardboard five-frames in different combinations. On each repetition of this lesson, use different materials and models, such as connecting cubes or other items, or circles as your sets.

# THINK AND DO

Students think about what to do: Place two partially filled five-frames in front of the student. Provide context using the student's interests as above. Have the student count (out loud or in their head) each set. Then say: "Combine the sets. How many altogether? Is this more or less?"	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, all</b>	If the student has good fine motor skills, you can alternately give them the cubes to put into the five-frame, guiding them to fill each successive box, rather than random boxes. Students with vision-impairments or physical limitations might use the pre-made five-frames as described above and then use cubes/counters to put into a 3D five frame.
<ul> <li>Students do:</li> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> Students should move the cubes to the third five-frame filling it appropriately. Students should count, or possibly subitize based on how the five-frame looks, to find the total cubes.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work. Spend the time observing and making notes about the student's responses.
APPLY		
Students describe what was done. Ask: "What did you do?" We are looking for the actions they went through to get the answer. Example: "I put all here."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, do, put, all, here</b>	Allow wait time based on your knowledge of the student's needs.

Get feedbackIf the student was correct, acknowledge it and move on to the next step. For example: "Great job combining!"If the student was incorrect, reset the five-frames and model how to combine and count again using the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, all</b>	
Make explicit what the students were thinking and doingDescribe what you saw the student do.Example: "You put all of the cubes from each of the top five-frames into the bottom five-frame. You combined them together. You found the total. Great job!"	Model using student's form of communication. For example: AAC, Braille, signing. You, put, all, in, here, some	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)          Did not attend/no response         Attended/no response         Attended/response incorrect         Attended/response partially correct         Attended/response fully correct	<u>.</u>	

### DP: K-5

# MATH ESSENTIAL ELEMENTS LESSON PLAN Demonstrate Concept of Subtraction



### **Purposes**

When given a real-world problem, students will be able to show their understanding of subtraction by using problem types such as separating, part-part-whole, and comparison.

- **M.EE.3.OA.8** Solve one-step real world problems using addition or subtraction within 20.
- **M.EE.4.OA.3** Solve one-step real-world problems using addition or subtraction within 100

#### Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- Graphic/tactile organizers
  - Five/ten-frames (3 five-frames for each student, including one with which to model if necessary)
    - Five Frame PDF <u>https://lrt.ednet.ns.ca/PD/BLM/pdf\_files/five\_and\_ten\_frames/five\_fra</u> me.pdf
  - Part-part-whole visual (1 per student)
    - Part Part Whole

http://www.eduplace.com/state/pdf/hmm/trb/1/1\_03.pdf

- Items to count. A list of ideas can be found here: <u>Educator Resource Page IE | DLM</u> (<u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>)
- For this example lesson at least 5 cubes for each student plus 5 more with which to model
- When You Subtract with a Pirate (subtraction song for kids) https://www.youtube.com/watch?v=QkPa9V2wtZs
- Word problems
  - Free Preschool & Kindergarten Subtraction Worksheets Printable <u>https://www.k5learning.com/free-preschool-kindergarten-worksheets/subtra</u> <u>ction/subtraction-word-problems</u>
- Number cards, number line, or other access to the numbers 0-10

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge During snack time, as the students eat their snack use the terms "subtraction" and "take away" to build familiarity and concrete understanding. For example: "I gave Johnny 5 crackers for snack. He has eaten 2 crackers. He subtracted 2 crackers. He has 3 left to eat." Immediately before the lesson, show the subtraction video.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Different, not more</b>	Engage the students by encouraging movement. For students who are vision-impaired provide concrete objects to represent the items in the video. The important concept is the removal/separation of objects into two groups to demonstrate subtraction. When You Subtract with a Pirate (subtraction song for kids)
Establish a purpose "Today we will learn what subtraction means. When we start with a large group and take some away we have done subtraction." You can also make a brief statement relating to snack time or the video.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, more, not</b>	
<b>Teach and model the concept</b> Place the five-frames and cubes in front of the students. Allow them to interact with the items. Place the 3 5-frames with one at the top and the other two next to each other right below it. (It will look kind of like a part-part-whole mat, which you may also use.) <u>Say:</u> "When we subtract we start with a larger group and make it smaller." Model	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, make, some, not</i> <i>more</i>	During the interaction phase, practice placing the cubes/items in the boxes. This can help develop hand-eye coordination and fine-motor skills. For students who are vision-impaired use a 3D five frame or part-part-whole mat.

filling the frame with the counters. Count out loud. "1-2-3-4-5. We are starting with 5 counters. I had 5 crackers. Next, I ate 2 crackers." Model taking 2 of the counters and putting them in of the 5-frames below. "How many do I have left? I need to solve this problem." Count out loud as you move the remaining counters to the other 5 frame. "1-2-3. I have 3 crackers left. Three is smaller than 5. I solved the problem." Model finding the numbers on the number line or number cards and writing the subtraction problem. (*Note: At this time, students are not required to write the equation.) Model the process at least 2 more times as above using a different story.		During instruction and practice, provide context (word problem) for every problem. Feel free to make up your own problems using students in your class, or refer to the link above for ideas. A similar process can be used with the part-part-whole mat. It is a good idea to vary the visual organizers for each lesson along with the counters and stories to provide repetition with variety. During counting, encourage the students to count out loud with you or in their heads.
THINK AND DO		
Students think about what to do: Select/make your own story problem and provide the students with the correct total number of counters and either the 5-frames or the part-part-whole mat (what you used during instruction). For example: "Sarah had 3 donuts. Her brother ate 1 donut. How many donuts does Sarah have now?" You would provide them with 3 counters and the mats. Say: "Solve the problem."	Model using student's form of communication. For example: AAC, Braille, signing. Some, here, she, get, he	
<ul><li>Solve the problem</li><li>Build the model</li></ul>		Allow wait time for processing based on your knowledge of the student's needs.

<ul> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> Students should first put the 3 counters representing the donuts Sarah started with in the top 5-frame (or in the 'whole' section of the		There should be no adult coaching at this time, other than prompts to respond or to work. Use this as an
part-part-whole mat). Then the student should move 1 of the counters to the 5-frame below (or one of the 'part' sections) to represent the donut eaten by her brother. Then the student should move the other two counters to the other 5-frame to represent how many she has left.		opportunity to observe and make notes regarding the student's responses
In response to the question, <b>"How many does</b> <b>she have left?"</b> the student may either point to the mat (section) that has 2 counters or point/indicate the number 2.		
<b>"Is this more or less?"</b> The student should indicate <i>less</i> .		
APPLY Students describe what was done.	Model using student's	Allow wait time based
APPLY Students describe what was done. <u>Ask:</u> "How do you know?"	Model using student's form of communication. For	Allow wait time based on your knowledge of the student's needs.
APPLY Students describe what was done. Ask: "How do you know?" We are looking for the actions they went through to get the answer. Example: "She had	Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
APPLY Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "She had all. He got some. It different."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why, you</i>	Allow wait time based on your knowledge of the student's needs.
APPLY Students describe what was done. Ask: "How do you know?" We are looking for the actions they went through to get the answer. Example: "She had all. He got some. It different." Get feedback	Model using student's form of communication. For example: AAC, Braille, signing. <b>Why, you</b> Model using student's form of	Allow wait time based on your knowledge of the student's needs.
APPLY Students describe what was done. Ask: "How do you know?" We are looking for the actions they went through to get the answer. Example: "She had all. He got some. It different." Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "You are correct. Great job subtracting!"	Model using student's form of communication. For example: AAC, Braille, signing. <b>Why, you</b> Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
APPLY Students describe what was done. Ask: "How do you know?" We are looking for the actions they went through to get the answer. Example: "She had all. He got some. It different." Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "You are correct. Great job subtracting!" If the student was incorrect, model how to solve the problem, following the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. Why, you Model using student's form of communication. For example: AAC, Braille, signing. You, can	Allow wait time based on your knowledge of the student's needs.
APPLY Students describe what was done. Ask: "How do you know?" We are looking for the actions they went through to get the answer. Example: "She had all. He got some. It different." Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "You are correct. Great job subtracting!" If the student was incorrect, model how to solve the problem, following the teaching script above. Make explicit what the students were thinking and doing	Model using student's form of communication. For example: AAC, Braille, signing. Why, you Model using student's form of communication. For example: AAC, Braille, signing. You, can	Allow wait time based on your knowledge of the student's needs.

Example: "I saw you take some from the	example: AAC, Braille,	opportunity to model
whole group and you knew what was left	signing.	sentence structure
was the answer. You subtracted to find the	<i>I, see, all, some, put,</i>	and reinforce the
answer. Great job subtracting!"	here, in	thinking process.
<i>Formative Assessment (option)</i> <ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

### DP: K-5

# MATH ESSENTIAL ELEMENTS LESSON PLAN Explain 10 as a Composition of 10 Ones



### **Purposes**

Students will be able to make a set of 10 by counting out 10 ones filling a ten-frame, making a bundle of 10, or making an array with groups of 10. Students will recognize the group of 10 as a unit.

- **EE.K.CC.1** Starting with one, count to 10 by ones request more of something, distinguish between letters and numbers
- **M.EE.4.NBT.3** Round any whole number 0-30 to the nearest ten. (perceptual subitizing)
- **M.EE.5.NBT.4** Round two-digit whole numbers to the nearest 10 from 0—90 (perceptual subitizing)

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- Ten-frames, connecting cubes, bundling sticks, place value blocks, etc.
- For this example lesson: Place value blocks
- Number line/chart, 10
   <u>https://docs.google.com/document/d/17Tiy6VbNnWtLoHz0Nd33-Idn\_IdZHmA9k-GYJ</u> 785hZM/edit
- Numbers in the Teens (Have a Group of 10) [a place value song for kids] https://www.youtube.com/watch?v=uedvwH6Ay18

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge	Model using student's form of communication. For	For students with vision impairments, provide concrete
Watch video (link above) to review teen numbers.	example: AAC, Braille, signing.	materials that they may feel (place value
If the student already seems to understand ten-frames and that they represent ten, spend	Look, what	DIOCKSJ.

a few minutes reviewing. Present a ten-frame and <u>ask:</u> " <b>How many?</b> "		
<i>Establish a purpose</i> "Today you will learn how to show me the quantity of ten."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Make, put, some</i>	
<ul> <li><i>Teach and model the concept</i></li> <li>Present the place value blocks (cubes and rods/longs) to the students and allow them to interact with them.</li> <li>Place the visual for the number 10 in front of the students.</li> <li><u>Say:</u> "This is the number ten. We will learn how to show the quantity of ten in two different ways."</li> <li>Place a rod/long in front of the students.</li> <li><u>Say:</u> "This is a rod/long. It equals ten. I can count the individual cubes. Watch." (Touch each cube as you count. Encourage the students to count in their heads with you.) "1-2-3-4-5-6-7-8-9-10." Place the "10" card next to it.</li> <li>I can also show ten by counting out ten cubes. Watch." (Model counting out ten cubes and placing them next to the long. Encourage the students to count in their heads with you.) "1-2-3-4-5-6-7-8-9-10."</li> <li>Repeat the modeling process with both the rod/long and the cubes. On each repetition, arrange the blocks in different positions (horizontal, vertical, diagonal, etc.)</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. Look, make, put, here, some, same	Ensure that students with vision impairments have an opportunity to feel the place value blocks as you are teaching. In future repetitions, use ten-frames, bundling sticks and arrays.

THINK AND DO		
Students think about what to do: Place a collection of place value cubes (more than 10) in front of the student along with a 'rod' or 'long'. Say: "Show me 10." Say: "Use the cubes to show me 10."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, make, put, here</b>	As the student becomes proficient using the place value blocks, begin to add repetition with variety by using different materials such as connecting cubes, bundling sticks, and ten-frames.
Solve the problem • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer For the first request, accept the student selecting the rod or counting out ten cubes. The student should be able to represent 10 both ways.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work. Students may use eye gaze and/or verbal/AAC to direct an adult. Use this time to make observations and record notes about the student's responses.
APPLY		
Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "I look." "I do."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i>	Allow wait time based on your knowledge of the student's needs.

Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Yes, you made 10." If the student is incorrect, re-teach/model following the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, make</b>	
Make explicit what the students were thinking and doingDescribe what you saw the student do.Example: "You counted ten cubes. The ten cubes here equal the 'rod'/'long' that represents ten. You showed me two ways of representing 10."	Model using student's form of communication. For example: AAC, Braille, signing. You, put, make, here, some	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
<i>Formative Assessment (option)</i> <ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

EMERGENT SET 1 (K-5 Target EEs)

Part/Whole Lesson Plans

# **Initial Precursor**

# MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize "Separateness"



### Purposes

Students will be able to identify when something (puzzle, sandwich, 5-frame, picture, etc.) is whole or separated into pieces.

• **M.EE.3.NF.1-3** Differentiate a fractional part from a whole.

- Core Vocabulary board for each student
- Copy of the Formative Assessment document for each student
- Possible items that can be used for this lesson:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- Other resources can be found here after securing a free account: <u>https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail</u> <u>s/7</u>
- Several toys or objects from around the classroom (You will need pairs, as close to identical as possible. These will be used in the Think and Do portion of the lesson)-blocks, books, construction paper, markers, etc.
- Small hand towel (paper towel will also work)
- PART/WHOLE vocabulary cards: <u>https://docs.google.com/document/d/1VFw88kR4GDvG7D5JOWIWQEYC0Kl43azhviW</u> <u>f0oTasHQ/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Play a version of hide-n-seek with the items you have collected and the towel. In this version, (mix up your presentation) place a towel over an item and take turns guessing what is under the towel. After everyone has had a turn providing input, pull the towel back so part of the item is showing and repeat the process.	Model using student's form of communication. For example: AAC, Braille, signing. You, look, some, all, here, it, more, do, open	Throughout the school day, look for teachable moments that can reinforce the understanding of "part" vs "whole." For example: Present part of a cookie and a whole cookie. Say: "Would you like part of

After everyone has had a turn providing input, remove the towel and see who was correct.		a cookie or a whole cookie?" This is also an opportunity to practice using attribute values to describe the items. Model, model, model.
<i>Establish a purpose</i> <u>Say:</u> "Today we will learn to identify parts of things and whole things."	Model using student's form of communication. For example: AAC, Braille, signing. Some, all, look	
<b>Teach and model the concept</b> Use the objects from the Anchor activity above. You may also select other items from the Educator Resource Page IE   DLM. Present an item, for example a book. Say: "I see a whole book. There are no parts missing. I can see the whole thing." Place the corresponding vocabulary card and say "whole." Ask the students to say the word in their head. Place the towel over a portion of the book. Say: "I see part of a book. There are parts that I can't see. I only see part of the book." Place the corresponding vocabulary card and say "part." Ask the students to say the word in their head. Repeat this with the other items. In future lessons, you can move on to things that can be broken into parts, such as puzzles, candy bars, towers of Unifix cubes, sandwiches, etc.	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, look, some, all, here, it, more, do, open</i>	"When working toward an understanding of fractions, students need exposure to a wide variety of items that can be put together and taken apart (e.g., linking cubes, magnetic tiles, puzzles). Encourage students to interact with the objects. Educators should take care to use the words whole and part to describe them. While students do not need to say these words, they do need to learn the meanings. At the same time, students will be working on counting skills. The models used to teach counting (e.g., five-frame, ten-frame, sets, number line) can be used to support the

		concepts of whole and part."
THINK AND DO		
Students think about what to do:         Select two identical items from the list. Use the towel to cover a portion of one item.         Say: "Point to the whole"         Or         Say: "Point to the part of a"	Model using student's form of communication. For example: AAC, Braille, signing. Look, you, do, some, all	As the student becomes proficient, use other items such as the models used to teach counting (e.g., five-frame, ten-frame, sets, number line).
Students do: • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should point to or otherwise indicate the correct item.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work. Use this time to observe and record notes about the student's responses. The student may use eye gaze, peer-assisted scanning or verbal/AAC to direct an adult.
APPLY		
Students describe what was done. <u>Ask:</u> "How did you know?" We are looking for the actions they went through to get the answer. Example: "Some" or "All"	Model using student's form of communication. For example: AAC, Braille, signing. Look, you, do, some, all	Allow wait time based on your knowledge of the student's needs.

Get feedbackIf the student is correct, acknowledge the answer and move on to the next step below.If the student is incorrect, re teach the concept as above. Model using the language and describe your thinking.For example: "I look at both items. (Point to the whole.) I see the whole book. There is nothing missing. (Point to the part) I only see some of the book. There are parts missing."	Model using student's form of communication. For example: AAC, Braille, signing. Look, you, do, some, all	
Make explicit what the students were thinking and doingExpand on the student's description or if the answer is incorrect do a Think Aloud (as above) describing the steps to arriving at an answer.Example: "Yes, you looked for the one that had no parts missing. It was whole."Or"Yes, you looked for the one that was covered. You couldn't see all of it, so you knew it was only part."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, you, do, some,</i> <i>all</i>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

### IP: K-5

MATH ESSENTIAL ELEMENTS LESSON PLAN "Part" vs. "Whole"



### Purposes

Students will be able to distinguish between "part" and "whole."

- **M.EE.3.G.2** Recognize that shapes can be partitioned into equal areas
- M.EE.4.NF.1-2 Identify models of one half (1/2) and one fourth (1/4)
- M.EE.4.NF.3 Differentiate between whole and half.

- Core Vocabulary board for each student
- Copy of the Formative Assessment document for each student
- Possible items that can be used for this lesson:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- Other resources can be found here after securing a free account: <u>https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail</u> <u>s/7</u>
- Several toys or objects from around the classroom, ex: blocks, books, construction paper, markers, etc. (You will need pairs, as close to identical as possible. These will be used in the Think and Do portion of the lesson.)
- Small hand towel (paper towel will also work)
- PART/WHOLE vocabulary cards: <u>https://docs.google.com/document/d/1VFw88kR4GDvG7D5JOWIWQEYC0KI43azhviW</u> <u>f0oTasHQ/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Play a version of hide-n-seek with the items you have collected and the towel. In this version, (mix up your presentation) place a towel over an item and take turns guessing what is under the towel. After everyone has had a turn providing input, pull the towel back so part of the item is showing and repeat the process.	Model using the student's form of communication. You, look, some, all, here, it, more, do, open	Throughout the school day, look for teachable moments that can reinforce the understanding of "part" vs "whole." For example - Present part of a cookie and a whole cookie. Say: "Would you like part of

After everyone has had a turn providing input, remove the towel and see who was correct.		a cookie or a whole cookie?"
		For students who are still working on joint attention and engagement, use light, sound, movement, and touch to encourage engagement with the materials and instruction.
		This is also an opportunity to practice using attribute values to describe the items. Model, model, model.
Establish a purpose	Model using the student's form of	
Say: "Today we will learn to identify parts of things and whole things."	communication.	
	Some, all, look	
<b>Teach and model the concept</b> Use the objects from the Anchor activity above. You may also select other items from the Educator Resource Page IE   DLM. Present an item, for example a book. Say: "I see a whole book. There are no parts missing. I can see the whole thing." Place the corresponding vocabulary card and say "whole." Ask the students to say the word in their head. Place the towel over a portion of the book. Say: "I see part of a book. There are parts that I can't see. I only see part of the book." Place the corresponding vocabulary card and say "part." Ask the students to say the word in their head.	Model using the student's form of communication. <i>I, look, some, all, here,</i> <i>it, more, do, open</i>	For students who are still working on joint attention and engagement, use light, sound, movement, and touch to encourage engagement with the materials and instruction.

Repeat this with the other items.		
In future lessons, you can move on to things that can be broken into parts, such as puzzles, candy bars, towers of Unifix cubes, sandwiches, etc.		
THINK AND DO		
Students think about what to do:         Select two identical items from the list. Use the towel to cover a portion of one item.         Say: "Point to the whole"         Or         Say: "Point to the part of a"	Model using the student's form of communication. <i>Look, you, do, some, all</i>	In the beginning you may wish to only practice asking for either "part" or "whole." When the student is fairly consistent or seems to understand the concept, you may ask for both in the same session. There is to be no adult coaching during the Think and Do portion of the lesson. Provide ample wait time based on the student's processing needs.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should point to or otherwise indicate the correct item.		Provide ample wait time based on the student's processing needs. There is to be no adult coaching during the Think and Do portion of the lesson. If there is no response from the student, use light, sound, movement, and touch to encourage engagement with the

		materials and instruction.
APPLY		
<i>Students describe what was done.</i> <u>Ask:</u> <b>"How did you know?"</b> The student may say: <b>"Some"</b> or <b>"All"</b>	Model using the student's form of communication. <i>Look, you, do, some, all</i>	Provide ample wait time based on the student's processing needs.
<ul> <li>Get feedback</li> <li>If the student is correct, acknowledge the answer and move on to the next step below.</li> <li>If the student is incorrect, re teach the concept as above. Model using the language and describe your thinking.</li> <li>For example: "I look at both items. (Point to the whole.) I see the whole book. There is nothing missing. (Point to the part) I only see some of the book. There are parts missing."</li> </ul>	Model using the student's form of communication. <i>Look, you, do, some,</i> <i>all</i>	If there is no response from the student, use light, sound, movement, and touch to encourage engagement with the materials and instruction. Model, model, model.
Make explicit what the students were thinking and doing Expand on the student's description or if the answer is incorrect do a Think Aloud (as above) describing the steps to arriving at an answer. Example: "Yes, you looked for the one that had no parts missing. It was whole." Or "Yes, you looked for the one that was covered. You couldn't see all of it, so you knew it was only part."	Model using the student's form of communication. <i>Look, you, do, some,</i> <i>all</i>	
Formative Assessment Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

### IP: K-5

### MATH ESSENTIAL ELEMENTS LESSON PLAN "Some"



### Purposes

Students will increase their understanding of "some" using parts of a whole (not just some individual items).

- **M.EE.3.NF.1-3** Differentiate a fractional part from a whole.
- **M.EE.5.NF.1** Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).

### Materials

- Core Vocabulary board for each student
- Copy of Formative assessment for each student
- Items such as: roll of string and/or ribbon, an item to tie the string around or to such as a stack of books or a balloon, jar of paint, small container in which to pour the paint, stack of construction paper, a notebook
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math

# • SOME vocabulary card: <u>https://docs.google.com/document/d/12G9DOWdSEbf6taxZXgzICmrZIeJRoYBiORkQ4</u> <u>DnGBBA/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge	Model using the student's form of	Look for teachable moments across the
During a snack activity, distribute small amounts of the snack to each student. Before	communication.	word "some." For
giving the snack, <u>ask:</u> <b>"Would you like some</b> ?"	Some	some crackers." or "Here are some
Discuss how some people have some of the item and others have none of the item.		crayons."

<ul> <li>Establish a purpose</li> <li>"Today we will learn to identify "some" of a whole."</li> <li>Teach and model the concept</li> <li>Model with each of the items above following the script below as a guide. You will be modeling the difference between all, some, and</li> </ul>	Model using the student's form of communication. <b>Some</b> Model using the student's form of communication.	
none as appropriate for each item. Hold up the roll of string. <u>Say:</u> "I have a whole roll of string. I only need some of the string to tie to my balloon. I will unroll some of the string and cut it to the length I need." (Actually cut the string and tie it to the balloon.) "Here is some of the string."	some, an, nere	
THINK AND DO		
Students think about what to do: For each item, present the whole item along with the piece/amount of the item representing the concept "some."	Model using the student's form of communication. <i>Some</i>	
Students do:		There should be no
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		adult coaching at this point. Provide ample wait time based on the student's processing needs.
The student should point to or otherwise indicate the piece or small amount of the item versus the whole thing (roll of string or bottle of paint).		If there is no response from the student, use this as an opportunity to work on joint attention and engagement with the materials. Use light, sound, movement and touch to encourage

		engagement with the materials.
APPLY		
Students describe what was done. Ask: "How did you know?"	Model using the student's form of communication.	Allow ample wait time based on the student's processing needs.
	You, how	If there is no response from the student, use this as an opportunity to work on joint attention and engagement with the materials. Use light, sound, movement and touch to encourage engagement with the materials.
Get feedback If the student was correct, acknowledge the correct answer and expand on the student's response using the next step as a guide. If the student was incorrect, use this as an opportunity to re-teach the concept. Show the student the whole roll of string, describing it as such. Talk about how you don't need all of it, you only need some of it.	Model using the student's form of communication. <i>Look, you, some, all, here</i>	If there is no response from the student, use this as an opportunity to work on joint attention and engagement with the materials. Use light, sound, movement and touch to encourage engagement with the materials.
Make explicit what the students were thinking and doingMake the student's thinking "visible" to them. Expand on their use of language.Example: "You saw that the whole roll of string was too much to tie to the balloon. You only needed a small amount. You only needed some of the string, not all of the string."Formative Assessment	Model using the student's form of communication. You, see, do, some, all, not	
Did not attend/no response		

- Attended/no response
  Attended/response incorrect
  Attended/response partially correct
  Attended/response fully correct

### MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize "Separateness"



### **Purposes**

Students will identify when an item has been separated into parts.

- M.EE.4.NF.1-2 Identify models of one half (1/2) and one fourth (1/4)
- M.EE.4.NF.3 Differentiate between whole and half.
- **M.EE.5.NF.1** Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).

- Copy of Core Vocabulary communication board for each student
- Copy of the Formative Assessment document for each student
- A simple puzzle. Here is a jigsaw puzzle template resource to make your own.
  - Blank Jigsaw Puzzle Templates | Make Your Own Jigsaw Puzzle for Free https://www.timvandevall.com/make-your-own-jigsaw-puzzle-templates/
- SEPARATE vocabulary card: <u>https://docs.google.com/document/d/180WSboU78BSgTxqO\_5AUdGR8bleBD\_apNi</u> <u>OzXBfUO7M/edit</u>
- A list of items that can be used for these activities can be found here:
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Box of markers, a group of pencils secured with a rubber band, pencils that are loose, 5-6 connecting cubes.

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Present a simple puzzle that is currently put together. Discuss the attributes such as color, number of pieces, items in the picture. Discuss how the puzzle is completed and whole. Allow the students to take the puzzle apart and then put it back together again. When it has	Model using the students form of communication. <i>Look, it, do, put, here,</i> <i>in, on, same, different</i>	Look for other opportunities to notice things that are SEPARATE such as a student that is "separate" from the others or an apple has been cut into parts and separated among students.

been taken apart, discuss how the parts are not separate. <u>Say:</u> <b>"The parts are separate from</b> <b>one another. There is space between them."</b>		This is an opportunity to improve joint attention and engagement with materials. Use a variety of light, sound, movement and touch to engage the student with the materials.
<i>Establish a purpose</i> "Today we will identify things that have been 'separated'."	Model using the students form of communication. <i>It, not, on, here, look,</i> <i>get</i>	
<ul> <li><i>Teach and model the concept</i></li> <li>Begin with the connecting cubes.</li> <li>Connect them all together and review 'whole.'</li> <li><u>Say:</u> "These cubes are all together. They are all touching. They make a whole tower." (Demonstrate standing them like a tower.)</li> <li>Then, remove 2 cubes, separating them from the others and separate from each other.</li> <li><u>Say:</u> "These cubes are now separate from the others. They are not touching. There is space between them."</li> <li>While modeling, refer to the vocabulary card for "separate."</li> <li>Model with the remaining materials. Point to the items that are separate and refer to how we know - there is space between them, they are away from the others, they aren't touching, etc.</li> </ul>	Model using the students form of communication. <i>All, here, on, it</i>	Before beginning instruction, allow the students to interact with the materials. Discuss the attributes such as color, number, size, and shape. This is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to engage the student with the materials. It is not expected that the students can read the word, but this is an opportunity to continue to develop their language and literacy skills.

THINK AND DO		
Students think about what to do: Place a set of cubes that are connected and some cubes that are separated in front of the student. Say: "Point to the cubes that are separate."	Model using the students form of communication. <i>You, look, do</i>	Provide ample wait time based on your knowledge of the student's processing needs. Repeat this process with the remaining items. Make sure you complete the Think and Do as well as the Apply portions of the lesson with each set of items before changing the materials.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should point or otherwise indicate		There should be no adult coaching during this portion of the lesson. Provide ample wait time based on your knowledge of the student's processing needs.
the set of cubes that are not connected.		If there is no response from the student, this is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to engage the student with the materials.
APPLY		
Students describe what was done. <u>Ask:</u> "Why are they separate?" or "How did you know?"	Model using the students form of communication. <b>You, look, do, why, it,</b>	Provide ample wait time for an answer based on your knowledge of the student's processing
The student may say: <b>"I look." "It not on."</b>	not, on, here	time needs.

Get feedbackIf the student is correct, acknowledge the correct answer and model with the language shown below.If the student was incorrect or there was no response, use this as an opportunity to model arriving at the correct choice and re-teaching the concept.For example: (Pointing to the connected cubes.) "These cubes are touching each other. They are all together."(Pointing to the separate cubes.) "These cubes are not touching each other. There is space between them. They are separate."	Model using the students form of communication. You, look, do, why, it, not, on, here	If there is no response from the student, this is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to engage the student with the materials.
Make explicit what the students were thinking and doingExpand on the student's responses. Make their thinking "visible."For example: "I saw you look at both sets. You saw these were not touching. You know when things don't touch they are separate."	Model using the students form of communication. You, look, do, why, it, not, on, here	
Formative Assessment Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		
## **Distal Precursor**

## DP: K-5

## MATH ESSENTIAL ELEMENTS LESSON PLAN Partition Any Shape/Set into Equal Parts



## Purposes

Students will be able to distribute objects (e.g., passing out classroom materials, one per person) to people and align objects to available spaces (e.g., one note for parents in each backpack). Students will also begin to divide things like whole snacks, large pieces of paper, etc. into equal parts.

- **M.EE.5.NF.1** Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items to use for instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- Materials will vary depending on the chosen activity

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledgeUse an upcoming or already planned craft or art activity.Place all of the needed materials in the middle of the groupProvide directions and model as usual. Instead 	Model using student's form of communication. For example: AAC, Braille, signing. You, put, here, same, on	Resources/Ideas to get you started: 10 Easy Crafts for Kids with Motor Disabilities: https://coachart.org/bl og/10-easy-crafts-for-k ids-with-motor-disabili ties/ 5 Simple Art Projects For a Child with Special Needs: https://www.autismpa rentingmagazine.com/

amounts. This can be turned into a quick social skills lesson as well. Discuss how they can't just grab what they need.		art-projects-for-special -needs/ Inclusion/Special Needs Art Projects Archives: https://www.deepspac esparkle.com/category /art-lessons-by-subject /inclusionspecial-need s-art-projects/
<i>Establish a purpose</i> "Today we will learn how to help pass out materials so everyone gets an equal share."	Model using student's form of communication. For example: AAC, Braille, signing.	This lesson/practice can also be done during snack time, a regular lesson time, as a classroom job, etc.
	Put, same	Provide multiple opportunities to practice and for the students to get feedback about partitioning things among the students.
Teach and model the concept <u>Say:</u> "When we do a project, everyone needs the same amount of materials. For example, you will each need one piece of red construction paper (adjust this per your craft or project). Set one piece of paper in front of each student." Model.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Same, you, put, here</i>	Based on your knowledge of student behaviors, classroom expectations, physical challenges and the specific craft or activity, you will need to adjust what you say and how you model accordingly. The goal is to teach them to place the same amount in each
		designated spot.
THINK AND DO		
<i>Students think about what to do:</i> Give the student something to pass out.	Model using student's form of communication. For	You may wish to provide a template on which to place the

For example: <b>"Give 2 pieces of green paper to</b> each person."	example: AAC, Braille, signing. <b>You, put, here, in</b>	materials to cue for number and placement. As the student becomes more proficient, fade the template by making it smaller or not as noticeable.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than
The student should place the item(s) in the appropriate locations.		prompts to respond or to work. Use this time to observe and make notes about the student's response to the directions.
APPLY		
Students describe what was done. <u>Ask:</u> "What did you do?" We are looking for the actions they went through to get the answer. Example: "I put all." "I put on."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, put</b>	Allow wait time based on your knowledge of the student's needs.
Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Great job giving everyone 2 sheets of green paper!" If the student was incorrect, model how to place the items and provide the student some appropriate prompting to try it again immediately after modeling.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, do</b>	

Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You gave each person 2 pieces of paper. You set the paper right in front of them so they could use it. Thank you!"	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, put, on, in, here</b>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

#### DP: K-5

## MATH ESSENTIAL ELEMENTS LESSON PLAN Partition Shapes



## Purposes

Students will be able to cut shapes apart and then count the pieces.

- **M.EE.3.G.2** Recognize that shapes can be partitioned into equal areas
- M.EE.4.NF.1-2 Identify models of one half (1/2) and one fourth (1/4)
- M.EE.4.NF.3 Differentiate between whole and half.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of materials that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- Variety of paper shapes such as squares, circles, triangles, rectangles, etc.
- Scissors, including adapted scissors: <u>https://www.especialneeds.com/shop/daily-living-aids/scissors-cutting-aids.html#:~:</u> <u>text=There%20are%20a%20variety%20of,%2C%20loop%20scissors%2C%20and%20</u> <u>more.</u>
- Number line/chart

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Practice cutting activities with a variety of paper types and cutting instruments. Work with your OT to find materials that your students can manipulate as independently as possible.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Go, stop, here</i>	If a student has physical limitations, such as paralysis, that prevents cutting, spend time teaching the student to direct an adult on where to cut. This can be a gesture or using the words 'go' and 'stop.'

<i>Establish a purpose</i> "Today you will cut shapes apart and count how many pieces you have."	Model using student's form of communication. For example: AAC, Braille, signing.	
Teach and model the conceptPresent the shapes to the students and spend a few minutes talking about their shapes and other attributes such as size and color.Say: "When we cut a whole shape we make parts. These parts are called fractions. We need to know how many parts we have after cutting to know the fraction. Watch me cut this square. (Model cutting it one time.) I cut it one time. I have 1-2, 2 parts. Watch me cut this circle. (Model cutting it twice.) I cut it twice. I have 1-2-3, 3 parts. Watch me cut this triangle. (Model cutting it three times.) I cut it three times. I have 1-2-3-4, 4 parts."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Here, some, do</i>	At this point, the parts do not need to be of equal areas. The goal is to cut the shape into pieces and then count the parts. Focus on 2, 3, and 4 parts. Encourage the students to count the parts with you in their head or out loud.
THINK AND DO		
Students think about what to do:         Present a shape to the student.         Say: "Cut this shape into pieces."         Say: "Count the pieces. How many?"	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, do, make</b>	The student will use regular or adapted scissors or direct an adult on where to cut. Another option would be to provide a shape that has already been cut and require the student to independently or by directing an adult, separate the pieces of the shape and then count the pieces.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>But them in order</li> </ul>		Allow wait time for processing based on your knowledge of the student's needs.

Describe/share answer		time, other than
The student should cut the shape however they would like to cut it.		prompts to respond or to work.
The student should count the pieces.		The student will use regular or adapted scissors or direct an adult on where to cut.
		Use this time to observe and record notes about the student's responses.
		The student may use a number line/chart to indicate the quantity of pieces.
APPLY		
Students describe what was done. <u>Ask:</u> "What did you do?" We are looking for the actions they went through to get the answer. Example: "I made some."	Model using student's form of communication. For example: AAC, Braille, signing. <i>What, you, do</i>	Allow wait time based on your knowledge of the student's needs.
Get feedback	Model using student's	
If the student was correct, acknowledge it and move on to the next step. For example: <b>"Yes</b> <b>you cut it into two pieces or fractions."</b>	form of communication. For example: AAC, Braille, signing.	
If the student was incorrect, re-teach/model following the teaching script above. The student may also need additional practice with cutting, use a different cutting instrument or further practice with directing an adult.	You did it	
Make explicit what the students were thinking and doing Describe what you saw the student do.	Model using student's form of communication. For example: AAC, Braille, signing.	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure

Example: "You used the scissors to cut it into two pieces. You made the whole square into two parts of a square."	and reinforce the thinking process.
Formative Assessment (option)	
Did not attend/no response Attended/no response	
Attended/response incorrect	
Attended/response partially correct Attended/response fully correct	

EMERGENT SET 1 (K-5 Target EEs)

Pattern Lesson Plans

# **Initial Precursor**

## MATH ESSENTIAL ELEMENTS LESSON PLAN Arrange Objects in Pairs



## Purposes

Students will be able to begin placing objects together to make their own pattern. Once students are having success with this lesson, move on to:

- IP: K-5 Order objects
   <u>https://docs.google.com/document/d/1annLOEG0QFuvtsjdFgwkyCcZKGeE2AHi7zXT</u>

   <u>PK3FEk0/edit</u>
- **M.EE.4.OA.5** Use repeating patterns to make predictions.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- Mixed groups of items that can be put into groups:
  - Educator Resource Page IE | DLM <u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>
- For this example lesson: Pattern blocks of various kinds, either concrete or virtual
  - <u>https://apps.mathlearningcenter.org/pattern-shapes/</u>
- PAIR vocabulary card: https://docs.google.com/document/d/14JHLQTRXcuJdygCwNnQpn1By6liZkPlwHIuFS M8\_ktU/edit

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge	Model using the student's form of	https://shared.tarheelr eader.org/shared/read
Complete shared reading activity to introduce things that go together and could be used to make patterns.	Same, put, different	<u>/wnat-goes-togetner</u>
"What other things go together?"		
The class could take a trip around the classroom finding things that go together - desk and chair, pencil and notebook, etc.		

<i>Establish a purpose</i> <b>"Today we will be putting objects in pairs."</b> Use the PAIR Vocabulary card.	Model using the student's form of communication. <i>Put</i>	
Teach and model the concept "A pair is a set of two things that go together like shoes and socks. We can make pairs with other things too." Model putting the pattern blocks into pairs. For example: "Watch me make pairs of shapes. I want to pair green triangles with orange squares. The triangles have 3 sides (Count 1-2-3.) and they are green. The squares have 4 sides (Count 1-2-3-4) and are orange. First I put down a green triangle, then I put an orange square next to the green triangle to make a pair. I can make another pair. Watch. First I put down a green triangle and then I put an orange square next to it to make a pair."	Model using the student's form of communication. <i>Go, same, make, I, look</i>	If the pattern blocks are too abstract for your student, consider using items such as silverware, pencils and notebooks, cheese and crackers, etc. The same routine can be applied. When using the concrete pattern blocks you may want to begin with the shapes already sorted into a pile of triangles and a pile of squares. Once the students get the rhythm of moving from one pile to the other, you can mix the shapes so they need to sort then make a pair.
THINK AND DO		
Students think about what to do: Provide the student with two piles of different shapes. Describe them to the student or ask "What do you see?" Then direct the student to make pairs of the shapes, for example: "Make a pair of blue and white shapes."	Model using the student's form of communication. <i>Go, same, make, I, look</i>	Provide wait time appropriate for that student.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> </ul>		Students with physical limitations may use eye gaze, a pushing stick, or verbal/AAC to direct an adult.

<ul> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should make the appropriate pairing.		Students with vision impairments - pairings should be based on shape and/or size to allow them to feel and then make a decision. Allow ample wait time based on the student's processing needs. There should be no adult coaching at this time. Prompts to continue and repeating of directions may be provided. This is a time to observe the student's responses and make notes. If there is no response by the student, use this as an opportunity to work on joint attention and
		engagement through the use of light, sound, movement and touch.
Chudonata dooguib a such stars and such	Madalusiasth	Drevide engle weit
Students describe what was done. Say: "Tell me what you did."	student's form of communication.	Provide ample wait time based on student's processing needs.
	What you, do	
<i>Get feedback</i> Provide feedback. If the student was correct, acknowledge their	Model using the student's form of communication.	Bring attention to the thinking process more than the correctness of answer in the
work and move on to the next step.	тои, таке, same, here	for connections that

For example: <b>"You made pairs with the</b> <b>shapes. You matched up the shapes. Great</b> <b>job making pairs!"</b> If the student was incorrect, re-teach using the original teaching script as a guide. See above.		the student understands the concept. If there is no response by the student, use this as an opportunity to work on joint attention and engagement through the use of light, sound, movement and touch.
Make explicit what the students were thinking and doingExplain how the student's thinking process went, expanding on their description of the process. Model the correct language.For example: "You looked at each set of shapes. You chose the shape that went first, then you chose the shape to make a pair. You knew that a pair was a set of two. Great job thinking!"	Model using the student's form of communication. <b>You, look, make, here</b>	
Formative Assessment Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

MATH ESSENTIAL ELEMENTS LESSON PLAN



## Purposes

Students will be able to begin placing like objects together based on the characteristics that make an item the same or different than another.

• M.EE.5.OA.3 Identify and extend numerical patterns.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- Mixed groups of items that can be classified:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: An assortment of writing utensils (pencils, crayons, markers, pens, colored pencils, highlighters); there should be multiples of each kind. In the early stages, limit the number of classes or kinds to just 2 then add in more as the student becomes more proficient.
- Visual/physical organizer to assist students with organizing their items into like groups
- For more activities related to early patterning skills (you will need to make a free account to access the information and activity ideas): <u>https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail</u> s/11

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete a shared reading activity with the book provided. Comments during reading should relate to the foods: their attributes, other examples, student's likes and dislikes.	Model using the student's form of communication. You, like, same, different	https://shared.tarheelr eader.org/shared/read /the-edible-pyramid
<i>Establish a purpose</i> "Today we will classify things by looking at their attributes. We will put things in groups	Model using the student's form of communication.	

by looking at them to see how they are the same and different."	Look, same, different, put, in	
by looking at them to see now they are the same and different."          Teach and model the concept         "Classify means to put in groups based on characteristics. We can look at color, shape, size, use, or texture."         Place the writing utensils in front of the student. Allow them to interact with the items and describe the different types. Provide paper and whiteboards. Encourage the students to make marks with the different types of writing utensils.         For example: "Here is a pencil. It is made of wood. It is yellow and has an eraser." Repeat for each kind of writing implement.         Show the visual organizer. Label the top of one column "writing" and the other column "drawing."         Say: "We are going to classify these items. We will sort them based on how we use them. We use some of them for writing a letter. We will put them in this group (point to the writing column). We use some of them for writing a letter. We will put them in this group (point to the writing column). We use some of them for them in the	Look, same, different, put, in Model using the student's form of communication. Look, same, different, put, in, here, it	
<ul> <li>this group (point to the drawing column)."</li> <li>Model selecting an item and talking about how it is used, then placing it in the appropriate column.</li> <li>Repeat for the remaining items.</li> </ul>		
THINK AND DO		
Students think about what to do: Place a new mix of writing utensils in front of the student. Say: "Here are some items for you to classify. If we usually write with them, put them in the writing column. If we usually draw or	Model using the student's form of communication. <i>Here, put, in, do</i>	Provide wait time appropriate for that student based on the student's processing needs.

color with them, put them in the drawing column."		
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		There should be no adult coaching at this time. Use this time to observe the student's responses and make notes.
The student should place items in each column.		You may repeat directions and provide prompting to complete the task if necessary. If the student has physical limitations, eye gaze, a pushing stick, or verbal/AAC may be used to direct an adult. Students with visual impairments should be able to hold each item before classifying it. This is an opportunity to work on joint attention and engagement through the use of light, sound, touch, and movement.
APPLY		
Students describe what was done. Say: "Tell me what you did." The student may say things like: "I look." "I put." "It same." "It different."	Model using the student's form of communication. <i>What, you, do</i>	Allow wait time based on the student's processing needs.

Get feedback	Model using the	Bring attention to the
Provide feedback. (See notes.)	student's form of communication.	thinking process more than the correctness
If the student is correct, acknowledge their work and move on to the next step. For example: <b>"I see you put all of the items</b> <b>that you write with in the writing column. I</b> <b>see you put all of the items that you draw</b> <b>with in the drawing column. Great job</b> <b>classifying."</b> If the student is incorrect, address the errors by re-teaching the criteria by which the items were to be classified as was done in the teaching phase above. Also see notes column for special situations.	I, see, you, put,here, in	of answer in the beginning. Try to look for connections showing that the student understands the concept.Keep in mind that for some students they may write with a marker because it is easier to hold. It is more important that there seems to be a reason specific to that student for why each item was placed where it was. Talk through each item briefly about why it might be in that column. Be flexible in your thinking.
Make explicit what the students were thinking and doing	Model using the student's form of	
Explain how the student's thinking process went, expanding on their description of the process. Model the correct language.	communication. <i>I, see, you, put,here,</i> <i>in</i>	
For example: "I saw you look at each item and touch it. You then paused as you thought about where to put each item based on how you used it. Great job classifying!"		
Formative Assessment		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

## MATH ESSENTIAL ELEMENTS LESSON PLAN Contrast Objects



## **Purposes**

Students will develop their ability to identify which object is different from other objects. Students will begin to understand what characteristics make that object different from the other objects.

• M.EE.5.OA.3 Identify and extend numerical patterns.

## **Materials**

- Copy of Core Vocabulary Board for each student
- Copy of Formative Assessment for each student
- List of materials that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Pattern blocks concrete or virtual
  - **Pattern Shapes by the Math Learning Center** <u>https://apps.mathlearningcenter.org/pattern-shapes/</u>
- More activities/information regarding contrasting objects and patterns: <u>https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail</u> <u>s/3</u>

(**\*Note:** While this lesson is written using pattern blocks, it is recommended that other objects/pictures be used to provide repetition with variety such as counting blocks, pictures of animals, letter and number cards, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge In a small group compare and contrast the clothes everyone is wearing. Practice using "same" and "different" when comparing a two students' shoes or their shirt. Ask them to think in their heads about how the items are the same or different. Have a few students share their ideas.	Model using the student's form of communication. <i>Same, different</i>	If there are students with vision impairments, use examples that can be distinguished by touch or sound such as the texture of shirt sleeves or the sounds of shoes being stomped on the floor.

<i>Establish a purpose</i> "Today we will learn how to find an object that is different and tell why it is different from other objects."	Model using the student's form of communication. <i>Look, different, why</i>	
<ul> <li>Teach and model the concept</li> <li>Say: "When we work with patterns, we need to be able to tell what is different in the pattern."</li> <li>Place 3 pattern blocks (two are the same and one is different) in front of the student. Model noticing their attributes.</li> <li>For example: "Here is a green triangle. I can count the sides 1-2-3. Here is an orange square. I can count the sides 1-2-3-4. Here is another green triangle. It also has 3 sides, 1-2-3. This shape (triangle) and this shape (triangle) are the same. They are both the same color and have 3 sides. This shape (square) is a different color and has more sides."</li> <li>Model with other groups of shapes.</li> </ul>	Model using the student's form of communication. <i>Look, different, why</i>	For students with visual impairments, focus on the attributes that can be felt like shape, texture (consider adding textured cloth/paper to the shapes), relative size, and number of sides. If the student has difficulty with joint attention or engagement use sight, sound, touch, and movement to make things interesting and gain attention as you are modeling.
THINK AND DO		
<ul> <li>Students think about what to do:</li> <li>Place a group of 3 objects (2 are the same and 1 is different) in front of the student. Encourage him/her to interact with the items.</li> <li>Ask: "What do you notice?" Or "What do you see?" Or "What do you feel?"</li> <li>Then place the items in a row. Ask: <ul> <li>"Which one is different?"</li> <li>"How is it different?"</li> </ul> </li> <li>On successive repetitions, you may use the same shapes and mix up the order or change up the shapes that are used.</li> </ul>	Model using the student's form of communication. <i>Look, you, what</i> <i>different</i>	Provide wait time appropriate for that student. There should be no adult coaching at this time. This is an opportunity to observe the student's responses and make notes. If the student does not respond, use this as another opportunity to work on joint attention and engagement through

		the use of light, sound, movement, and touch.
Students do: • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should interact with the shapes and respond to your questions.		Provide wait time appropriate for that student. There should be no adult coaching at this time. This is an opportunity to observe the student's responses and make notes. If the student does not respond, use this as another opportunity to work on joint attention and engagement through the use of light, sound, movement, and touch. Make sure students with visual impairments interact with the objects. If a student has physical limitations, the adult can assist with interacting. The student may respond via eye gaze, using a pushing stick or use verbal/AAC to direct an adult.
APPLY		
Students describe what was done. "Tell me what you noticed." or "Why did you choose that one?" The student may respond with: "More" "Same" "Not more" "Different"	Model using the student's form of communication. <b>You, do, why</b>	Try to attribute meaning to every communication attempt by looking at the item the student is holding and comment about the attributes

		you see. Use your knowledge of your student's communication to expand on their comments.
Get feedback Provide feedback. If the student is correct, acknowledge their correctness and move on to the next step. For example: "You are correct. That one is different because it has 4 sides." If the student is incorrect, compare the shapes again as you did in the teaching step. Encourage the student to interact with the shapes as you model the descriptions.	Model using the student's form of communication. <b>You, different</b>	If the student does not respond, use this as another opportunity to work on joint attention and engagement through the use of light, sound, movement, and touch.
Make explicit what the students were thinking and doingExplain how the student's thinking process went, expanding on their description of the process. Model the correct language.For example: "We can count the sides and look at the color to tell which is different. These two are green and have 3 sides (1-2-3) and this one is orange and has 4 sides (1-2-3-4). It is different from those. Green and orange are different colors. 3 and 4 are different amounts."	Model using the student's form of communication. Same, different, more, not more, here, on, it	
Formative Assessment          Did not attend/no response         Attended/no response         Attended/response incorrect         Attended/response partially correct         Attended/response fully correct	1	1

## MATH ESSENTIAL ELEMENTS LESSON PLAN Order Objects



## Purposes

The student will be able to put objects in the same order as a model. Students should already be familiar with the lesson:

- IP: K-5 Arrange objects in pairs <u>https://docs.google.com/document/d/10MN37Y8whZez8hawST4cJ0L6MVj92IaEZXq</u> <u>HGE9MhK8/edit</u>
- M.EE.5.OA.3 Identify and extend numerical patterns.

## Materials

- Copy of Core Vocabulary board for each student
- Copy of the Formative Assessment for each student
- Items to put in order. Ideas can be found here:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Variety of pattern blocks, either concrete or virtual (<u>https://apps.mathlearningcenter.org/pattern-shapes/</u>). You will need at least 3 different shapes with at least 1 extra of each shape.

(\*Note: This lesson can also be done with sound/music/tones. <u>https://experiments.withgoogle.com/collection/creatability</u>)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Make connections to the daily schedule. Review the visual schedule and ask the student what activity will be next based on the schedule. See notes for adding concrete items that the student can put in order.	Model using the student's form of communication. <i>Look, what, when, do</i>	For each activity, explore the materials needed for that activity. For example when reviewing lunch provide a spoon or when reviewing PE provide a ball. These items can be put in the order of the daily schedule.

Establish a purpose	Model using the	
"Today we will learn to put things in order. We will use a model to help us."	communication.	
	Put	
<ul> <li><b>Teach and model the concept</b></li> <li>Place 3 different shapes in front of the student. Allow the student to interact with the shapes. Talk about the attributes of each shape.</li> <li>Put the three shapes in an order. For example - green triangle, orange square, yellow hexagon. Say: "I will use this model (point to the shapes) to make another set just like it. I will put the shapes in the same order as the model."</li> <li>Begin placing the second set of shapes one at a time right after the model. Place the green triangle right after the yellow hexagon, then the orange square, and finally the yellow hexagon.</li> <li>While you are placing the shapes refer to the model by pointing and naming the shape.</li> <li><u>Say:</u> "First I need a green triangle to match the first shape. I will put it right after the yellow hexagon." (Move to the next shape in the model.) "Next I see an orange square, so I need to find one of those. Here is an orange square. I will put it right after the green triangle just like the model." (Move to the next shape in the model.) "Next I see a yellow hexagon. I need to find another one to put after my orange square. Here is another yellow hexagon. I will put it at the end."</li> <li>Model at least two other patterns using a similar script.</li> </ul>	Model using the student's form of communication. <i>Put, look, here, it ,</i> <i>same, different</i>	This is an opportunity to work on joint attention and engagement through the use of sound, light, touch and movement. Ensure that students with vision impairments have an opportunity to feel the shapes as you discuss them and place them in a pattern.
THINK AND DO		
Students think about what to do:	Model using the	Provide ample wait
Place 3 different shapes in front of the student along with the piles of extra shapes. Allow the	communication.	that student based on their processing needs.

student to interact with the items and talk about their attributes. Say: "Here is a model of a pattern. Here are some extra shapes. Put them in the same order as the model. Put the first one here." (Point to the space right after the last shape in the model.)	For students with visual impairments, make sure the shapes used are dissimilar enough to be distinguishable by touch alone. As the student becomes more accurate, increase the extras pile size and/or include distractor shapes. Another option is to place the shapes already in order so the student just chooses them one at a time. Once they can do this, then mix up the order of the extra shapes.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>	Provide ample wait time based on the student's processing needs. There should be no adult coaching at this time. Use this as an
The student should select the appropriate shapes to copy the model, placing them just after the model pattern.	opportunity to observe the student's response and make notes. You may provide prompts and repeat the directions. If the student does not respond, use this as an opportunity to improve joint attention and engagement through

		the use of light, sound, touch, and movement. Students with physical limitations may need assistance moving the shapes. Eye gaze, a pushing stick, and/or verbal/AAC direction to an adult may help.
APPLY		
Students describe what was done. Say: "Tell me what you did." The student may respond with: "I look." I put same." "I put here."	Model using the student's form of communication. <i>You, do</i>	Provide ample wait time based on the student's processing needs.
Get feedback Provide feedback. If the student is correct, then acknowledge their work and move on to the next step. For example: "You made the same pattern. You put them in order. Great thinking!" If the student was not correct, move through each shape and ask "Same or different?" while referring to the model and the shape the student placed. Talk about the attributes that might be the same as well as what makes it different.	Model using the student's form of communication. You, make, same, different	If the student did not respond, this is another opportunity to model and work on joint attention and engagement through the use of sound, light, touch, and movement.
Make explicit what the students were thinking and doingExplain how the student's thinking process went, expanding on their description of the process. Model the correct language.For example: "I saw you look at the model. You were looking for the extra shape that was the same. You looked at its color and shape. You decided it was the same so you put it in the pattern. Great thinking!"	Model using the student's form of communication. You, look, same, put	

## Formative Assessment

- Did not attend/no response
  Attended/no response
  Attended/response incorrect
  Attended/response partially correct
  Attended/response fully correct

## MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize "Before," "After" and "Next"



## Purposes

The student will demonstrate understanding of the terms "before," "after," and "next" through identifying the objects/items/pictures/actions/numbers that come before, after or next when given an object/item/picture/action/numbers.

- **EE.1.MD.3.c** Identify activities that come before, next, and after
- M.EE.3.NBT.3 Count by tens using models such as objects, base ten blocks, or money.
- **EE.2.NBT.2.b** Name the next number in a sequence between 1 and 10

## Materials

- Copy of Core Vocabulary board for each student
- Copy of formative assessment for each student
- Items for identifying "before," "after," and "next." List of possible items can be found here:
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Eraser, pencil, paintbrush, domino

(**\*Note:** For early lessons, only use one target term at a time. When all three have been introduced and the student is showing some understanding, more than one can be addressed in a single session.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Use the daily schedule to connect to the term "after." For example: <b>"We have lunch after math."</b>	Model using the student's form of communication. <i>I, you, he, she, here,</i> <i>not</i>	This kind of activity should be done often to build true understanding of order words such as "after."
Another option is to introduce or make a connection when lining up. <b>"Tom is before Lisa."</b>		There are many other opportunities to connect to real-life uses of these terms

		such as getting dressed, making a recipe, doing chores, etc.
<i>Establish a purpose</i> "Today we will learn to find an item or activity that comes <u>before</u> another item or activity."	Model using the student's form of communication. <b>Go, look, here</b>	Exchange the underlined term when you change the target skill.
<b>Teach and model the concept</b> "We use the word before to mean it comes first." Place the eraser and the pencil in front of the student. Allow the student to interact with the items while you discuss their attributes and how they are used. Place the eraser and the pencil next to each other with the eraser first. Model. Say: "The eraser comes before the pencil. The eraser is first so it comes before." As you say this, use gestures such as pointing and sweeping your hand under the items. You may do hand-under-hand with the student to help them feel this. The right hand "holds/touches" the pencil, while the left hand "holds/touches" the eraser while saying "before."*	Model using the student's form of communication. <i>Go, look, here</i>	Pay attention to the student's perspective during this lesson to avoid confusion. It might be helpful to sit side-by-side so both of you have the same view. In future lessons, you may increase the number of items used in the teaching and doing phases. *When teaching the other terms, you would switch hands. We are aiming for a kinesthetic input here. We want them to "feel" the placement of each position word.
THINK AND DO		
Students think about what to do: Place the paintbrush in front of the student. Hand a domino to the student. Say: "Put the domino before the paintbrush."	Model using the student's form of communication. <i>Go, look, here, put</i>	Provide wait time appropriate for that student based on knowledge of the student's processing needs.

<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should put the domino in front of the paintbrush showing knowledge of "before."		There should be no adult coaching at this point. This is an opportunity to observe and make notes of the student's response. Prompts and repeated directions may be provided.
		Provide ample wait time based on the student's processing needs.
		If the student has physical limitations, eye gaze, a pushing stick or verbal/AAC direction to an adult are options.
		If there is no response, this is an opportunity to improve joint attention and engagement through the use of light, sounds, touch, and movement.
APPLY		
Students describe what was done.Say: "Tell me what you did."The student may say: "I look." "I put." "Ithere."	Model using the student's form of communication. <i>What, you, do</i>	Provide ample wait time based on knowledge of the student's processing needs.
<i>Get feedback</i> Provide feedback.	Model using the student's form of communication. <i>You, put, here, it</i>	If there is no response, this is another opportunity to improve joint attention and
	1	1

If the student is correct, acknowledge it and move on to the next step. For example: <b>"Great</b> <b>job! You put the domino before the</b> <b>paintbrush. The domino comes first."</b> If the student is incorrect, reteach using the original teaching step. See above.		engagement through the use of light, sounds, touch, and movement.
Make explicit what the students were thinking and doingExplain how the student's thinking process went, expanding on their description of the process. Model the correct language.For example: "You remembered that before means to come first. So you put the domino first. You put it before the paintbrush."	Model using the student's form of communication. <i>You, put, here, it</i>	
Formative Assessment Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

## MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize Attribute Values



## Purposes

The student when given an attribute, will select an object/picture that represents that attribute. This can be carried into the beginnings of continuing a pattern. Students should be familiar with a variety of attribute values.

- See IP: K-5 Attribute Introduction Lesson Routine if the student needs a review or continued practice. <u>https://docs.google.com/document/d/1\_crmZ7rkmBMjD4kTj384\_g3fBFAmShdOtFFt4</u> 65QQP8/edit
- **M.EE.4.OA.5** Use repeating patterns to make predictions.

- Copy of Core Vocabulary board for each student
- Copy of formative assessment for each student
- Ideas for items that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: 1 bumpy ball, 1 smooth ball, 1 eight-inch ribbon, 1 four-foot ribbon, 1 paper clip, 1 rubber band

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Play "I spy" with known familiar objects. If the student is not able to scan the room due to physical or vision impairments, place items that will match the clues in front of the student to allow for exploration.	Model using student's form of communication. <i>I, look</i>	When describing the item, use attribute values that the student has mastered. These may fall outside of those used in math class. For example, you may give the hint, that it is <b>"Johnny's</b> <b>favorite toy."</b>
<i>Establish a purpose</i> "Today we will learn to find an item when you know at least one of its characteristics."	Model using student's form of communication. <i>Look, same</i>	

Say: "I want the item that is stretchy. I look at both items. I can feel each one to see if it is stretchy. (Model interacting with the items.) The rubber band stretches when I pull at both ends. The rubber band is stretchy. The paper clip is NOT stretchy."Model with the other items, following a similar script.THINK AND DOStudents think about what to do: Place two different items in front of the student. Allow the student to interact with the items. Allow the student to interact with the items. For example, a bumpy ball and a smooth ball. "We can play catch with a ball."Model using student's form of communication. You, what, doProvide ample wait time appropriate for that student.Say: "Point to the ball that is bumpy." On another trial say: "Point to the ball that is smooth."Provide ample wait time appropriate for that student to that student to that student to that student to the ball that is bumpy."Students do:Provide ample wait time appropriate for that student to that student to that student appropriate for that student appropriate for that student.Students do:Provide ample wait time appropriate for that student has do on	<b>Teach and model the concept</b> Place two different objects in front of the student. For example - paper clip and rubber band. Allow the student to interact with the items as you discuss what they are used for. "This is a paper clip and this is a rubber band. We use them to hold groups of things together. The paper clip is shiny. The paperclip is made of metal. It is hard. When I tap it on the table it makes a sound. The rubber band is tan. The rubber band is soft. I can stretch it out. It doesn't make a sound when I tap it on the table." While you are saying this, point to the target item and demonstrate its attributes.	Model using student's form of communication. <b>Do, same, different,</b> <b>look, on, some, it</b>	If the student has a visual impairment, make sure the target attributes do not rely on vision to distinguish them. This is an opportunity to work on joint attention and engagement through the use of light, sound, touch, and movement.
THINK AND DOStudents think about what to do:Place two different items in front of the student. Allow the student to interact with the items and discuss what you can do with the items. For example, a bumpy ball and a smooth ball. "We can play catch with a ball."Model using student's form of communication.Provide ample wait time appropriate for that student.Say: "Point to the ball that is bumpy." On another trial say: "Point to the ball that is smooth."Provide ample wait time appropriate for that student.Students do: • Solve the problemProvide ample wait time appropriate for that student do a smooth	Say: "I want the item that is stretchy. I look at both items. I can feel each one to see if it is stretchy. (Model interacting with the items.) The rubber band stretches when I pull at both ends. The rubber band is stretchy. The paper clip is NOT stretchy." Model with the other items, following a similar script.		
Students think about what to do:Model using student's form of communication.Provide ample wait time appropriate for that student.Place two different items in front of the student. Allow the student to interact with the items and discuss what you can do with the items. For example, a bumpy ball and a smooth ball. "We can play catch with a ball."Model using student's form of communication. You, what, doProvide ample wait time appropriate for that student.Say: "Point to the ball that is bumpy." On another trial say: "Point to the ball that is smooth."Provide ample wait time appropriate for that student.Students do: • Solve the problemProvide ample wait time appropriate for that student based on	THINK AND DO		
<ul> <li>Solve the problem</li> <li>Provide ample wait time appropriate for that student based on</li> </ul>	Students think about what to do: Place two different items in front of the student. Allow the student to interact with the items and discuss what you can do with the items. For example, a bumpy ball and a smooth ball. "We can play catch with a ball." Say: "Point to the ball that is bumpy." On another trial say: "Point to the ball that is smooth."	Model using student's form of communication. <b>You, what, do</b>	Provide ample wait time appropriate for that student.
	<ul><li>Solve the problem</li></ul>		Provide ample wait time appropriate for that student based on

<ul> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		the student's processing needs. There should be no adult coaching at this point. Use this time to make observations and notes about the student's responses. If the student does not respond, use this as an opportunity to work on joint attention and engagement through the use of light, sound, touch, and movement. If the student has a visual impairment, make sure the target attribute can be felt or heard by the student. If the student has physical limitations, allow the use of eye gaze, a pushing stick, and/or verbal/AAC direction to an adult.
APPLY		
Students describe what was done.Say: "Tell me what you did."The student may say: "I look." "It on." It not on."	Model using student's form of communication. <b>What, you, do</b>	
<i>Get feedback</i> Provide feedback. If the student was correct, acknowledge their	Model using student's form of communication.	
work and move on to the next step.	sume, aijjerent	

For example: <b>"You chose the one that</b> matched! Great job!"		
If the student was incorrect, compare and contrast the attributes of the object and review the target attribute value.		
For example: We are looking for the bumpy object. Hold up the bumpy object and say "bumpy" while also allowing the student to interact with it while you say "bumpy." Pick up the other object and say "smooth" while allowing the student to interact with it while you say "smooth."		
Repeat this process at least two more times alternating the attribute value.		
Make explicit what the students were thinking and doing	Model using student's form of	
Explain how the student's thinking process went, expanding on their description of the process. Model the correct language.	You, look, same	
For example: <b>"You listened to me say the</b> attribute. Then you looked at the objects and noticed which one had that attribute. Great job thinking!"		
Formative Assessment		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		
# **Distal Precursor**

# MATH ESSENTIAL ELEMENTS LESSON PLAN



# **Purposes**

Students will be able to classify clocks and the time they display into sets that are the same or different.

- **EE.1.MD.3.d** Demonstrate an understanding that telling time is the same every day
- M.EE.3.OA.9 Identify arithmetic patterns.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- Time Worksheets | Time Worksheets for Learning to Tell Time: Use this website to create a variety of clock faces. Create both analog and digital clocks. The clocks should be cut apart. <u>https://www.math-aids.com/Time/</u>
- Clock Faces: Images of different kinds of clocks <u>https://docs.google.com/document/d/181wNqhn12l8e99Q2-a2LTIm9P\_hDVo0NM5X</u> <u>an7r2PXw/edit</u>
- <u>https://shared.tarheelreader.org/shared/read/telling-time</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete a shared reading activity using the link in the Notes column. Comments should be around the parts of the clock, why we need to tell time, and the difference between a digital and an analog clock.	Model using student's form of communication. For example: AAC, Braille, signing. Look, same, different, here, go	https://shared.tarheelr eader.org/shared/read /telling-time The students do not need to tell the time on the clock.
<i>Establish a purpose</i> "Today you will classify clocks based on their type and the numbers they are showing."	Model using student's form of communication. For example: AAC, Braille, signing.	The students do not need to tell the time on the clock. The focus will be on classifying the clocks based on

		the clocks features and times/numbers.
Teach and model the concept Place several (3-4) clock pictures (analog and digital, including some that tell the same hour and some with a different hour) in front of the students. Allow them to interact with the pictures and note the features of the clocks, such as the long and short hands, and the colon on the digital clock. Model classifying the clocks by their shape/type. <u>Say:</u> "I notice that these clocks are round (analog). They all have two hands on them pointing to the numbers 1-12 around the shape of a circle. These are all the same. But these clocks over here are different.They look like rectangles. They don't have hands on them. They all have these two little dots. The dots are called a colon. They separate the hour from the minutes." Model classifying the clocks by the hour hand time. <u>Say:</u> "I notice that on these clocks, the short hand which tells the hour all point near the number two and these digital clocks have a two in front of the colon. They all tell the time of about 2 o'clock."	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, look, same,</i> <i>different, here, on</i>	As you repeat this lesson, include other pictures of a wide variety of clock faces (include watches, digital clocks, analog clocks in the classroom/school building, clocks on computers or tablets, etc.) and model classifying by all times as well as by the type or look of the clock.
THINK AND DO		
Students think about what to do: Place 4-5 clocks that have some similarities and differences in their shape, design, or time. Say: "Classify these clocks. Show me how they are the same or different."	Model using student's form of communication. For example: AAC, Braille, signing. Look, same, different, put, here	Ensure that the clocks placed in front of the student can be seen and moved. For vision-impaired students consider using talking clocks or clocks with tactile features and numbers.

• Solve the problem		Allow wait time for processing based on
<ul><li>Build the model</li><li>Find the matching shapes</li></ul>		student's needs.
<ul><li>Put them in order</li><li>Interpret the data, etc.</li><li>Describe/share answer</li></ul>		There should be no adult coaching at this time, other than
The student should place the clocks in at least two groups. The groups should clearly show		prompts to respond or to work.
how the clocks in each group are the same and then different from the other group.		Use this time to observe and record the student's responses.
		The student may use eye gaze, a pushing stick, peer-assisted scanning or verbal/AAC to direct an adult.
Students describe what was done.	Model using student's	Allow wait time based
Students describe what was done. Ask: "Why did you sort them like that?"	Model using student's form of communication. For	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.         Ask: "Why did you sort them like that?"         We are looking for the actions they went through to get the answer. Example: "Same."	Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.         Ask: "Why did you sort them like that?"         We are looking for the actions they went through to get the answer. Example: "Same."         "Different." "Look on it."	Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.         Ask: "Why did you sort them like that?"         We are looking for the actions they went through to get the answer. Example: "Same."         "Different." "Look on it."         Get feedback	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i> Model using student's form of	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.         Ask: "Why did you sort them like that?"         We are looking for the actions they went through to get the answer. Example: "Same."         "Different." "Look on it."         Get feedback         If the student was correct, acknowledge it and move on to the next step. For example: "Yes, the clocks in this group are all digital clocks. The clocks in the other group are analog	Model using student's form of communication. For example: AAC, Braille, signing. Why Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.         Ask: "Why did you sort them like that?"         We are looking for the actions they went through to get the answer. Example: "Same."         "Different." "Look on it."         Get feedback         If the student was correct, acknowledge it and move on to the next step. For example: "Yes, the clocks in this group are all digital clocks. The clocks in the other group are analog clocks."	Model using student's form of communication. For example: AAC, Braille, signing. Why Model using student's form of communication. For example: AAC, Braille, signing. Here, it, same, different some	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.         Ask: "Why did you sort them like that?"         We are looking for the actions they went through to get the answer. Example: "Same." "Different." "Look on it."         Get feedback         If the student was correct, acknowledge it and move on to the next step. For example: "Yes, the clocks in this group are all digital clocks. The clocks in the other group are analog clocks."         If the student is incorrect, re-teach/model, using the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. Why Model using student's form of communication. For example: AAC, Braille, signing. Here, it, same, different, some	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.         Ask: "Why did you sort them like that?"         We are looking for the actions they went through to get the answer. Example: "Same." "Different." "Look on it."         Get feedback         If the student was correct, acknowledge it and move on to the next step. For example: "Yes, the clocks in this group are all digital clocks. The clocks in the other group are analog clocks."         If the student is incorrect, re-teach/model, using the teaching script above.         Make explicit what the students were thinking and doing	Model using student's form of communication. For example: AAC, Braille, signing. Why Model using student's form of communication. For example: AAC, Braille, signing. Here, it, same, different, some Model using student's	Allow wait time based on your knowledge of the student's needs.

Example: "You noticed these clocks were all round and had numbers. Those are analog clocks. You noticed these clocks over here only had numbers and they looked like rectangles. Great job sorting!"	example: AAC, Braille, signing. <i>Same, different, look</i>	opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Contrast Objects



# Purposes

Students will develop their ability to identify which object is different from other objects. Students will begin to understand what characteristics make that object different from the other objects.

- **EE.2.NBT.2.b** Name the next number in a sequence between 1 and 10
- M.EE.3.OA.9 Identify arithmetic patterns.

# Materials

- Copy of Core Vocabulary Board for each student
- Copy of Formative Assessment for each student
- List of materials that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson:
  - Pattern blocks concrete or virtual
  - **Pattern Shapes by the Math Learning Center** <u>https://apps.mathlearningcenter.org/pattern-shapes/</u>
- More activities/information regarding Contrasting objects and patterns: <u>https://learningtrajectories.org/index.php/learning\_trajectories/get\_trajectory\_detail</u> <u>s/3</u>

(**\*Note:** While this lesson is written using pattern blocks, it is recommended that other objects/pictures be used to provide repetition with variety such as counting blocks, pictures of animals, letter and number cards, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge In a small group compare and contrast the clothes everyone is wearing. Practice using "same" and "different" when comparing a two students' shoes or their shirt. Ask them to think in their heads about how the items are the	Model using the student's form of communication. <i>Same, different</i>	If there are students with vision impairments, use examples that can be distinguished by touch or sound such as the texture of shirt sleeves or the sounds of

same or different. Have a few students share their ideas.		shoes being stomped on the floor.
<i>Establish a purpose</i> "Today we will learn how to find an object that is different and tell why it is different from other objects."	Model using the student's form of communication. <i>Look, different, why</i>	
Teach and model the conceptSay: "When we work with patterns, we needto be able to tell what is different in thepattern."Place 3 pattern blocks (two are the same and one is different) in front of the student. Model noticing their attributes.For example: "Here is a green triangle. I can count the sides 1-2-3. Here is an orange square. I can count the sides 1-2-3-4. Here is another green triangle. It also has 3 sides, 1-2-3. This shape (triangle) and this shape (triangle) are the same. They are both the same color and have 3 sides. This shape (square) is a different color and has more sides."Model with other groups of shapes.	Model using the student's form of communication. <i>Look, different, why</i>	For students with visual impairments, focus on the attributes that can be felt like shape, texture (consider adding textured cloth/paper to the shapes), relative size, and number of sides. If the student has difficulty with joint attention or engagement use sight, sound, touch, and movement to make things interesting and gain attention as you are modeling.
THINK AND DO		
<ul> <li>Students think about what to do:</li> <li>Place a group of 3 objects (2 are the same and 1 is different) in front of the student. Encourage him/her to interact with the items.</li> <li><u>Ask:</u> "What do you notice?" Or "What do you see? Or "What do you feel?"</li> <li>Then place the items in a row. <u>Ask:</u></li> <li>"Which one is different?"</li> <li>"How is it different?"</li> </ul>	Model using the student's form of communication. <i>Look, you, what different</i>	Provide wait time appropriate for that student. There should be no adult coaching at this time. This is an opportunity to observe the student's responses and make notes. If the student does not respond, use this as another opportunity

On successive repetitions, you may use the same shapes and mix up the order or change up the shapes that are used.		to work on joint attention and engagement through the use of light, sound, movement, and touch.
Students do: • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should interact with the shapes and respond to your questions.		Provide wait time appropriate for that student. There should be no adult coaching at this time. This is an opportunity to observe the student's responses and make notes. If the student does not respond, use this as another opportunity to work on joint attention and engagement through the use of light, sound, movement, and touch. Make sure students with visual impairments interact with the objects. If a student has physical limitations, the adult can assist with interacting. The student may respond via eye gaze, using a pushing stick or use verbal/AAC to direct
APPLY		
Students describe what was done. "Tell me what you noticed." or "Why did you choose that one?"	Model using the student's form of communication.	Try to attribute meaning to every communication attempt by looking at

The student may respond with: <b>"More" "Same"</b> <b>"Not more" "Different"</b>	You, do, why	the item the student is holding and comment about the attributes you see. Use your knowledge of your student's communication to expand on their comments.
Get feedback Provide feedback. If the student is correct, acknowledge their correctness and move on to the next step. For example: "You are correct. That one is different because it has 4 sides." If the student is incorrect, compare the shapes again as you did in the teaching step. Encourage the student to interact with the shapes as you model the descriptions.	Model using the student's form of communication. <i>You, different</i>	If the student does not respond, use this as another opportunity to work on joint attention and engagement through the use of light, sound, movement, and touch.
Make explicit what the students were thinking and doing	Model using the student's form of communication.	
Explain how the student's thinking process went, expanding on their description of the process. Model the correct language.	Same, different, more, not more, here, on, it	
For example: "We can count the sides and look at the color to tell which is different. These two are green and have 3 sides (1-2-3) and this one is orange and has 4 sides (1-2-3-4). It is different from those. Green and orange are different colors. 3 and 4 are different amounts."		
Formative Assessment		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Explain Number Sequence Pattern



# **Purposes**

Students will be able to tell the number-before and number-after (e.g., when asked "What comes after 5?" the student is able to indicate 6 without having to count up from 1; however, they still may use the count sequence to get a running start: 4, 5, 6). Students will be able to make close comparisons utilizing models (e.g., ten-frame, number line, sets) so they have a visual or tactual way to compare small collections (e.g., Which is more? 7 or 8; 3 or 4; 9 or 10).

- **EE.1.MD.3.d** Demonstrate an understanding that telling time is the same every day
- M.EE.3.NBT.3 Count by tens using models such as objects, base ten blocks, or money

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of materials that can be used during instruction
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Ten frame and counters
- Number line/chart
- Number Talks: Whole Number Computation, Grades K-5: A Multimedia
   Professional Learning Resource (additional resources to practice this skill)
   <a href="https://store.mathsolutions.com/number-talks-whole-number-computation-grades-k-5-a-multimedia-professional-learning-resource-270.html">https://store.mathsolutions.com/number-talks-whole-number-computation-grades-k-5-a-multimedia-professional-learning-resource-270.html</a>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete shared reading activities using the books linked in the Notes section. Comments should be related to things we do 'before' and 'after' to build understanding of these concepts.	Model using student's form of communication. For example: AAC, Braille, signing.	https://tarheelreader. org/2020/03/18/befor e-2/ https://tarheelreader. org/2020/04/07/after/

You may also wish to practice rote counting for a few moments.		
<i>Establish a purpose</i> "Today you will learn to tell me the number right before or right after a given number without counting from one."	Model using student's form of communication. For example: AAC, Braille, signing.	
<b>Teach and model the concept</b> Place the ten-frame, counters and number lines/charts in front of the student. Allow them to interact with the materials for a few minutes. Fill a ten frame with 2 counters. <u>Say:</u> "I see two counters in my ten-frame. If I took one away then the number right before two would tell me how many. Let me think. One comes right before two. Let's check. (Take away one counter.) I just see one counter. One comes before two." Place the two counters in the ten-frame again. <u>Say:</u> "I see two counters in my ten-frame. If I added one more counter, how many would I have. The number right after two would tell me how many. Let me think. Three comes right after two. Let's check. (Place one more counter in the ten frame.) I see three counters. Three comes right after two." Model with two or three other numbers as above.	Model using student's form of communication. For example: AAC, Braille, signing.	The models help students see that two is one more than one, and three is one more than two. This will help them build the concept that each number in the count sequence is one more than the previous number. Avoid always counting on from 1 at this point. The students need to learn to start at different numbers. During breaks and other practice times, rote count with the students, but start at other numbers, such as 4-5-6 etc. Refer the students to their number line/chart to double check the answers.
THINK AND DO		
Students think about what to do: Place a partially filled ten-frame (e.g. showing 4) in front of the student with their number line/chart.	Model using student's form of communication. For example: AAC, Braille, signing.	
<u>Say:</u> "What number comes before '4?' <u>Say:</u> "What number comes after '4?'	Look, what, here	

Students do:		Allow wait time for processing based on
<ul><li>Solve the problem</li><li>Build the model</li><li>Find the matching shapes</li></ul>		your knowledge of the student's needs.
<ul><li>Put them in order</li><li>Interpret the data, etc.</li><li>Describe/share answer</li></ul>		There should be no adult coaching at this time, other than
The student should indicate the correct numbers, in this case '3' and '5.'		prompts to respond or to work.
The student may reference their number line and/or move the counters to show each answer.		Use this time to observe and record notes about the student's responses.
		The student may use eye gaze, peer-assisted scanning, a pushing stick or verbal/AAC to direct an adult.
APPLY		
Students describe what was done.	Model using student's	Allow wait time based
Students describe what was done. <u>Ask:</u> "How do you know?"	Model using student's form of communication. For	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Example: "It here."	Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "It here." "It more." "It not more."	Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Example: "It here." "It more." "It not more."Get feedback	Model using student's form of communication. For example: AAC, Braille, signing. <b>Why</b> Model using student's	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Example: "It here." "It more." "It not more."Get feedbackIf the student was correct, acknowledge it and move on to the next step. For example: "Yes, '3' comes before '4.""	Model using student's form of communication. For example: AAC, Braille, signing. <b>Why</b> Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Example: "It here." "It more." "It not more."Get feedbackIf the student was correct, acknowledge it and move on to the next step. For example: "Yes, '3' comes before '4.""If the student is incorrect, re-teach/model using the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. Why Model using student's form of communication. For example: AAC, Braille, signing. You did it.	Allow wait time based on your knowledge of the student's needs.
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Example: "It here." "It more." "It not more."Get feedbackIf the student was correct, acknowledge it and move on to the next step. For example: "Yes, '3' comes before '4.""If the student is incorrect, re-teach/model using the teaching script above.Make explicit what the students were thinking and doing	Model using student's form of communication. For example: AAC, Braille, signing. Why Model using student's form of communication. For example: AAC, Braille, signing. You did it. Model using student's form of	Allow wait time based on your knowledge of the student's needs.

Example: "You modeled using the ten-frame and counters, then looked at your number line. Great job using your resources!"	You, look, same, different, more, not	and reinforce the thinking process.
Formative Assessment (option)		
<ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

MATH ESSENTIAL ELEMENTS LESSON PLAN Order Objects



## Purposes

Students will be able to put events, activities, numbers in order.

- EE.1.MD.3.c Identify activities that come before, next, and after
- **EE.2.NBT.2.b** Name the next number in a sequence between 1 and 10
- M.EE.3.OA.9 Identify arithmetic patterns.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of materials that can be used during instruction:
  - Educator Resource Page IE | DLM
- <u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>
  For this example lesson: Visuals of routines the students are familiar with such as
- hand-washing, snack time, a math or reading routine, getting ready to go home routine
- <u>https://accessiblechef.com/recipes/</u> (select a recipe and collect the ingredients)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Select a simple recipe to carry out as a group. While following the recipe discuss the importance of following the correct order of the recipe.	Model using student's form of communication. For example: AAC, Braille, signing.	https://accessiblechef. com/recipes/
<i>Establish a purpose</i> "Today you will learn to put some events and activities in order."	Model using student's form of communication. For example: AAC, Braille, signing.	As the students become more proficient with their counting skills, you may transition to using numbers.

Teach and model the conceptPlace the pictures (out of order) of an event or activity for which the students are familiar. Ask if they know which activity it is.Say: "Let's see if we can put the pictures in order. Model a Think Aloud for putting them in order."For example you have several pictures showing a hand-washing routine.Say: "Let's see. In the pictures I can see a sink, water, soap and hands. I think this is showing us how to wash our hands. I know I need to get my hands wet first. This picture shows the water running and someone putting their dirty hands under the water. That must come first. Next I know we use soap. This picture shows a picture of a soap dispenser. That picture goes next. I know we need to scrub our hands with soap. This picture here shows someone with soapy hands. That picture goes here. Then we need to dry our hands. This picture shows clean hands under running water. Finally we need to dry our hands. This picture shows someone holding a towel. This picture is last."*In future lessons use other routines/activities depicted in pictures.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Go, do, stop, finished</i>	For vision-impaired students use concrete items (e.g., soap, water bottle, towel, etc.) that depict each step in a routine. As the students become more proficient with their counting skills, you may transition to using numbers.
THINK AND DO		
Students think about what to do:         Place the pictures (out of order) in front of the student.         Say: "Put these pictures in order to show how we"	Model using student's form of communication. For example: AAC, Braille, signing.	For vision-impaired students use concrete items that depict each step in a routine.
<ul><li>Solve the problem</li><li>Build the model</li></ul>		Allow wait time for processing based on your knowledge of the student's needs.

<ul> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should put the pictures, items, or numbers in order.		There should be no adult coaching at this time, other than prompts to respond or to work. Use this time to observe and record the student's responses. The student may use eye gaze, peer-assisted scanning, a pushing stick or verbal/AAC to direct an adult.
APPLY		
Students describe what was done. Ask: "How do you know?" We are looking for the actions they went through to get the answer. Example: "I do." "I look." "I put."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why</i>	Allow wait time based on your knowledge of the student's needs.
Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Yes that is the correct order." If the student is incorrect, re-teach/model following the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You did it.</b>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You looked for what you do first during this activity. Then you put what you do next. Finally you showed when to stop."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, look, put, stop</b>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.

# Formative Assessment (option)

- \_\_\_ Did not attend/no response \_\_\_ Attended/no response

- Attended/response incorrect
   Attended/response partially correct
- \_\_\_\_ Attended/response fully correct

EMERGENT SET 1 (K-5 Target EEs)

Set/Separateness Lesson Plans

# **Initial Precursor**

# MATH ESSENTIAL ELEMENTS LESSON PLAN Identify Set/Separateness



# Purposes

To increase student's understanding of the concepts of set and separateness through adult modeling of related vocabulary and sorting/counting activities. To directly teach the vocabulary: **set**, **separate**, **group** 

- **M.EE.3.OA.4** Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.
- **M.EE.3.OA.1-2** Use repeated addition to find the total number of objects and determine the sum.
- **M.EE.3.NBT.2** Demonstrate understanding of place value to tens.
- M.EE.4.NBT.2 Compare whole numbers to 10 using symbols (<, >, =).
- **M.EE.4.NBT.4** Add and subtract two-digit whole numbers.
- **M.EE.4.MD.3** Determine the area of a square or rectangle by counting units of measure (unit squares)
- **M.EE.4.OA.1-2** Demonstrate the connection between repeated addition and multiplication.
- **M.EE.5.NF.1** Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).
- M.EE.5.NBT.1 Compare numbers up to 99 using base ten models.
- **M.EE.5.NBT.3** Compare whole numbers up to 100 using symbols (<, >, =).
- **M.EE.5.NBT.5** Multiply whole numbers up to 5x5.
- **M.EE.5.NBT.6-7** Illustrate the concept of division using fair and equal shares.

- Familiar items that come in sets (bundled together) and separate (loose):
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: 2 boxes of markers (1 set will stay in the box, the other set will be out of the box)
- CORE vocabulary board and/or AAC device for each student
- Copy of Formative Assessment for each student

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Using items the student is already familiar with, tell the student that the items are used for a similar purpose and go together. They are all used to	Model using Core board or AAC device. <i>Same, all, go, in, not,</i> <i>some</i>	Begin with items that are already familiar and being used by the student. Ex: set of markers/crayons, clothing, eating utensils, etc. Move on to less familiar items.
<i>Establish a purpose</i> "We are going to learn some new words that help us describe those things that go together and those things that don't belong."	Model using Core board or AAC device. <i>Some, go, not, in,</i> <i>same, some</i>	
<b>Teach and model the concept</b> Using the familiar items follow the sequence below: (Example: box of markers) Present the box of markers and <u>say</u> : "This is a set of markers. They are all together in the box. The box helps them stay together. They are all used to color or draw." Present some markers that are not in the box, but loose. <u>Say</u> : "These markers are separate from those markers. They are not in the box. They are separate." Point to the boxed markers and <u>say</u> : "This group of markers is in a set." Point to the loose markers and <u>say</u> : "This group of markers is separate."	Model using Core board or AAC device. <i>All, in, some, not</i>	

THINK AND DO		
Students think about what to do: Place the box of markers and the loose markers in front of the student. Ask student to point or indicate which is the "separate." Ask student to point or indicate which is "separate."	Model with Core Board or AAC device. <i>Where, in, not in</i>	Allow ample wait time based on the student's processing needs. May use partner-assisted scanning/eye gaze or a pointer *Note: These are not to be done at the same time. Depending on the student you may wish to work on one at a time (e.g. day 1 only ID set; day 2 only ID separate) or ask for one answer and provide feedback, then ask for the other one and provide feedback. *You should repeat this lesson with a variety of items. Use the Educator Resource page to find suggestions of items to use during instruction.
Students do:• Solve the problem• Build the model• Find the matching shapes• Put them in order• Interpret the data, etc.• Describe/share answerProvide wait time appropriate for that student.Observe student.Student provides answer using their mode of communication.	Possible words they may use: <i>In, not in</i> Most likely student will just point or use <i>"stop"</i> for partner-assisted scanning	Adults are not to provide any coaching at this point. Adults should observe the student's responses and make notes (refer to FA below).

APPLY		
Students describe what was done. Ask the student to tell what they did. Student should tell how they decided (thinking process) on their answer.	Student may use vocabulary such as: <i>All, in, some, not</i>	Adults are not to provide any coaching at this point. Adults should observe the student's responses and make notes (refer to FA below). Only direction prompts may be repeated.
Get feedbackIf no response (give plenty of wait time), then model a Think Aloud using the student's mode of communication.Provide feedback.Bring attention to the thinking process more than the correctness of the answer in the beginning. Try to look for connections demonstrating that the student understands the concept.For example: "You are correct. The markers that are in the box are a set. They are all together in a box. The loose markers are separate. They are away from each other."	Use the student's method of communication to share feedback. Possible words you may use: You, it, some, same, different, more, in, not	
Make explicit what the students were thinking and doingExplain how the student's thinking process went, expanding on their description of the process. Model the correct language.For example: "You looked at both groups of markers. You saw that some were in a box as a set and some were loose, or separate."Formative Assessment (option)	You may use vocabulary such as: <i>Look, it, do, like</i>	
Did not attend to items/no response		

- Attended to items/no response
  Attended to items/response incorrect
  Attended to items/response partially correct
  Attended to items/response fully correct

IP: K-5

MATH ESSENTIAL ELEMENTS LESSON PLAN It's Not Like the Others



**Purposes** Students will be able to select an item that is not like the others and remove it from the set.

- **M.EE.3.OA.4** Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.
- **M.EE.3.OA.1-2** Use repeated addition to find the total number of objects and determine the sum.
- **M.EE.3.NBT.2** Demonstrate understanding of place value to tens.
- **M.EE.4.NBT.2** Compare whole numbers to 10 using symbols (<, >, =).
- **M.EE.4.NBT.4** Add and subtract two-digit whole numbers.
- **M.EE.4.MD.3** Determine the area of a square or rectangle by counting units of measure (unit squares)
- **M.EE.4.OA.1-2** Demonstrate the connection between repeated addition and multiplication.
- **M.EE.5.NF.1** Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).
- **M.EE.5.NBT.1** Compare numbers up to 99 using base ten models.
- M.EE.5.NBT.3 Compare whole numbers up to 100 using symbols (<, >, =).
- **M.EE.5.NBT.5** Multiply whole numbers up to 5x5.
- **M.EE.5.NBT.6-7** Illustrate the concept of division using fair and equal shares.

# Materials

- Copy of Core Vocabulary board for each student
- Items that can be used during lessons can be found here:
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Eating utensils (forks, spoons, plates, etc.)
- Copy of the formative assessment for each student

(Repeat this lesson with other items to generalize this skill. Options would include placemats and napkins, scissors and glue, separating clothing piles for washing, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Present two items (e.g. two forks) and ask if the items are the same or different. Elicit the reasons they are the same. This should be a review of the same/different lesson. Present two items (e.g. a fork and a spoon) and ask if the items are the same or different. Elicit the reasons they are different. This should be a review of the same/different lesson.	Model using the student's form of communication. <i>Same, different</i>	If the students require a review of Same/Different refer to this lesson: <u>IP: K-5</u> <u>Same or Different</u> <u>Lesson Plan Routine</u> Since this lesson also addresses " <b>Attend</b> " consider using novel items or use this as an opportunity to try out multiple items for which you can get an attend response from any students for whom joint attention is still a concern.
<i>Establish a purpose</i> "Today you will learn to identify an item that is not like the others in a group."	Model using the student's form of communication. <i>Same, different</i>	
Teach and model the conceptSay: "Sometimes when we pick up a set ofitems, there is an item that doesn't belong.We don't need it right now."Show a group of 3 spoons and a fork.Say: "When I notice an item that is different,I can take it out of the group and put it tothe side or in a group to which it belongs."Point to the group of utensils. Say: "I see somespoons and one fork. The spoons arerounded and the fork has pointy tines. (Pointout these differences.) The fork is not like thespoons. It is different and does not belong inthe group of spoons. I can take it out of thegroup. (Model removing the fork.) The forkbelongs in its own group."	Model using the student's form of communication. <i>Same, different</i>	For students whose learning target is "Attend" continue to model Core vocabulary and descriptive language while at the same time trying novel ways to grab the student's attention through movement, light, sound, touch, etc.

Model 2-3 more times with different combinations of eating utensils.		
THINK AND DO		
Students think about what to do: Present the student with 3 spoons and 1 fork. Say: "Show me the one that is not like the others. Show me the one that is different."	Model using the student's form of communication. <i>Different</i>	If the purpose is to increase attention, select items, or try different novel items, and use touch, movement, light, sound to get an attend response from the student.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should indicate the fork (or the item that is different from the other items).		Allow appropriate wait time. There should be no coaching at this point. The student may use eye gaze, partner-assisted scanning, a pushing stick, or verbal/AAC to direct an adult to select the correct item.
APPLY		
Students describe what was done. Ask: "How did you know?" or "Why?"	Model using student's form of communication. For example: AAC, Braille, signing. You, same, different, why	Wait time is important. The goal is to teach the student to explain their thinking and that we want to hear from them. For students at the emergent level, there may be few responses. Through multiple practice opportunities paired with modeling in the next steps, students should begin to make an attempt to communicate.

<i>Get feedback</i> Let the student know the correct answer.	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	
Make explicit what the students were thinking and doing Model how to explain thinking. For example: "I looked at both things. The spoons were all rounded and the fork had pointy tines. It did not belong with the spoons."	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, look, same,</i> <i>different</i>	This is the opportunity for teacher think aloud and modeling.
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct	·	<u>.</u>

# IP: K-5

# MATH ESSENTIAL ELEMENTS LESSON PLAN Object Permanence



# Purposes

Students will be able to recognize that an item still exists even when it can't be seen.

- **M.EE.3.OA.4** Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.
- **M.EE.3.OA.1-2** Use repeated addition to find the total number of objects and determine the sum.
- M.EE.3.NBT.2 Demonstrate understanding of place value to tens.
- **M.EE.4.NBT.2** Compare whole numbers to 10 using symbols (<, >, =).
- **M.EE.4.NBT.4** Add and subtract two-digit whole numbers.
- **M.EE.4.MD.3** Determine the area of a square or rectangle by counting units of measure (unit squares)
- **M.EE.4.OA.1-2** Demonstrate the connection between repeated addition and multiplication.
- M.EE.5.NF.1 Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).
- M.EE.5.NBT.1 Compare numbers up to 99 using base ten models.
- M.EE.5.NBT.3 Compare whole numbers up to 100 using symbols (<, >, =).
- **M.EE.5.NBT.5** Multiply whole numbers up to 5x5.
- **M.EE.5.NBT.6-7** Illustrate the concept of division using fair and equal shares.

- Copy of Core Vocabulary board for each student
- Copy of the formative assessment for each student
- List of materials that can be used during instruction can be found here:
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Familiar items that are also of high value, towel or box (For students with vision impairments use items that make a sound when touched such as a tambourine, rattle, crinkly paper, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Allow the student to interact with their item(s) for several minutes. Use this as an opportunity to build language, by describing the item using attribute values and/or talking about it's purpose or importance.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Want, get, it, here,</i> <i>where, like</i>	Use items that the student really likes for this lesson. A preference assessment may help with students for whom it may not be clear. Parental input would be very helpful.
<i>Establish a purpose</i> <u>Say:</u> "Today, you will learn that things like your, are still here even if we can't see or hear them."	Model using student's form of communication. For example: AAC, Braille, signing. <i>It, here</i>	
<b>Teach and model the concept</b> Show the student their important object. Make sure it is within reach of the student. Place a towel over a very small portion of the item. <u>Say: "Your is partly covered by the towel.</u> I see most of it. If you want to play with it, you can have it." Model taking the item and directly giving it to the student. Through subsequent repetitions, cover more and more of the object until it is completely covered, but still within reach of the student. As the student improves in their understanding, begin to move the item more and more out of sight (e.g. off to the side, on a chair next to the student, etc.).	Model using student's form of communication. For example: AAC, Braille, signing. <i>Want, get, it, here, where, like</i>	This is a great opportunity to work on engagement with students. The use of light, sound, texture, and movement can encourage engagement and attention. For students with vision impairments, use items that make sounds easily. For students with physical impairments, look for clues that they are seeking the object. For example they may use eye gaze or lean their body, or get more active in their bodies.

THINK AND DO		
<b>Students think about what to do:</b> Place the preferred item in front of the student. Cover the item or place it in a box or out of sight. Wait for a response from the student.	Model using student's form of communication. For example: AAC, Braille, signing.	
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> The student should make an attempt to retrieve the item or indicate they want it.		Wait time without prompting is important for them to demonstrate their true understanding of the concept of "Object Permanence." The student may use eye gaze, body movement or other actions to indicate they want their preferred item.
APPLY		
<i>Students describe what was done.</i> <u>Say</u> (using excited tone of voice): <b>"What did</b> <b>you find?"</b>	Model using student's form of communication. For example: AAC, Braille, signing. <i>What, you, here</i>	This is another opportunity to build attention and engagement. Use light, sound, texture, and movement to build student interest and excitement.
<i>Get feedback</i> If the student did not respond, remove part of the covering to reveal the preferred item. Say: <b>"Look what I found. It was covered, but</b> <b>it was here the whole time. You can have it."</b>	Model using student's form of communication. For example: AAC, Braille, signing. <i>Look, here, it, you, want</i>	This is another opportunity to build attention and engagement. Use light, sound, texture, and movement to build student interest and excitement.

Make explicit what the students were thinking and doing Say: "Even though you couldn't see it, your was here the whole time. It was under/in this towel/box. You knew it didn't go away. You knew it was still here. Great job!"	Model using student's form of communication. For example: AAC, Braille, signing. Look, here, it, you, want	
<i>Formative Assessment (option)</i> <ul> <li>Did not attend to picture/no response</li> <li>Attended to picture/no response</li> <li>Attended to picture/response incorrect</li> <li>Attended to picture/response partially correct</li> <li>Attended to picture/response fully correct</li> </ul>		

# IP: K-5

# MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize "Some"



# Purposes

Students will be able to recognize groups of items as a set, not just as individual objects. Students will begin to recognize quantities of 1-4 items within a set as "some." Students will develop their ability to label items and count a small set of objects to show understanding of 'some.'

- **M.EE.4.MD.3** Determine the area of a square or rectangle by counting units of measure (unit squares)
- **M.EE.5.NF.1** Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).

- Items that can be used during lessons can be found here:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- For this example lesson: 4 erasers, 4 buttons, 4 checkers
- Access the Tar Heel Shared Reading book found in the notes below
- Visual/physical organizer that has at least 3 areas to place items

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete a shared reading activity to introduce/reinforce the Core Vocabulary word 'some.' Each time you come to the word 'some' find it on the Core board.	Model using the student's form of communication. <i>Some, look</i>	https://shared.tarheelr eader.org/shared/read /dogs-343 The main goal is to directly teach where the word 'some' can be found to allow for communication during the lesson.

Allow students some time to engage with the materials while you talk about what they are and what they are used for. For example: <b>"These are erasers. We use them to fix mistakes when we write. These are buttons. They fasten things, like our shirts, together. These are checkers. We use them to play the game Checkers."</b>		This is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to encourage engagement with the materials and instruction.
<i>Establish a purpose</i> "Today we will learn to use the word 'some' to mean a small group of things."	Model using the student's form of communication. <i>Some</i>	
<ul> <li>Teach and model the concept</li> <li>Present 2 erasers. "Here are some erasers."</li> <li>Count them out loud. "1-2. 2 erasers. 'Some' means a small amount of something. I have 'some' erasers."</li> <li>Place a mix of the items in front of the student. For example: 3 erasers, 2 buttons, 4 checkers. Make sure they are mixed together.</li> <li>"I have different things here, but I only need some buttons. I can put all the buttons together." Model grouping them as a set. Count out loud. "1-2. 2 buttons. I now have 'some' buttons."</li> <li>Replace the buttons and model with the other items following a similar script. Model at least 2 more times.</li> <li>Mix up the amounts of each type of item again and model placing the items in the organizer. Label it as 'some' and then count the set.</li> </ul>	Model using the student's form of communication. Some, here	For students with vision impairments, place the items in the student's hands to allow them to feel the items and the quantity while you count. This is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to encourage engagement with the materials and instruction.

THINK AND DO		
<ul> <li>Students think about what to do:</li> <li>Place the items (change up the amounts of each individual type of item) in front of the student.</li> <li>Tasks to give the student: <ul> <li>"Put some checkers in this section."</li> <li>"How many checkers did you put in this section?"</li> <li>"Point to some checkers."</li> </ul> </li> </ul>	Model using the student's form of communication. <i>Put, some, in, here, do</i>	
Students do: Solve the problem Build the model Find the matching shapes Put them in order Interpret the data, etc. Describe/share answer The student should be able to demonstrate placing some of each requested item in the organizer. The student should also be able to point or otherwise indicate some of a particular item. Counting may need support and modeling at this point.		Provide ample wait time based on the student's processing needs. There should be no adult coaching about how to do the task. Use this as an opportunity for observation with the exception of a student for whom joint attention and engagement are still the primary goals. This is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to encourage engagement with the materials and instruction. Students with physical limitations may use eye gaze, pointing sticks, or verbal/AAC

		directions to adults to complete the task. When asked to put some items in a section, it would be appropriate for the student to only put a portion of the checkers in the organizer.
APPLY		
Students describe what was done.	Model using the	Provide ample wait
"Tell me what you did?"	communication.	time based on knowledge of the student's processing
The student may say: <b>"I look." "I put some."</b>	You, do	needs.
<i>Get feedback</i> If the student completed the tasks correctly, acknowledge their work and move onto the next step.	Model using the student's form of communication. <b>You, do, some, here,</b>	If the student incorrectly sorts the items, for example mixes items, this is an opportunity to review
If the student completed the task incorrectly, model how to do those portions correctly, as was done during the teaching step. 'Think aloud' using the above script as a guide.	same, different, look, put, in	attributes and reinforce "same" versus "different." Talk about the differences such as shape, color,
If there was no response, use this as an opportunity to use light, sound, movement, and touch to work on increasing attention and engagement with the materials as you model how to complete the tasks.		use, and size. You may wish to return to the attribute lesson and include these items, or similar items in the rotation.
Make explicit what the students were thinking and doing Make the student's thinking and actions 'visible.'	Model using the student's form of communication.	
For example: <b>"I saw you look at all of the</b> <b>items. You looked for things that were the</b> <b>same and put them together. Then you</b> <b>counted them.</b> "	You, do, some, here, same, different, look, put, in	
Or		
"I saw you look for some checkers. You only picked up the checkers."		
--	---	--
Formative Assessment (option)		
<ul> <li>Did not attend to picture/no response</li> <li>Attended to picture/no response</li> <li>Attended to picture/response incorrect</li> <li>Attended to picture/response partially correct</li> <li>Attended to picture/response fully correct</li> </ul>	:	

#### IP: K-5

# MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize "Subset"



# Purposes

The student will be able to recognize a subset. For example, in a set of toy vehicles, the student can separate into cars and trucks and then in each of those sets can separate by color.

- **M.EE.3.OA.1-2** Use repeated addition to find the total number of objects and determine the sum.
- M.EE.4.NBT.4 Add and subtract two-digit whole numbers.
- **M.EE.4.OA.1-2** Demonstrate the connection between repeated addition and multiplication.
- **M.EE.5.NBT.5** Multiply whole numbers up to 5x5.
- **M.EE.5.NBT.6-7** Illustrate the concept of division using fair and equal shares.

# Materials

- Copy of Core Vocabulary board for each student
- Copy of formative assessment for each student
- Items that can be used during lessons can be found here:
  - Educator Resource Page IE | DLM
    - https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Crayons, markers, colored pencils (there should be multiples of each color of crayon, marker, colored pencils)

(During future re-teaching opportunities, use different items such as crackers/cookies, eating utensils, articles of clothing, etc.)

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Sort the class into two groups (e.g. boys and girls). Label this grouping as a "set." Provide the students with an opportunity to use the crayons, markers, and colored pencils.	Model using the student's form of communication. <i>Same, different</i>	If the students struggle with this, consider re-teaching the following lessons - IP: K-5 Identify Set/Separateness Lesson Routine (https://docs.google.co m/document/d/1Ih 5n OUAaJw6XzDceTXJHM

Establish a purpose "Today you will learn to make a subset or another group within a larger group."	Model using the student's form of communication. Same, different, here, in, all, some	Ars3WOThjHQa8nuhW LOcQ/edit#heading=h. j8eo286y792j) or IP: K-5 Attribute Introduction Lesson Routine (https://docs.google.co m/document/d/1_crm Z7rkmBMjD4kTj384_g 3fBFAmShdOtFFt465Q QP8/edit) "Mark making" opportunities are very important.
<ul> <li><b>Teach and model the concept</b></li> <li>With the students still in their "sets", make smaller groups within based on an attribute such as shirt color or hair color.</li> <li><u>Say:</u> "We can make a "subset" or smaller group using another attribute. This subset of students all have red shirts. This subset of students all have blue shirts."</li> <li>Model regrouping the students into other subsets, returning to the original "sets."</li> <li>Model creating subsets with the crayons, markers and colored pencils - Main collection/group would include all coloring utensils. Then separate by color. These would be your set. Then separate by type of writing utensil. These are your subsets.</li> <li><u>Say:</u> "Here are some things we can use to color pictures. This is a collection of coloring items. I can make sets of each color. Here is</li> </ul>	Model using the student's form of communication. Same, different, here, in, all, some	This is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to encourage engagement with the materials and instruction. If a student has a vision impairment, use attributes that can be felt or heard such as type of shirt or give the students instruments that make noises. Teacher modeling of use of vocabulary and the think aloud is very important.

a set of brown. Here is a set of red. Here is a set of blue. I can then make subsets based on the kind of coloring utensil. Here is a subset of brown crayons. Crayons are made of wax. Here is a subset of brown markers. Markers are made of plastic. Here is a subset of brown colored pencils. Colored pencils are made of wood." Repeat two to three times. Model a think aloud		Use this as an opportunity to continue to notice attributes.
each time your regroup as above.		
THINK AND DO		
<i>Students think about what to do:</i> Place a small collection, set and subset of the coloring utensils (similar to how you modeled).	Model using the student's form of communication.	Provide wait time appropriate for that student.
<u>Say:</u> "Show me the subset."	Where, it	For students with a vision impairment, allow them to feel the items. Other options for sets include toys, food items with different shapes, etc.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> </ul>		Allow ample wait time based on the student's processing needs. May use
<ul><li>Put them in order</li><li>Interpret the data, etc.</li><li>Describe/share answer</li></ul>		partner-assisted scanning/eye gaze or a pointer.
The student will indicate the smallest group.		This is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to encourage engagement with the materials and instruction.

APPLY		
Students describe what was done. Say: "Tell me how you know."	Model using the student's form of communication. <i>Same, different, it,</i> <i>here, why</i>	If no response (give plenty of wait time), then model using the student's mode of communication. This is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to encourage engagement with the materials and instruction.
Get feedback Provide feedback. For example <u>say:</u> "Yes, that is the subset. It is a smaller group in the set. They are all brown crayons." If the student is incorrect, model or re-teach as done in the teaching portion of the lesson.	Model using the student's form of communication. <i>You, same, different</i>	Bring attention to the thinking process more than the correctness of answer in the beginning. Try to look for connections that the student understands the concept. This is an opportunity to work on joint attention and engagement. Use light, sound, movement, and touch to encourage engagement with the materials and instruction.
Make explicit what the students were thinking and doing Explain how the student's thinking process went, expanding on their description of the process. Model the correct language.	Model using the student's form of communication.	This is an opportunity to work on joint attention and engagement. Use light, sound,

For example, <u>say:</u> "All of these items can be used to color or draw. This set is all brown so we can color things that are brown, like a tree trunk or a cookie. This subset is all of the brown crayons. Crayons are a different shape and size than markers. They are made of different materials, but they are all used to color."	lt, same, different, look, here, all, some	movement, and touch to encourage engagement with the materials and instruction.
Formative Assessment          Did not attend/no response         Attended/no response         Attended/response incorrect         Attended/response partially correct         Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Set/Separateness Routine



# Routine #2

- **M.EE.3.OA.4** Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.
- **M.EE.3.OA.1-2** Use repeated addition to find the total number of objects and determine the sum.
- **M.EE.3.NBT.2** Demonstrate understanding of place value to tens.
- M.EE.4.NBT.2 Compare whole numbers to 10 using symbols (<, >, =).
- M.EE.4.NBT.4 Add and subtract two-digit whole numbers.
- **M.EE.4.MD.3** Determine the area of a square or rectangle by counting units of measure (unit squares)
- **M.EE.4.OA.1-2** Demonstrate the connection between repeated addition and multiplication.
- **M.EE.5.NF.1** Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).
- M.EE.5.NBT.1 Compare numbers up to 99 using base ten models.
- M.EE.5.NBT.3 Compare whole numbers up to 100 using symbols (<, >, =).
- **M.EE.5.NBT.5** Multiply whole numbers up to 5x5.
- M.EE.5.NBT.6-7 Illustrate the concept of division using fair and equal shares.

# Materials

- Sets of items to count (begin with familiar and move to unfamiliar)
- Core vocab board or AAC device
- Number strip (0-9) that is accessible to each student

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge "You have two shoes. One for each foot. One. Two. (adult models)."	Model pointing to shoes as you count.	Begin with items that are already familiar and being used by the student. Ex: toys, manipulatives, personal items like clothing or hygiene items.

	1	
		Move on to less familiar items. See below for a list of materials from the material list that may be used during the testlets. For images to use for counting: <u>https://www.smore.co</u> <u>m/fgct6-how-many</u>
Establish a purpose	Model using Core	
We counted your shoes to make sure you have shoes for both feet.	Some go not	
	Joine, 50, not	
We count groupings or sets of things to see how many we have.		
Teach and model the concept	Model using Core	
Using the familiar items follow the sequence	board or AAC device.	
below: (Example: several markers)	All, in, some, not	
Present the markers.		
Label it: "There are 3 markers."		
Model counting: <b>"1, 2, 3.</b> "		
Re-label: "There are 3 markers."		
THINK AND DO		
Students think about what to do:	Model with Core	May use
Ask student to count and label the set.	Board or AAC device	partner-assisted
	You do	scanning
Students do:	Possible words they	Adults are not to
Solve the problem	may use:	at this point.
Build the model		
<ul><li>Find the matching shapes</li><li>Put them in order</li></ul>		Adults should observe the student's

<ul><li>Interpret the data, etc.</li><li>Describe/share answer</li></ul>		responses and make notes (refer to FA
Provide wait time appropriate for that student. Observe student. Student provides answer using their mode of communication.		below).
APPLY		
Students describe what was done.Ask the student to tell what they did. If no response (give plenty of wait time), then model a Think Aloud using the student's mode of communication.Student should tell how they decided (thinking process) on their answer.	Student may use vocabulary such as: <i>All, in, some, not</i>	Adults are not to provide any coaching at this point. Adults should observe the student's responses and make notes (refer to FA below). Only direction prompts may be repeated.
<i>Get feedback</i> Provide feedback. Bring attention to the thinking process more than the correctness of the answer in the beginning. Try to look for connections demonstrating that the student understands the concept.	Use the student's method of communication to share feedback. Possible words you may use: You, its, some, same, different, more	
Make explicit what the students were thinking and doing Explain how the student's thinking process went, expanding on their description of the process. Model the correct language.	You may use vocabulary such as: <i>Look, it, do, like</i>	
<ul> <li>Formative Assessment (option)</li> <li>Did not attend to picture/no response</li> <li>Attended to picture/no response incorrect</li> <li>Attended to picture/response partially correct</li> <li>Attended to picture/response fully correct</li> </ul>		

# **Distal Precursor**

MATH ESSENTIAL ELEMENTS LESSON PLAN Combine Sets/Demonstrate Concept of Addition



# Purposes

Students will be able to combine 2 partially complete sets (use five/ten-frames, circles, other set models) into one larger set.

- **M.EE.3.OA.1-2** Use repeated addition to find the total number of objects and determine the sum.
- **M.EE.3.OA.4** Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.
- M.EE.4.NBT.4 Add and subtract two-digit whole numbers.
- **M.EE.4.OA.1-2** Demonstrate the connection between repeated addition and multiplication.

# Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- 3 five-frames for each student, including one with which to model if necessary
  - **Five Frame PDF** <u>https://lrt.ednet.ns.ca/PD/BLM/pdf\_files/five\_and\_ten\_frames/five\_frame.pdf</u>
- Items to count. A list of ideas can be found here:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson at least 5 cubes for each student plus 5 more with which to model
- A simple recipe plus its ingredients: <u>https://accessiblechef.com/recipes/</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge	Model using student's form of	This recipe is simple enough to do in an
Make a simple recipe, either one you are familiar with or you may try one from the link provided.	communication. For example: AAC, Braille, signing.	elementary classroom and provides an end product that can provide some sensory
While making the recipe, use the word 'combine' multiple times as the ingredients are	Put, all, in here, some	input and strengthening of finger muscles.

added to help the students understand the meaning.		<u>https://accessiblechef.</u> <u>com/recipes/cloud-do</u> <u>ugh/</u>
<i>Establish a purpose</i> <u>Say:</u> "Just like combining ingredients to make a recipe, we can combine other items together to make something bigger."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, in, more</b>	
<b>Teach and model the concept</b> Place connecting cubes and the five-frames in front of the students. Allow them to interact with the items. Demonstrate how to put one cube in each box. Allow the students to try. <u>Say:</u> "Combine means put together into one group. We combined the ingredients in the recipe above to make We can do the same thing with objects in sets. Watch." In one five-frame, count out loud while you place 2 cubes. "1-2." In the other five frame, count out loud while you place 2 cubes. "1-2." In the other five frame, count out loud while you place 3 cubes. "1-2-3." Place a third five-frame below the two others. <u>Say:</u> "I can combine these two five-frames into one. Watch." Model taking each of the cubes from its original five-frame and placing it into the new five-frame. Count each cube as you move it. "1-2-3-4-5. I combined these two five-frames into one. I had 2 cubes in the first one and 3 cubes in the second one. That makes a total of 5 cubes all together." Model at least 2 more times with other amounts such as 1 + 3, 2 + 2, etc. Use the above script as a guide.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Put, make, in, here</i>	Allow vision-impaired students to feel each group or use tactile five-frames matching the problem you are modeling. These could be made by gluing counters onto cardboard five-frames in different combinations. On each repetition of this lesson, use different materials and models, such as connecting cubes or other items, or circles as your sets.

# THINK AND DO

Students think about what to do: Place two partially filled five-frames in front of the student. Have the student count (out loud or in their head) each set. Then say: "Combine the sets. How many altogether?"	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, all</b>	If the student has good fine motor skills, you can alternately give them the cubes to put into the five-frame, guiding them to fill each successive box, rather than random boxes. Students with vision-impairments or physical limitations might use the pre-made five-frames as described above and then use cubes/counters to put into a 3D five frame.
<ul> <li>Students do:</li> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> Students should move the cubes to the third five-frame filling it appropriately. Students should count, or possibly subitize based on how the five-frame looks, to find the total cubes.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention (see below). Spend the time observing and making notes about the student's responses.
Students describe what was done.         Ask: "What did you do?"         We are looking for the actions they went         through to get the answer. Example: "I put all         here."	Model using student's form of communication. For example: AAC, Braille, signing.	Allow wait time based on your knowledge of the student's needs.
	You, do, put, all, here	

Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Great job combining!" If the student was incorrect, reset the five-frames and model how to combine and count again using the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, all</b>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You put all of the cubes from each of the top five-frames into the bottom five-frame. You combined them together. You found the total. Great job!"	Model using student's form of communication. For example: AAC, Braille, signing. You, put, all, in, here, some	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)          Did not attend/no response         Attended/no response         Attended/response incorrect         Attended/response partially correct         Attended/response fully correct		

MATH ESSENTIAL ELEMENTS LESSON PLAN Compare Two Quantities Up to 10 Using Models



# Purposes

When given two sets of objects, students will be able to tell if the quantities are the same/different, more/less, 1 more/1 less. (NOTE: Continue to count anything and everything across the school day and help students compare amounts.)

- **M.EE.5.NBT.3** Compare whole numbers up to 100 using symbols (<, >, =). In order to compare numbers (e.g., <, >, =).
- M.EE.4.NBT.2 Compare whole numbers to 10 using symbols (<, >, =).
- **M.EE.5.NBT.1** Compare numbers up to 99 using base ten models.
- **M.EE.5.NBT.6-7** Illustrate the concept of division using fair and equal shares.

# **Materials**

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- Items to count. A list of ideas can be found here:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: 20 counting cubes of at least 2 different colors
- **Subitizing Red More or Less:** This slide show can provide another way to compare two small amounts

https://docs.google.com/presentation/d/1MaOd9ovAGV644mp\_EukF\_6a7fbHXt8OiW DfZw6Njt-c/edit#slide=id.p

- https://shared.tarheelreader.org/shared/read/lets-find-more
  - You will also need either concrete representations of the items in the book or multiple pictures found here:
    - More Pictures

https://docs.google.com/document/d/1KkvHTdXC3wbTC86jP0DPE3uc ZsUIyDSLdS\_JgVUqSrk/edit

• <u>https://shared.tarheelreader.org/shared/read/who-has-less</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete shared reading activity with one or both of the provided stories. If you select "Let's Find More." you may have the students go on a hunt to find more of each item mentioned in the story. Prior to reading, either use concrete representations of the items or print copies of the pictures and place them around the room for the students to find.	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, same,</i> <i>different</i>	For students with vision-impairments, provide concrete representations of the objects rather than photos.
<i>Establish a purpose</i> "Today we will be comparing 2 sets of items. We will decide if one set has more, less than, or the same amount as the other set."	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, same, different</i>	
<ul> <li>Teach and model the concept</li> <li>Connect 10 cubes together (all one color).</li> <li>Connect 5 cubes together (a different color).</li> <li>Connect the other 5 cubes together (a different color). Lay all 3 cube towers next to each other for easier comparison.</li> <li>Say: "When something has more, it takes up more space or it is bigger." Point to the tower of 10 cubes. "This tower has more."</li> <li>"When something is less, it is smaller. There is not as much." Point to one of the towers of 5 cubes.</li> <li>"When something is the same or equal, it is just like the other one." Hold up the 2 towers of 5 cubes.</li> <li>Reorder the towers. Hold up the tower of 10 and one of the towers of 5. Emphasize the</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, same,</i> <i>different</i>	You can also use volume (sound or space) to demonstrate this concept. Each time you repeat the lesson, model using a different kind or different concrete materials. Throughout the school day look for opportunities to recognize more, less, and same.

smaller tower, while saying, <b>"This is less."</b> Emphasize the larger tower, while saying, <b>"This is more."</b> Hold up both towers of 5, while saying, <b>"This is the same."</b> Model with other size towers. For example: 8, 2 and 2; 6, 1, and 1. Follow the same modeling procedure.		
THINK AND DO		
Students think about what to do:Present the student with 3 different towers of 2different sizes.Say: "Point to more."Say: "Point to less."Say: "Point to same."	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, same</i>	Mix up the order. If the student appears to be confused or is not making progress with all 3 requests, work on one at a time. For example, only ask for 'more' in session 1, then 'less' in session 2, and 'same' in session 3. Once you see success, then you can ask for all three in one session.
Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer Student should point to the correct tower.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention (see below). Use this time to observe the student's responses and make notes. Students may also use eye gaze or

		peer-assisted scanning.
APPLY		
Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "It different." "All same." "I look."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Different, look, it, I,</b> <b>same, more, not, all</b>	Allow wait time based on your knowledge of the student's needs.
Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Great job comparing!" If the student was incorrect, model using the teaching routine above.	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, same, different</i>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "I saw you look at the towers. You found the bigger one. You knew that was more."	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, same,</i> <i>different, look</i>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Count All Objects in a Set or Subset



# Purposes

When given a set of items, students will be able to count to tell how many are in the whole set or how many are in the subsets. Quantities should be less than 10.

- M.EE.4.NBT.2 Compare whole numbers to 10 using symbols (<, >, =).
- M.EE.4.NBT.4 Add and subtract two-digit whole numbers.
- **M.EE.5.NBT.1** Compare numbers up to 99 using base ten models.

# Materials

- **Early Counting Routine Erickson** (number cards 1-10) <u>https://drive.google.com/drive/folders/1qLnM-A5jMVSbL\_Xg3WdqEqj6kiiW\_G0T</u>
- **Early Counting Routine Erickson** (routine card) <u>https://drive.google.com/drive/folders/1qLnM-A5jMVSbL\_Xg3WdqEqj6kiiW\_G0T</u>
- Items to count. Ideas can be found here:
  - Educator Resource Page IE | DLM <u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>
- Video demo of the Counting Routine: <u>https://www.google.com/url?q=https://www.youtube.com/watch?v%3D8UOs8rkK3X</u> <u>E%26t%3D41s&sa=D&ust=1597153231265000&usg=AFQjCNGNl35b3gMbXKaPjs1xR</u> <u>4OiTuP33g</u>

Follow all five steps on the **Early Counting Routine** card EVERY DAY with a different number 1-10. You should be able to get through 12-13 cycles in one year. Teach the numbers in order during the first cycle or two. Then you may mix up the order.

# MATH ESSENTIAL ELEMENTS LESSON PLAN Demonstrate the Concept of Subtraction



# Purposes

When given one large set of objects, the student will separate them into two sets of objects or two partially-filled five/ten frames. (*Relate to the part-part-whole problem-type.*)

• **M.EE.3.OA.4** Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.

#### **Materials**

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- Graphic/tactile organizers:
  - Five/ten-frames (3 five-frames for each student, including one with which to model if necessary)
    - Five Frame PDF
      - https://lrt.ednet.ns.ca/PD/BLM/pdf\_files/five\_and\_ten\_frames/five\_frame.pdf
  - Part-part-whole visual (1 per student)
    - Part Part Whole

http://www.eduplace.com/state/pdf/hmm/trb/1/1\_03.pdf

- Items to count. A list of ideas can be found here:
  - Educator Resource Page IE | DLM

https://dynamiclearningmaps.org/erp\_ie/iowa-math

- For this example lesson at least 5 cubes for each student plus 5 more with which to model
- Jack Hartmann subtraction video:
  - Subtraction Song for kids | Subtraction Facts | Subtraction Action | Jack Hartmann

https://www.youtube.com/watch?v=pwQKugrFmJQ

- Word problems
  - Free Preschool & Kindergarten Subtraction Worksheets Printable <a href="https://www.k5learning.com/free-preschool-kindergarten-worksheets/subtra">https://www.k5learning.com/free-preschool-kindergarten-worksheets/subtra</a> <a href="https://cionsubtraction-word-problems">ction/subtraction-word-problems</a>
- Number cards, number line, or other access to the numbers 0-10

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge During snack time, as the students eat their snack use the terms "subtraction" and "take away" to build familiarity and concrete understanding. For example: "I gave Johnny 5 crackers for snack. He has eaten 2 crackers. He subtracted 2 crackers. He has 3 left to eat." Immediately before the lesson, show the subtraction video.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Different, not more</b>	Engage the students by encouraging movement. For students who are vision-impaired provide concrete objects to represent the items in the video. The important concept is the removal/separation of objects into two groups to demonstrate subtraction.
Establish a purpose "Today we will learn what subtraction means. When we start with a large group and take some away we have done subtraction." You can also make a brief statement relating to snack time or the video.	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, more, not</b>	
<ul> <li>Teach and model the concept</li> <li>Place the five-frames and cubes in front of the students. Allow them to interact with the items.</li> <li>Place the 3 5-frames with one at the top and the other two next to each other right below it. (It will look kind of like a part-part-whole mat, which you may also use.)</li> <li>Say: "When we subtract we start with a larger group and make it smaller." Model filling the frame with the counters. Count out loud. "1-2-3-4-5. We are starting with 5 counters. I had 5 crackers. Next, I ate 2 crackers." Model taking 2 of the counters and</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, make, some, not</i> <i>more</i>	During the interaction phase, practice placing the cubes/items in the boxes. This can help develop hand-eye coordination and fine-motor skills. For students who are vision-impaired use a 3D five frame or part-part-whole mat. During instruction and practice, provide context (word problem) for every

putting them in of the 5-frames below. **"How** many do I have left? I need to solve this problem." Count out loud as you move the remaining counters to the other 5 frame. **"1-2-3. I have 3 crackers left. I solved the** problem."

Model finding the numbers on the number line or number cards and writing the subtraction problem. (Note: *At this time, students are not required to write the equation.*) Model the process at least 2 more times as above using a different story. problem. Feel free to make up your own problems using students in your class, or refer to the link above for ideas.

A similar process can be used with the part-part-whole mat. It is a good idea to vary the visual organizers for each lesson along with the counters and stories to provide repetition with variety.

During counting, encourage the students to count out loud with you or in their heads.

# THINK AND DO

Select/make your own story problem and provide the students with the correct total number of counters and either the 5-frames or the part-part-whole mat (what you used during instruction). For example: <b>"Sarah had 3 donuts. Her</b> <b>brother ate 1 donut. How many donuts does</b> <b>Sarah have now?"</b> You would provide them with 3 counters and the mats. Say: <b>"Solve the problem."</b>	Model using student's form of communication. For example: AAC, Braille, signing. Some, here, she, get, he	
Students do:		Allow wait time for
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than

Students should first put the 3 counters representing the donuts Sarah started with in the top 5-frame (or in the 'whole' section of the part-part-whole mat). Then the student should move 1 of the counters to the 5-frame below (or one of the 'part' sections) to represent the donut eaten by her brother. Then the student should move the other two counters to the other 5-frame to represent how many she has left. In response to the question, <b>"How many does she have left?"</b> the student may either point to the mat (section) that has 2 counters or point/indicate the number 2.		prompts to continue working. Use this as an opportunity to observe and make notes regarding the student's responses.
APPLY		
Students describe what was done.Ask: "How do you know?"We are looking for the actions they went through to get the answer. Example: "She had all. He got some. It different."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why, you</i>	Allow wait time based on your knowledge of the student's needs.
Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "You are correct. Great job subtracting!" If the student was incorrect, model how to solve the problem, following the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, can</b>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "I saw you take some from the whole group and you knew what was left was the answer. You subtracted to find the answer. Great job subtracting!"	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, see, all, some, put,</i> <i>here, in</i>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
<i>Formative Assessment (option)</i> Did not attend/no response Attended/no response Attended/response incorrect		

\_\_\_\_ Attended/response partially correct \_\_\_\_ Attended/response fully correct

# MATH ESSENTIAL ELEMENTS LESSON PLAN Explain 10 as a Composition of 10 Ones



#### **Purposes**

When given two sets shown in a model (e.g., ten-frame, number line, arrays, etc.), of which ten is the benchmark for which these comparisons are made, the student will make basic ordinal judgments (e.g., a set has more and fewer disks than the comparison set) using models. (For example, a ten-frame that has 3 and a ten-frame that has 6.)

• M.EE.3.NBT.2 Demonstrate understanding of place value to tens.

# Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of materials to be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Ten frames and counters
- For other repetitions of the lesson:
  - Number lines
  - Connecting cubes
  - Numicon towers
    - Numicon: Numicon Kit 1 Group Kit: 9780198486930 https://www.amazon.com/Numicon-Kit-Group/dp/0198486936

# • Etc.

• https://tarheelreader.org/2019/11/03/more-and-less-3/

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Complete shared reading activity focusing on more and less. Comments should be about what they see and comparing the amounts of the objects in the photos.	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, same, different</i>	Look for opportunities throughout the school day to count things and compare different amounts using more and not more. This can include snack time (Do you want more or less than Johnny?), music time (volume as

See notes for connecting to teachable moments throughout the day to continue modeling and building understanding in real-life situations.		well as more time), leisure time (Do you need more paper/crayons/glue?), etc.
<i>Establish a purpose</i> "Today we will be comparing sets of quantities up to 10."	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	
Teach and model the conceptAllow the students to interact with the materials.Say: "This is a ten-frame. It has 10 boxes. You can put one item in each box. 10 single items equals a 10. 10 ones."Show a ten-frame that has 3 and a ten-frame that has 6.Say: "This ten-frame that has 3 ones and this ten-frame has 6 ones. 6 ones is more than 3 ones. More boxes are filled. 3 ones is not more than 6 ones. It is fewer than 6 ones."Show a ten-frame that has 4 and a ten-frame that has 10.Say: "This ten-frame has 4 ones. It has fewer than 10 ones. It is not more than 10 ones. This ten-frame has 10 ones. It has more than 4 ones. More boxes are filled. 10 ones equals one 10."Show a ten-frame that has 9 and a ten-frame that has 2.Say: "This ten-frame has 9. It is almost full. This ten-frame has 9. It is almost full. This ten-frame has 2. 9 is more than 2. More	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, some, all</i>	For students with vision impairments, use Numicon towers, 3D ten-frames or tactile ten-frames (glue around the edge of the boxes). These may also be helpful for students who have physical limitations. At this point, students do not need to use the vocabulary of <i>ones</i> and <i>tens</i> , but it should be introduced and used by the teacher.

boxes are filled. 2 is not more than 9. Fewer boxes are filled." As you are modeling and teaching, make sure you are pointing to the appropriate ten-frame and also modeling on the Core Vocab board. The student will need to become familiar with the vocabulary.		
THINK AND DO		
Students think about what to do: Present the student with 2 10-frames representing 2 different amounts. Say: "Point to the one that is more." Or "Point to the one that is less/fewer/not more."	Model using student's form of communication. For example: AAC, Braille, signing. You, do, more, not more, same, different	Provide ample wait time based on knowledge of the student's processing needs. If the student has vision impairment, make sure you all the student to interact/feel each of the 10-frames. If the student has a physical limitation, the students may use eye gaze, a pushing stick, or verbal/AAC to direct the adult.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> Student should indicate one of the two 10-frames.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention (see below). Use this time to observe and make notes about the student's responses.

APPLY		
Students describe what was done. <u>Ask:</u> "How did you know?" We are looking for the actions they went through to get the answer. Example: "I look." "Not here." "Some here."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, do</b>	Allow wait time based on your knowledge of the student's needs.
Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "You saw the 10-frames were different. You were correct. This one has more." If the student was not correct, re-teach using the instructional routine above. Model the language and how to compare.	Model using student's form of communication. For example: AAC, Braille, signing. You, more, not more, same, different	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You looked at both 10-frames. You found the one that had more. More boxes were filled. Great job comparing."	Model using student's form of communication. For example: AAC, Braille, signing. You, more, not more, same, different	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)          Did not attend/no response         Attended/no response         Attended/response incorrect         Attended/response partially correct         Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN Explain Repeated Addition



# Purposes

When given multiple (3-4) small sets, students will be able to use repeated addition by counting the individual items in each small set and then combining them into one group.

This is lesson one of 3.

- Lesson 2 can be found here:
  - DP: K-5 Represent repeated addition with an equation <u>https://docs.google.com/document/d/1u-aklgFo5zZv3iTURWkp5Wb7MDytSyp</u> <u>1]cbfpuo6DHc/edit</u>
- Lesson 3 can be found here:
  - DP: K-5 Solve repeated addition problems
     <u>https://docs.google.com/document/d/1I7VC39EKgZ42AJqmRrJsR6cXdVo\_JqYs-LFgBt8e91Y/edit</u>
- M.EE.5.NBT.5 Multiply whole numbers up to 5x5.

# Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items to use during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Familiar items like pencils, erasers, counting tiles with which to count
- Repeated Addition Mat: <u>https://docs.google.com/document/d/1UkH0QzY2jdMMrwfi8nZy6dPGAXHJbUVeMID</u> <u>Fo-E-ejE/edit</u>
- Word problems:
   <a href="https://docs.google.com/document/d/1wb6p4Kz0muxAQzR84lvm\_HDJZOjSvBulJER0">https://docs.google.com/document/d/1wb6p4Kz0muxAQzR84lvm\_HDJZOjSvBulJER0</a>
   XutTP7A/edit

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide opportunities to hand out materials, snacks, or other items in a 1:1 fashion. For example, have a student hand out 2 markers to each person for art time, or exactly 3 crackers to each person for snack time. Reinforce that it is the same amount to each person.	Model using student's form of communication. For example: AAC, Braille, signing. <i>Some, all, put</i>	These kinds of activities should be done every day with differing amounts.
<i>Establish a purpose</i> "We will learn how to add multiple sets of the same number."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Some, more, same</b>	
<ul> <li><b>Teach and model the concept</b></li> <li>Allow the students to interact with the materials.</li> <li>Present the following problem to the students: (<i>Remind them of when they handed out materials. The same amount to each person.</i>)</li> <li><b>"Sally eats 2 cookies each day for 3 days.</b> How many total cookies does she eat? I can solve this using repeated addition. Watch."</li> <li>Model placing 2 counters in each of 3 boxes across the top. "1-2, 1-2, 1,2. I put 2 cookies/counters in 3 boxes to show that Sally ate 2 cookies each day. I can find out how many by counting all of them." Move all of the counters down to the large box. Model counting all of them. "1-2-3-4-5-6. Sally ate 6 total cookies."</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. Same, put, all, more, finished	Adjust the numbers to those with which your students can count and/or with which they are familiar. Start with total quantities less than 10 and then increase that as they improve their counting skills. The goal is to have them translate a problem that requires repeated addition into a concrete representation and then understand that they need to find the total by counting.

THINK AND DO		
Students think about what to do: Select one of the word problems provided or make/use one of your own. Present the problem and the counters/mat to the student. State the question in the problem.	Model using student's form of communication. For example: AAC, Braille, signing. Same, put, all, more, finished	Provide ample wait time based on your knowledge of the student's processing needs.
Students do:		Allow wait time for
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		your knowledge of the student's needs. There should be no adult coaching at this time, other than
Students should place the correct number of counters into the boxes as described in the problem. Once they have completed the first step to represent the problem, they should combine all of the counters into the bottom box. This process demonstrates their understanding of making small sets to show the problem set-up and then combining to find an answer.		prompts to respond or to work. Use this time to observe the student's responses and take notes. Repeat the problem as necessary for the student to understand and pick out the numbers to use. Allow students with vision impairments to use a 3D organizer instead of 2D. Students with physical limitations can use eye gaze, a pushing stick, and/or verbal/AAC to direct an adult.

APPLY		
Students describe what was done.Ask: "How did you find the answer?"We are looking for the actions they went through to get the answer. Example: "I put some here. Same here (etc as appropriate).Put all here."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You</b>	Allow wait time based on your knowledge of the student's needs.
Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Great job finding the total!" If the student was incorrect, model how to solve the problem as above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, put, all, here</b>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "Yes, you made 3 small sets to show each day. Then you combined them to find the total. Great job using repeated addition to solve the problem!"	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, put, all, here</b>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

# MATH ESSENTIAL ELEMENTS LESSON PLAN



# Purposes

When given two sets, students will be able to state if the sets are the same or different.

• **M.EE.5.NBT.6-7** Illustrate the concept of division using fair and equal shares.

# Materials

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items to use during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Ten frames and counters
- For other repetitions of the lesson:
  - Number lines
  - Connecting cubes
  - Numicon towers

# Numicon: Numicon Kit 1 Group Kit: 9780198486930

https://www.amazon.com/Numicon-Kit-Group/dp/0198486936

• Etc.

# • Same and Different for Kids | Compare and Contrast | Learning Time Fun | Comparison for Kids

https://www.youtube.com/watch?v=GdwHRCdnAVE

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge View the same/different video. While viewing encourage the students to indicate their choice.	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	If this is challenging, consider reviewing lesson found here: <b>IP:</b> <b>K-5 Same or</b> <b>Different Lesson</b> <b>Plan Routine</b> (https://docs.google.co m/document/d/1fdn3J SBILD2wGAdhTpldvep E9OzDkKJ3kHbRWHfrE Qs/edit)

<i>Establish a purpose</i> "Today we will decide if two sets of items are the same or different."	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	
Teach and model the conceptPresent the empty ten-frames and the counters. Allow the students to interact with the materials.Place two ten frames, each containing 1 counter, next to each other. Say: "I need to decide if these two ten-frames are the same or different. Do they show the same amount? I will count both to check." (Model counting "1" for each.) "I counted to 1 both times. They both have 1 counter. They are the same. They are equal."Add 1 counter to one of the ten frames. Say: "I need to decide if these are the same or different now that I added a counter to one of them. Do they show the same amount? I will count both to check." (Model counting. "1" and "1-2.") "I counted only 1 in this ten-frame, but I counted 2 in the other. 2 is more than 1 so the ten-frames show different amounts. They are not equal. They are different."Model and repeat 2-3 more times by adding counters or removing counters to model deciding if they are the same or different. Use the terms equal and not equal along with same 	Model using student's form of communication. For example: AAC, Braille, signing. Same, different	For students with vision impairments consider using 3D ten-frames or the Numicon Towers. These might also be appropriate for students who have limited fine motor skills.
THINK AND DO	 	 
<i>Students think about what to do:</i> Present two ten frames with counters in some of the boxes.	Model using student's form of communication. For example: AAC, Braille, signing.	For students with vision impairments consider using 3D ten-frames or the Numicon Towers.

<u>Say:</u> "Decide if these are same or different."	Same, different, you, do	These might also be appropriate for students who have limited fine motor skills. For some students you may decide to only work on getting accuracy with "same" or accuracy with "different" and not both in the same practice session.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> Student will indicate same or different.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention (see below). Use this time to make observations and to record the student's responses.
APPLY		
Students describe what was done. <u>Ask:</u> "How do you know?" We are looking for the actions they went through to get the answer. Example: "More." "Not more." "I look."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Why, you</i>	Allow wait time based on your knowledge of the student's needs.
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: <b>"Great</b> <b>job comparing!"</b>	Model using student's form of communication. For example: AAC, Braille, signing.	

If the student was incorrect, re-teach/model following the script in the teaching section.	Same, different, look	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You looked at both sets. You counted both sets. You looked for one with more. You compared them. Great job comparing!"	Model using student's form of communication. For example: AAC, Braille, signing. Same, different, look, more, not	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
<i>Formative Assessment (option)</i> <ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		
#### MATH ESSENTIAL ELEMENTS LESSON PLAN Partition Any Shape into Equal Parts



#### Purposes

Students will be able to distribute objects (e.g., passing out classroom materials, one per person) to people and align objects or people to available spaces (e.g., one note for parents in each backpack). (Note: These skills are the beginning of partitioning sets into equal subsets.)

- **M.EE.5.NF.1** Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).
- **M.EE.5.NF.2** Identify models of thirds (1/3, 2/3, 3/3) and tenths (1/10, 2/10, 3/10, 4/10, 5/10, 6/10, 7/10, 8/10, 9/10, 10/10).

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items to use for instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Use an upcoming or already planned craft or	Model using student's form of communication. For	Resources/Ideas to get you started:
art activity.	signing.	Kids with Motor Disabilities
Place all of the needed materials in the middle of the group		( <u>https://coachart.org/b</u> <u>log/10-easy-crafts-for-</u> kids-with-motor-disabi
Provide directions and model as usual. Instead of immediately handing out the materials, just give the direction to begin, then wait. Wait for a		lities/)
student to indicate that they need materials to begin. When one student has noticed and		5 Simple Art Projects For a Child with Special Needs
them materials, talk about the best way to get everyone materials so they have equal amounts. This can be turned into a quick social		( <u>https://www.autismp</u> <u>arentingmagazine.co</u> <u>m/art-projects-for-spe</u> <u>cial-needs/</u> )

skills lesson as well. Discuss how they can't just grab what they need.		Inclusion/Special Needs Art Projects Archives (https://www.deepspa cesparkle.com/categor y/art-lessons-by-subje ct/inclusionspecial-nee ds-art-projects/)
<i>Establish a purpose</i> "Today we will learn how to help pass out materials so everyone gets an equal share."	Model using student's form of communication. For example: AAC, Braille, signing.	This lesson/practice can also be done during snack time, a regular lesson time, as a classroom job, etc. Provide multiple opportunities to practice and for the students to get feedback about partitioning things among the students.
Teach and model the concept <u>Say:</u> "When we do a project, everyone needs the same amount of materials. For example, you will each need one piece of red construction paper (adjust this per your craft or project). Set one piece of paper in front of each student." Model.	Model using student's form of communication. For example: AAC, Braille, signing.	Based on your knowledge of student behaviors, classroom expectations, physical challenges and the specific craft or activity, you will need to adjust what you say and how you model accordingly. The goal is to teach them to place the same amount in each designated spot.
THINK AND DO		
Students think about what to do: Give the student something to pass out. For example: "Give 2 pieces of green paper to each person."	Model using student's form of communication. For example: AAC, Braille, signing.	Provide a template to cue the student how many items to place and where to place them. When they can do this easily begin to

	You, put, here, in	fade the template. For example start with a template that is brightly colored and has thick lines and then move to a template that blends in with the surface or just provide faint lines. Then remove the template completely.
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul>		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than
The student should place the item(s) in the appropriate locations.		to work on joint attention (see below). Use this time to observe and make notes about the student's response to the directions.
APPLY		
Students describe what was done.Ask: "What did you do?"We are looking for the actions they went through to get the answer. Example: "I put all.""I put on."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, put</b>	Allow wait time based on your knowledge of the student's needs.
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: "Great job giving everyone 2 sheets of green paper!" If the student, was incorrect, model how to place the items and provide the student some	Model using student's form of communication. For example: AAC, Braille, signing.	

appropriate prompting to try it again immediately after modeling.		
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You gave each person 2 pieces of paper. You set the paper right in front of them so they could use it. Thank you!"	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, put, on, in, here</b>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

#### MATH ESSENTIAL ELEMENTS LESSON PLAN Partition Sets



#### Purposes

Students will be able to divide a larger set into at least two smaller sets and identify which sets have more, less or the same. (*NOTE: Educator can work on the Distal Precursor level using the sets of numbers that students working at the Target level are adding and subtracting.*)

- **M.EE.3.OA.4** Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.
- M.EE.4.NBT.4 Add and subtract two-digit whole numbers.

- Copy of Core Vocabulary board
- Copy of Formative Assessment
- List of items that can be used during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- **Dirt Cups Visual Recipe** and related ingredients: <u>https://accessiblechef.com/recipes/dirt-cups/</u>
- For this example lesson: 10-20 pencils depending on the counting abilities of your students, 3 pencil cups/holders

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Make the Dirt Cups. While filling the cups, talk about dividing the contents of the bowl equally between each cup, then as the cup is filled compare each cup with others to review <i>more</i> , <i>less/not more</i> , and <i>same/equal</i> .	Model using student's form of communication. For example: AAC, Braille, signing. <i>More, not, same,</i> <i>different</i>	Accessible Chef provides many resources such as image banks and tutorials. The students should be primarily responsible for doing the actions to the greatest extent possible.

		If there are specific dietary restrictions in your classroom, change up the recipe to something similar.
<i>Establish a purpose</i> "Today we will partition/divide sets of items into smaller groups."	Model using student's form of communication. For example: AAC, Braille, signing.	
<b>Teach and model the concept</b> Place the pencils and the pencil cups/holders in front of the students. Allow the students to interact with the materials.	Model using student's form of communication. For example: AAC, Braille, signing.	
Say: "We divided up the pudding mixture among the cups and then compared how much was in each cup. We made a large amount of something into several smaller sets/quantities. We can do the same thing when we solve math problems. Sometimes we need to take a larger amount and make smaller amounts then compare them. Watch."		
Model. Start with a large group of pencils (You may use all of them or only some depending on the students' skills.) in one of the cups. "I have a set of pencils. I want to split the pencils between two people." Model taking some of the pencils and placing them in one of the other two cups and then move the remaining pencils to the third cup. "I divided or partitioned the pencils into two groups." Make a comparison between the two cups that shows <i>more</i> , <i>less/not</i> <i>more</i> , or <i>same</i> . Model several more times. Change up how many end up in each cup, but show each of the three comparisons at least once.		

THINK AND DO		
Students think about what to do: Reset the pencils and then ask the student to put some pencils into each of the other two cups. The only rule is that all of the pencils need to be moved to at least one of the two cups. Say: • "Divide up the pencils." • "Are they the same or different?" • "Which has more?"	Model using student's form of communication. For example: AAC, Braille, signing. You do, put, here, same, different, more, not	
Students do: • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should move the pencils to be split between the cups. It is allowable for them to occasionally have all of the pencils in one cup and not the other.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention (see below). Use this time to observe and make notes about the student's responses Eye gaze or verbal/AAC to direct an adult may be used if the student has physical limitations.
APPLY		
Students describe what was done.Ask: "What did you do?"We are looking for the actions they went through to get the answer. Example: "Make more." "Look." "Some here." "Some in." "All here." "All in."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You do</b>	Allow wait time based on your knowledge of the student's needs.

Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Great job dividing/partitioning!"	Model using student's form of communication. For example: AAC, Braille, signing. <b>You finished</b>	If the student repeatedly does not split the group of pencils up and only moves the whole group from one cup to another cup, gently prompt them to use both cups so they can compare.
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: <b>"You put some here and some here.</b> You looked at which had more."	Model using student's form of communication. For example: AAC, Braille, signing. You, put, here, same, different, look, more, not	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option)  Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct		

#### MATH ESSENTIAL ELEMENTS LESSON PLAN Recognize Enclosure



#### Purposes

Students will only count items within an enclosure (array, defined set, etc.) before and after items have been moved in and out of the enclosure. (*NOTE: Educators can work on the Distal Precursor level using the sets/arrays that students working at the Target level are calculating area.*)

• **M.EE.4.MD.3** Determine the area of a square or rectangle by counting units of measure (unit squares)

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items to use during instruction:
  - Educator Resource Page IE | DLM <u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>
- For this example lesson: Container, 10-20 items to count (counters, cubes, small snack items, etc.). The number of items will be dependent on the counting abilities of your students. Only use the quantity for which they can reliably count.
- Enclosures slide show: <u>https://docs.google.com/presentation/d/1flwUW2RcYFLDXyn8uA7CeSlp\_GmHcGkwz</u> <u>TkwMrP38VM/edit#slide=id.p</u>
- Number line or other access to the numbers

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Review the <u>Enclosures</u> slide show. Discuss the purpose of enclosures. What is their purpose? What might live or be in each enclosure?	Model using student's form of communication. For example: AAC, Braille, signing. <i>In, here, not, some, all</i>	

<i>Establish a purpose</i> "Today we will be counting only the items within an enclosure."	Model using student's form of communication. For example: AAC, Braille, signing. <i>In, some</i>	
<b>Teach and model the concept</b> Present the container and the items to count. Allow the students to interact with the items and practice putting them in the container and taking them out of the container. Put several items in the enclosure/container (e.g. 5) and leave the others scattered around the enclosure/container. Say: "When we find the area or volume of an item, we only count or measure what is in the container. (Indicate the items in the container.) We don't include anything outside of the container. (Indicate the items outside of the container. (Indicate the items outside of the container.) "Model counting the items in the container." Model counting the items in the container. "Count with me. 1-2-3-4-5. We have 5 cubes in the container." Model finding the number on the number line/chart. Say: "I can add more items because my container is not yet full. (Place 2 more items in the container.) Count with me. 1-2-3-4-5-6-7. Now we have 7 items in the container." Model finding the number on the number line/chart. "I don't count the items outside of the container." Model finding the number on the number line/chart. "I don't count the items outside of the container." Model moving items in and out of the container and only counting the items in the container several more times Make sure the remaining items are near the container, but not in it. Emphasize that you are only counting the items in the container.	Model using student's form of communication. For example: AAC, Braille, signing. <i>In, here, not, some, all</i>	Allow students with vision impairments to feel the container and the items within it as well as the items outside of the container.

THINK AND DO		
Students think about what to do:Place the container/enclosure in front of the student. Place some of the items in the container and leave the remaining items scattered around the container.Say: "Count the items in the container/enclosure."Add/remove some items and ask the student to count again to find the total.	Model using student's form of communication. For example: AAC, Braille, signing. <i>In, here, not, some, all</i>	Allow students with vision impairments to feel the container and the items within it as well as the items outside of the container.
Students do: • Solve the problem • Build the model • Find the matching shapes • Put them in order • Interpret the data, etc. • Describe/share answer The student should only count the items within the container. The student may use the number line/chart/card to indicate the total.		Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than prompts to respond or to work on joint attention (see below). Use this time to observe and make notes about the student's responses. The student may use eye gaze and/or verbal/AAC to direct an adult as well.
APPLY		
Students describe what was done. <u>Ask:</u> "What did you find/do?" We are looking for the actions they went through to get the answer. Example: "I look in." "I do it." "Some."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, do</b>	Allow wait time based on your knowledge of the student's needs.

Get feedback If the student was correct, acknowledge it and move on to the next step. For example: "Great job counting what was in the container!" If the student was not correct, model/re-teach following the script in the teaching phase. If the student has trouble not counting the items that are around the container, move them slightly farther away from the container. As the student is able to demonstrate the skill, move those items back towards the container .	Model using student's form of communication. For example: AAC, Braille, signing. <i>In, here, not, some, all</i>	
Make explicit what the students were thinking and doingDescribe what you saw the student do.Example: "I saw you count the items in the container. You know that the amount will tell us how much is in the container. You didn't count these (indicate the items outside of the container). You know that does not tell us how much is in the container. Great job!"	Model using student's form of communication. For example: AAC, Braille, signing. <i>In, here, not, some, all</i>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
<i>Formative Assessment (option)</i> <ul> <li>Did not attend/no response</li> <li>Attended/no response</li> <li>Attended/response incorrect</li> <li>Attended/response partially correct</li> <li>Attended/response fully correct</li> </ul>		

MATH ESSENTIAL ELEMENTS LESSON PLAN Represent Repeated Addition with an Equation



#### Purposes

When given a concrete representation of a repeated addition problem (3-4 small sets), the student will match it to the corresponding equation.

This is lesson 2 of three lessons.

- Lesson 1 can be found here:
  - DP: K-5 Explain repeated addition <u>https://docs.google.com/document/d/1Gf-JLnS2H3jKJxnBNtq7jHsdap2iFKGRl</u> qxwgqBTZy8/edit
- Lesson 3 can be found here:
  - DP: K-5 Solve repeated addition problems
     <u>https://docs.google.com/document/d/117VC39EKgZ42AJqmRrJsR6cXdVo\_JqYs-LFgBt8e91Y/edit</u>
- **M.EE.5.NBT.5** Multiply whole numbers up to 5x5.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items to use during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Familiar items like pencils, erasers, counting tiles with which to count
- Repeated Addition Mat: <u>https://docs.google.com/document/d/1UkH0QzY2jdMMrwfi8nZy6dPGAXHJbUVeMID</u> Fo-E-eiE/edit
- Word problems: <u>https://docs.google.com/document/d/1wb6p4Kz0muxAQzR84lvm\_HDJZOjSvBulJER0</u> <u>XutTP7A/edit</u>
- Whiteboard and marker, paper and pencil
- Equations matching the problems you will be using

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide opportunities to hand out materials, snacks, or other items in a 1:1 fashion. For example, have a student hand out 2 markers to each person for art time, or exactly 3 crackers to each person for snack time. Reinforce that it is the same amount to each person. After handing out the materials take a few minutes to model writing a related repeated math problem. Then share the problem. For example: "You gave 2 markers to Tom. You gave 2 markers to Sam. You gave 2 markers to Sue. 2 + 2 + 2 = 6 markers."	Model using student's form of communication. For example: AAC, Braille, signing. You, put, he/she, here, in	
<i>Establish a purpose</i> "Today we will learn how to show our repeated addition problems."	Model using student's form of communication. For example: AAC, Braille, signing. <i>Make</i>	
<ul> <li>Teach and model the concept</li> <li>Allow the students to interact with the materials.</li> <li>Present the following problem to the students: (Remind them of when they handed out materials. The same amount to each person.)</li> <li>"Sally eats 2 cookies each day for 3 days. How many total cookies does she eat? I can solve this using repeated addition. Watch."</li> <li>Model placing 2 counters in each of 3 boxes across the top. "1-2, 1-2, 1,2. I put 2 cookies/counters in 3 boxes to show that Sally ate 2 cookies each day. I can find out how many by counting all of them."</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, put, all, some, same,</i> <i>different</i>	The main goal of this lesson is to teach the student how to transform the concrete representation of the problem into the number form. This may be done through matching or eventually writing the problem. Even if the student is not able to write clear numbers, opportunities should be given at this point

At this point, model writing 2 + 2 + 2 on a whiteboard or paper. Say: "We can write numbers to show how many are in each box. The numbers tell us how many cookies Sally ate each day. When we want the total altogether, we can add. We use the plus sign between each number." Move all of the counters down to the large box. Model counting all of them. "1-2-3-4-5-6. Sally ate 6 total cookies." At this point model writing the last part of the problem. Say: "When we want to show our answer, we can use the equals sign to tell people the two sides have the same amount. Adding 2 three times is the same as 6. 2 + 2 + 2 = 6." Show the matching equation. Model at least 2 more times with 2 different problems.		to develop the skill of mark making. Encourage them to "write" the problems by providing pencils, markers, crayons, etc. modified as necessary so they can hold the implement. Work with your OT as necessary.
THINK AND DO		
Students think about what to do:	Model using student's form of	
Select one of the word problems provided or make/use one of your own.	communication. For example: AAC, Braille,	
Present the problem and the counters/mat to	signing.	
the student.	Look, same, you	
State the question in the problem.		
Present 3 different options for equations.		
<u>Say:</u> "Point to the equation that matches the problem."		
Students do:		Allow wait time for
<ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> </ul>		your knowledge of the student's needs.

<ul> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> Students should place the correct number of counters into the boxes as described in the problem.		There should be no adult coaching at this time, other than prompts to respond or to work on joint attention (see below).
Once they have completed the first step to represent the problem, they should combine all of the counters into the bottom box. This process demonstrates their understanding of making small sets to show the problem set-up and then combining to find an answer.		Use this as an opportunity to observe and record the student's responses.
The student should then find an equation that matches their work.		
*Note: They may still not be counting the total independently and telling you the answer.		
APPLY		
Students describe what was done. <u>Ask:</u> "What did you do?" We are looking for the actions they went through to get the answer. Example: "I make it."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, do</b>	Allow wait time based on your knowledge of the student's needs.
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: <b>"You</b> <b>made an equation that is the same. Great</b> <b>job!"</b> If the student is not correct, re-teach/model using the teaching script above.	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, make, same</b>	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You counted. You looked for the same numbers and equation."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, make, same</b>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.

#### Formative Assessment (option)

- Did not attend/no response
  Attended/no response
  Attended/response incorrect
  Attended/response partially correct
  Attended/response fully correct

#### MATH ESSENTIAL ELEMENTS LESSON PLAN Solve Repeated Addition Problems



#### Purposes

When presented with a concrete representation of a repeated addition problem (3-4 small sets), the student will be able to solve the problem by counting.

This is lesson 3 of 3 lessons.

- Lesson 1 can be found here:
  - DP: K-5 Explain repeated addition <u>https://docs.google.com/document/d/1Gf-JLnS2H3jKJxnBNtq7jHsdap2iFKGRI</u> qxwgqBTZy8/edit
- Lesson 2 can be found here:
  - DP: K-5 Represent repeated addition with an equation
     <u>https://docs.google.com/document/d/1u-aklgFo5zZv3iTURWkp5Wb7MDytSyp1jcbfpuo6DHc/edit</u>
- **M.EE.5.NBT.5** Multiply whole numbers up to 5x5.

- Copy of Core Vocabulary board for each student
- Copy of Formative Assessment for each student
- List of items to use during instruction:
  - Educator Resource Page IE | DLM https://dynamiclearningmaps.org/erp\_ie/iowa-math
- For this example lesson: Familiar items like pencils, erasers, counting tiles with which to count
- Repeated Addition Mat: <u>https://docs.google.com/document/d/1UkH0QzY2jdMMrwfi8nZy6dPGAXHJbUVeMID</u> <u>Fo-E-ejE/edit</u>
- Word problems: <u>https://docs.google.com/document/d/1wb6p4Kz0muxAQzR84lvm\_HDJZOjSvBulJER0</u> <u>XutTP7A/edit</u>

<i>Lesson Plan</i> Teacher/Student Actions	AAC Suggestions	Notes
ANCHOR		
Activate prior knowledge or build new knowledge Provide opportunities to hand out materials, snacks, or other items in a 1:1 fashion. For example, have a student hand out 2 markers to each person for art time, or exactly 3 crackers to each person for snack time. Reinforce that it is the same amount to each person. After handing out the materials take a few minutes to model writing a related repeated math problem. Then share the problem. For example: "You gave 2 markers to Tom. You gave 2 markers to Sam. You gave 2 markers to Sue. 2 + 2 + 2 = 6 markers."	Model using student's form of communication. For example: AAC, Braille, signing. You, put, he/she, here, in	
<i>Establish a purpose</i> "Today we will solve repeated addition problems."	Model using student's form of communication. For example: AAC, Braille, signing. <b>Put, all</b>	
<ul> <li>Teach and model the concept</li> <li>Allow the students to interact with the materials.</li> <li>Present the following problem to the students: (Remind them of when they handed out materials. The same amount to each person.)</li> <li>"Sally eats 2 cookies each day for 3 days. How many total cookies does she eat? I can solve this using repeated addition. Watch."</li> <li>Model placing 2 counters in each of 3 boxes across the top. "1-2, 1-2, 1,2. I put 2 cookies/counters in 3 boxes to show that Sally ate 2 cookies each day. I can find out how many by counting all of them."</li> </ul>	Model using student's form of communication. For example: AAC, Braille, signing. <i>I, put, all, some, same,</i> <i>different</i>	Encourage the students to "write" what you write. Mark making is an important skill. Unless the student has no movement in their hands, provide writing implements and encourage mark making. When representing and solving problems for assessment, the students may use their AAC device or a number line/chart to

At this point, model writing 2 + 2 + 2 on a whiteboard or paper. <u>Say:</u> "We can write numbers to show how many are in each box. The numbers tell us how many cookies Sally ate each day. When we want the total altogether, we can add. We use the plus sign between each number." Move all of the counters down to the large box. Model counting all of them. "1-2-3-4-5-6. Sally ate 6 total cookies." At this point model writing the last part of the problem. <u>Say:</u> "When we want to show our answer, we can use the equals sign to tell people the two sides have the same amount. Adding 2 three times is the same as 6. 2 + 2 + 2 = 6."		indicate their numbers. During practice encourage some mark making.
Model at least 2 more times with 2 different problems.		
THINK AND DO		
Students think about what to do:	Model using student's	
	6	
Select one of the word problems provided or make/use one of your own.	corm of communication. For example: AAC, Braille, signing.	
Select one of the word problems provided or make/use one of your own. Present the problem and the counters/mat to the student.	communication. For example: AAC, Braille, signing.	
Select one of the word problems provided or make/use one of your own. Present the problem and the counters/mat to the student. State the question in the problem.	form of communication. For example: AAC, Braille, signing. <i>Look, all, do, you</i>	
<ul> <li>Select one of the word problems provided or make/use one of your own.</li> <li>Present the problem and the counters/mat to the student.</li> <li>State the question in the problem.</li> <li><u>Say:</u> "Solve the problem."</li> </ul>	form of communication. For example: AAC, Braille, signing. <i>Look, all, do, you</i>	
Select one of the word problems provided or make/use one of your own. Present the problem and the counters/mat to the student. State the question in the problem. <u>Say:</u> <b>"Solve the problem."</b> <b>Students do:</b>	torm of communication. For example: AAC, Braille, signing. <i>Look, all, do, you</i>	Allow wait time for
<ul> <li>Select one of the word problems provided or make/use one of your own.</li> <li>Present the problem and the counters/mat to the student.</li> <li>State the question in the problem.</li> <li>Say: "Solve the problem."</li> <li>Students do: <ul> <li>Solve the problem</li> <li>Build the model</li> <li>Find the matching shapes</li> <li>Put them in order</li> <li>Interpret the data, etc.</li> <li>Describe/share answer</li> </ul> </li> </ul>	torm of communication. For example: AAC, Braille, signing. <i>Look, all, do, you</i>	Allow wait time for processing based on your knowledge of the student's needs. There should be no adult coaching at this time, other than

Once they have completed the first step to represent the problem, they should combine all of the counters into the bottom box. This process demonstrates their understanding of making small sets to show the problem set-up and then combining to find an answer. At this point the student should be finding the totals of the counters, then either writing the problem or selecting the appropriate equation to match their work.		
APPLY		
Students describe what was done.Ask: "What did you do?"We are looking for the actions they went through to get the answer. Example: "I finished it."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, do</b>	Allow wait time based on your knowledge of the student's needs.
<i>Get feedback</i> If the student was correct, acknowledge it and move on to the next step. For example: <b>"You</b> solved the problem. You found the total. Great thinking!"	Model using student's form of communication. For example: AAC, Braille, signing. You, make, put, all, same	
Make explicit what the students were thinking and doing Describe what you saw the student do. Example: "You counted the small groups and then put them together to find all. You solved the problem."	Model using student's form of communication. For example: AAC, Braille, signing. <b>You, make, same</b>	Expand on the student's language. Use simple complete sentences. This is an opportunity to model sentence structure and reinforce the thinking process.
Formative Assessment (option) Did not attend/no response Attended/no response Attended/response incorrect Attended/response partially correct Attended/response fully correct	·	

## EMERGENT SET 1 (K-5 Target EEs) Assessment Resources

## Formative Assessment: Attributes

Date:	Date:	te: Date:	
Lesson:	Lesson: Lesson:		Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	LessonDid not attend/noresponse (0)Attended/noresponse (1)Attended/response(1)Attended/responseincorrect (2)Attended/responseincorrect (2)Attended/responsepartially correct (3)Attended/responsefully correct (4)Attended/response		<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
Date:	Date:	Date:	Date:
Lesson:	Lesson:	Lesson:	Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
Date:	Date:	Date:	Date:
Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)

## Formative Assessment: Composing/Decomposing

Date:	Date:	Date:	Date:
Lesson:	Lesson:	sson: Lesson:	
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	LessonLessonDid not attend/noresponse (0)Attended/noresponse (1)Attended/responseincorrect (2)Attended/responsepartially correct (3)Attended/responsefully correct (4)Attended/response		<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
Date:	Date:	Date:	Date:
Lesson:	Lesson:	Lesson:	Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
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Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)

## Formative Assessment: Part/Whole

Date:	Date:	Date:	Date:
Lesson:	Lesson: Lesson:		Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	Lesson.Lesson Did not attend/no Did not attend/noresponse (0) Attended/no Attended/no Attended/noresponse (1) Attended/response (1) Attended/response Attended/responseincorrect (2) Attended/response Attended/response Attended/responsepartially correct (3) Attended/response Attended/response Attended/responsefully correct (4) Attended/response		<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
Date:	Date:	Date:	Date:
Lesson:	Lesson:	Lesson:	Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
Date:	Date:	Date:	Date:
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### **Formative Assessment: Patterns**

Date:	Date: Date:		Date:
Lesson:	Lesson: Lesson:		Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	Lesson:Did not attend/noresponse (0)Attended/noresponse (1)Attended/rosponse (1)Attended/responseincorrect (2)Attended/responsepartially correct (3)Attended/responsepartially correct (4)		<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
Date:	Date:	Date:	Date:
Lesson:	Lesson:	Lesson:	Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	Lesson Did not attend/no response (0) Did not attend/no response (0) Attended/no response (1) Attended/no response (1) Attended/response incorrect (2) Attended/response incorrect (2) Attended/response partially correct (3) fully correct (4) Did not attend/no response (0)		<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
Date:	Date:	Date:	Date:
Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)

## Formative Assessment: Set/Separateness

Date:	Date:	Date:	Date:
Lesson:	Lesson: Lesson:		Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no</li> <li>Pid not attend/no</li> <li>Rattended/no</li> <li>Attended/no</li> <li>Attended/response (1)</li> <li>Attended/response (1)</li> <li>Attended/response</li> <li>incorrect (2)</li> <li>Attended/response</li> <li>partially correct (3)</li> <li>Attended/response</li> <li>fully correct (4)</li> </ul>		<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
Date:	Date:	Date:	Date:
Lesson:	Lesson:	Lesson:	Lesson:
<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>	<ul> <li>Did not attend/no response (0)</li> <li>Attended/no response (1)</li> <li>Attended/response incorrect (2)</li> <li>Attended/response partially correct (3)</li> <li>Attended/response fully correct (4)</li> </ul>
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Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)	Lesson: Did not attend/no response (0) Attended/no response (1) Attended/response incorrect (2) Attended/response partially correct (3) Attended/response fully correct (4)

EMERGENT SET 1 (K-5 Target EEs)

Instructional Resources

### Daily Math Routines for Students with Significant Needs

- **Number of the Day:** See Daily Number Sense Routines folders for more information (grades <u>K-2</u>, grades <u>3-5</u>, or grades <u>6-8</u>)
- K-2
   (https://drive.google.com/drive/folders/1M4fv0245DQyCz-D3RAUez4\_bYQiXaixn?usp =sharing)
- 3-5

(https://drive.google.com/drive/folders/1w5qR2Fn4WhK7eLUSSLb9LOIX28vqpBBU?u sp=sharing)

• 6-8

(https://drive.google.com/drive/folders/1v1F9jzvwG3EvG0B30KcTKz6Dswo14VV2?us p=sharing)

- Erickson and Greer's Number of the Day routine using numbers 1-10 should also be used for emergent learners
- More advanced options exist at higher conventional levels (ex. Multi-digit numbers, fraction of the day, multiplication fact, etc.)
- You may choose to have a bulletin board for the number of the day containing many representations of the number (ex. Number, written number name, picture collection for number, tallies for number, ten frame representation of number).
  - A daily student job (with associate assistance if needed) could be to help set up the bulletin board for the day's number.
- **Daily/Weekly math vocabulary words:** Bulletin board or poster with name(s) of words, picture representing words, and object/tactile items for words
  - Add student examples of concepts as they are introduced in lesson plans
- **Concept Books:** A short book with interactive manipulatives on each page to represent math concepts. Books are made together with the student.
  - Possible Concepts: Numbers 1-20 with quantities, Soft, Hard, Bumpy, Smooth, Under, Above, In, Out, On, Off, Sizes, Shapes, Colors, Types of money,
  - Time (digital or analog clocks paired with meaningful daily activities)
  - Same/different, More/less
- Concept Boxes for Emergent Learners and/or Students with Vision Impairments: A box of several category objects that share similar attributes
  - Examples: balls, brushes, cups, silverware, socks, hygiene routine objects, etc. (Can be any type of item of interest to students.)

- Purpose: explore items that are similar and different, identify attributes of objects, understand functions of objects, understand cause and effect of objects, developing tactile skills
- Adults facilitate exploration of objects and use tactile modeling to teach students how to explore items in the box by using **hand under hand** techniques to invite the student to explore items and their functions.
- Resource on tactile modeling: <u>https://documents.nationaldb.org/products/hands.pdf</u>

#### • Individualized, personal schedules for each student:

- Personal schedules reinforce important time concepts in meaningful ways (first, next, last, now, later)
- Representation of activities should vary in format based on student needs (written words, pictures, objects)
- Format should vary based on student (anticipation schedules in which one item is presented at a time, First/Then schedules, morning/afternoon schedules, full day schedules)
- Information about calendar systems for students with significant needs including vision impairments can be found at:
  - https://www.pathstoliteracy.org/blog/calendar-boxes-and-schedule-sy stems-literacy-tools

#### • Cross-curricular connections:

- Incorporate read-alouds of books about math topics:
  - https://www.mathsthroughstories.org/
  - Some essential element lesson plans contain links to read alouds
  - YouTube has read aloud versions of many stories
- Predictable chart writing related to math topics
  - (Ex. I see (shapes), I can buy (items) with coins/bills, At 8:00, I go to (activity), I like to count (items)).

#### • Consider purchasing Ten Frame Towers:



- <u>https://www.amazon.com/Junior-Learning-Frame-Towers-Board/dp/B00B48GJWU/re</u> <u>f=sr\_1\_2?dchild=1&keywords=numicon+math&qid=1593968383&sr=8-2</u>
  - Ten Frame Towers provide concrete visual and tactile references to sets of

numbers and can be used for a variety of activities (subitizing, matching quantities to numbers on a number line, comparing sets, combining and separating sets).

- Ten Frame Towers can also be used to represent the number of the day.
- Get students thinking and communicating about math using Same But Different Math:
  - <u>https://www.samebutdifferentmath.com/</u>
  - This website has a variety of pictures using different levels of math concepts and can be used at all levels.
  - Students are shown a picture and tell how the pictures are the same and how they are different.
  - This takes about 5 minutes and could be incorporated into an existing routine if needed (ex. morning opening) or could be a math lesson opener.
  - **All students** should have opportunities to share and communicate during this activity, even if they use AAC. (Your Speech Language Pathologist can help provide ideas on teaching AAC users core vocabulary related to the concepts).
  - Concrete objects or tactile representations may need to be used for students with vision impairments who cannot access pictures of the items.
- **Provide students with daily practice of subitizing** (identifying the number of items in a set by quickly looking at them rather than counting them knowing without counting).
  - Resources may include dice, picture cards, dominoes, online videos.
  - Video activities:
    - https://www.youtube.com/watch?v=WRg\_tGGbR0
    - https://www.youtube.com/watch?v=QPoSV91jXbE&list=PLFZU1Jh8h\_T 18IOa7466DoYmhbNWoLCDb
- Get students predicting, thinking, and talking using 3-Act Tasks:

https://gfletchy.com/3-act-lessons/.

- This website has a variety of videos with linked math concepts and standards in which students notice and predict and then learn more information about a problem in a progression of videos.
- These activities are great to have students participate in with peers.
  - Communication can be prompted using "What do you notice?" or "What do you think?" rather than asking for specific right or wrong answers.

#### • Snack Stand:



- Students help set up each day. Students organize and sort snacks so there are a set number of each per day and help keep track of money earned.
- This can be placed in the teacher's lounge with prices or students can earn and save money or reinforcement tokens and buy their own snacks from the stand.
- **Mystery Bag:** Have a bag of manipulatives for each student. Each morning there are different items in the bag to count. Students count their items and tell how many there are. You can also talk about who has the most and least.
  - Students may also estimate how many are in the bag by feeling the bag then count to find the actual amount.
  - Students working on more advanced concepts can create story problems using the objects or represent fractions with the objects.
- Feely Bag (Staves, 2019): Similar to a mystery bag. Items are placed in the feely bag and students can pull items from the bag to practice math skills in a new and motivating way that creates an element of surprise. Possible items/concepts to place in the Feely Bag:
  - Colors
  - Sizes
  - Shapes
  - Quantities
  - Money
- **Graph/Survey of the Day or Week:** Can fill responses in individually when they get a chance and go over later during math time, or fill them in during math.
  - <u>https://www.amazon.com/Learning-Resources-Graphing-Flip-Chart/dp/B0013</u> J4C0Q
  - A similar alternative: <u>https://www.amazon.com/Write-Wipe-Off-Graphs-Chart-Fill/dp/0439720877/r</u> <u>ef=asc\_df\_0439720877/?tag=hyprod-20&linkCode=df0&hvadid=33195459829</u> <u>2&hvpos=103&hvnetw=g&hvrand=8449021042744241003&hvpone=&hvptw</u>

<u>o=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9017894&hvtargid=</u> <u>pla-664248096945&psc=1</u>

• **Days in School Money Chart:** Chart with spot for pennies, dimes, and dollar. Add a penny each day and write days in school as a dollar amount, reinforcing concepts of place value related to money.



- Any time adults in the classroom can provide modeling of specific quantities, do so. Try to be intentional about no longer saying **some**. Instead, model discussing specific quantities. (ex. Instead of "Here are some crackers" at snack, say "Here are **3** crackers.") (Doug Clements, Learning Trajectories).
- Whenever possible, use visual timers to better help students understand number sense and time (ex. minutes of free time, minutes until lunch, minutes for snack time, etc.) Many online visual timers can be used such as:
  - https://www.online-stopwatch.com/classroom-timers/
  - <u>https://www.visnos.com/demos/classroom-timer</u>
- How Many?
  - Give students a direction (ex. look up, look down, look left, look right, look at the bulletin board, look at the picture in the book, etc.) and say "How many?" Student shares how many they saw and what they saw.
  - This can be a quick time filler (ex. when waiting on others to transition to a group, while in line, waiting to be dismissed in the lunchroom, etc.).
- For students who are learning cause and effect and working on attending and engaging, **Google Creatability** can be used to make visuals, music, and sound effects using the computer or body motions.
  - <u>https://experiments.withgoogle.com/collection/creatability</u>

**K-5 Attribute Vocabulary to teach:** This will address all of the standards at an emergent level.

Attributes include: quantity, shape, color, size

Begin with attributes that may be more obvious to your student or appropriate for them depending on their challenges. Then move to more abstract attributes.

For example:

- If a student is averse to touching things, start with color, size, and shape versus tactile attributes.
- If a student is visually impaired, avoid color attributes and begin with more tactile attributes like bumpy and smooth.

more/less	same/different	next/past	like/not like	long(er)/short(er)
begin/end	start/end	light/heavy	empty/full/som e	tomorrow/yester- day/today
morning/afterno on	day/night	lines/line segments/point s	Common Colors - red, blue, green, yellow, white, black, gray, purple, etc.	rough/smooth
big/small	thin/wide	light/dark	on/off	in/out
hard/soft	liquid/solid	wrinkled/smoot h	straight/curly	wet/dry
straight/crooke d	sticky	front/back	many/few	tiny/huge
straight/curved	round/square	top/bottom	round/square	tall/short

Specific attributes addressed in the standards include the following:

Possible items to use from materials list: https://dynamiclearningmaps.org/erp\_ie/iowa-math

Attributes relating to length, time, capacity and weight will be addressed in other lessons as well. As long as the student has an understanding of attributes, their purpose and is able to perceive those differences and similarities, the remaining attributes can be taught in the context of those specific lessons.

## Ideas for Incidental Teaching of Set/Separateness

Activity	Non-academic	Reading/Science	Math/Science
Use terms such as "Here is some"	Snack time - "Here are <i>some</i> crackers." *Adult models "some" on Core	"Here are <i>some</i> letters to sort. *Adult models "some" on Core	"Here are <i>some</i> blocks to stack." *Adult models "some" on Core
	board or AAC device.	board or AAC device.	board or AAC device.
Counting everything (adult models) including concrete, pictorial and numeral representations	Every time something is handed out to students, adult can count. (ex: pieces of candy, eating utensils, pieces of paper, glue sticks)	Model counting books to read, items in a science collection, items in a picture during shared reading, etc.	Model counting blocks, puzzle pieces, fraction parts, bars on a graph, etc.
Bring attention to groups of items and things that are not part of the group (adult modeling)	Art/Craft time - markers in a box (set) and those that are loose (separate), crayons vs markers vs colored pencils	Sort word patterns such as <i>-at</i> words from <i>-it</i> words, or genres of books	Sort animals and plants into groups or sort math items by purpose (measure weight, length, or temperature)
Sorting activities - use language to describe the sorting process (attributes); (adult modeling)	Clean up time - trash/not trash, spoons/forks, plates/utensils, towels by size, etc.	Sorting tactile letters, books, writing utensils, animals (figurines and pictures), plants, rocks, etc.	Sorting tactile numbers, shapes, colors, math symbols (+,-,x,/,=,<,>),
Create sets in everyday activities (adult modeling)	Sets of eating utensils, snack items, art packages (crayons, paper, glue, and scissors	Sets of writing materials - paper and pencils or reading materials such as a book and a book mark	Sets of things used in an experiment - lab materials like beakers and thermometers
Present a set, label it, count the items, label it again, and encourage the student to use numerals to label and count the separate sets (adult modeling)	Make sets of snack items for other students, outdoor clothing sets, sets of items for swimming time	Count and make sets of book genres or sets of writing materials	Make sets of manipulatives/concre te items to be used during instruction

Options for incidental teaching throughout the day.

# COMBINE

## COMPOSE


## Compare



## Longer



### Shorter

## HEAVIER

### LIGHTER

# MORE

## LESS

## SAME

### MORE

## NOT MORE



#### PAIR

## PARTITION

### DECOMPOSE



### WHOLE

## SEPARATE



## SEPARATE

# SOME

## UNIT





#### **CLOTHESPIN**



#### **CRAFT STICKS**



#### CUBES



#### CUPS



#### **ENVELOPE**



#### ERASER



#### HIGHLIGHTER



PAIR

# Large Small Round Edges Rectangular Red

## Hard Soft Blue

## 

## 

### <u>Angle</u> - 2 rays meeting at a common endpoint



#### **Big/Small Shapes**













#### **Various Shapes**
























Penny



# Nickel



# Dime



# Quarter





# SAME

## Bar Graph/Picture Graph or Not?



A Sample Bar Chart











	FRUIT	NUMBER OF CHILDREN WHO CHOSE IT
	PEAR	****
'	WATERMELON	
	ORANGE	
	APPLE	<b>(</b>
	BANANA	$\smile$



# **Example Graphs**









### Suspected Swine Flu Infections

(as of 04/28/09)













### Paint Job Quality Control Checklist

Job: 629555 Inspector: Al Kyder

Problem	Frequency
Chip	Juhr Lift III
Bubble	11
Run	LATT 1
Scrape or scratch	
Inadequate coverage	111- 111 II II
Other	

MARKS IN-BETWEEN	TALLY MARKS	FREQUENCY	Score of 35 students in
0 - 20		10	a test:
21 - 40	JHT	-7	8, 15, 2, 8, 11, 14, 18, 21, 27,
41 - 60	.₩ĭ	5	33, 36, 41, 47, 52, 59, 98, 88,
61 - 80	JHT I	6	63, 68, 26, 71, 19, 77, 66, 83, 87, 94, 99, 75
81 - 100	JHT	7	31, 46, 7, 90, 16, 29



ANGLE	NOT an ANGLE

CIRCLE	<b>NOT a CIRCLE</b>

CONE	NOT a CONE

CUBE	NOT a CUBE

NOT a CYLINDER

RECTANGLE	NOT a RECTANGLE

SPHERE	<b>NOT a SPHERE</b>

SQUARE	<b>NOT a SQUARE</b>

TRIANGLE	NOT a TRIANGLE

YES	ΝΟ

# YES NO YES NO

YES

NO

# **Blank Ordered Pairs Table**

Input	Rule	Output

# **Blank T-Chart**

# **Coordinates T-Chart**

X	Υ
# **Repeated Addition Mat**



# Sorting Mat



































































# Links for Core Vocabulary Information and Resources

#### Universal Core Communication Systems

http://www.project-core.com/communication-systems/

#### **Texts Resources**

https://www.dlmpd.com/texts-resources/

## **List of Materials**

#### Items below can be used with the above lesson routines.

#### Collections List found here: <u>https://dynamiclearningmaps.org/erp\_ie/iowa-math</u>

#### Non-vision impaired list

- 2-16-count boxes of crayons
- 2-identical puzzles with 4 or more pieces
- 6 Markers with caps
- 5 erasers
- 5 pencils
- 6 folders
- 6 glue sticks
- 6 index cards
- 7 chenille sticks
- 8 paint brushes
- 1 rubber band (or piece of string)
- 2-identical 12 count boxes of colored pencils
- 2-identical 12 count boxes of pencils
- 2 plastic resealable bags in varying size
- 6 paper clips
- 6 socks
- 7 buttons
- 7 checkers
- 2-identical 12 count packs of pens
- 5 plates
- 5 spoons
- 6 envelopes
- 9 connecting blocks

#### Vision impaired list

- 1 tactile material to make groups
- 2 sets of objects (1 whole and 2 parts)
- Variety of containers that have separate compartments

Name :	 Score :	
Teacher :	 Date :	

### **Word Problems**

1)	Nancy went to the mall on Saturday to buy clothes. She spent \$4.43 on shorts and \$11.03 on a shirt. In total, how much money did Nancy spend on clothing?	
2)	Tom joined his school's band. He bought a viola for \$147.02, and a song book which was \$11.33. How much did Tom spend at the music store?	
3)	Jessica spent \$10.97 on a gerbil toy, and a cage cost her \$12.09. What was the total cost of Jessica's purchases?	
4)	For her car, Sara spent \$148.76 on speakers and \$115.32 on new tires. In total, how much did Sara spend on car parts?	
5)	On Wednesday, Mary spent \$10.09 each on two tickets to a movie theater. She also borrowed a movie for \$4.94. How much money in total did Mary spend on movies?	
6)	Benny loves trading cards. She bought 3 packs of Digimon cards for \$2.93 each, and a deck of football cards for \$8.96. How much did Benny spend on cards?	
7)	Melanie purchased a Superman game for \$7.34, and a Spiderman game for \$11.64. How much did Melanie spend on video games?	
8)	Mary loves eating fruits. Mary paid \$14.51 for berries, and \$7.94 for bananas. In total, how much money did Mary spend?	
9)	Joan bought some toys. She bought a baseball for \$10.72, and spent \$13.50 on toy cars. In total, how much did Joan spend on toys?	
10)	Alyssa got fast food for lunch. Alyssa spent \$3.12 on soup and \$5.13 on	

a hotdog. What was the total of the lunch bill?



Name :	 Score :	
Teacher :	 Date :	

## **Word Problems**

1)	Nancy went to the mall on Saturday to buy clothes. She spent \$4.43 on shorts and	\$15.46
	\$11.03 on a shirt. In total, now much money did Nancy spend on clothing?	
2)	Tom joined his school's band. He bought a viola for \$147.02, and a song book	\$158.35
	which was \$11.33. How much did 10m spend at the music store?	
3)	Jessica spent \$10.97 on a gerbil toy, and a cage cost her \$12.09. What was the total	\$23.06
	cost of Jessica's purchases?	
4)	For her car, Sara spent \$148.76 on speakers and \$115.32 on new tires. In total, how	\$264.08
	much did Sara spend on car pans?	
5)	On Wednesday, Mary spent \$10.09 each on two tickets to a movie theater. She also	\$25.12
	borrowed a movie for \$4.94. How much money in total did mary spend on movies?	
6)	Benny loves trading cards. She bought 3 packs of Digimon cards for \$2.93 each,	\$17.75
	and a deck of football cards for \$0.30. Now much did benny spend on cards?	
7)	Melanie purchased a Superman game for \$7.34, and a Spiderman game for \$11.64.	\$18.98
	now much did melanic spend on video games :	
8)	Mary loves eating fruits. Mary paid \$14.51 for berries, and \$7.94 for bananas.	\$22.45
	in total, now machineliey and mary opena.	
9)	Joan bought some toys. She bought a baseball for \$10.72, and spent \$13.50 on toy cars. In total, how much did Joan spend on toys?	\$24.22
10)	Alyssa got fast food for lunch. Alyssa spent \$3.12 on soup and \$5.13 on a hotdog. What was the total of the lunch bill?	\$8.25





## **Number and Letter Resources**

https://www.discountschoolsupply.com/stem-curriculum/language-literacy/letters-number s/ezread--plastic-magnetic-letters----expanded/p/s710744?es=237530000ESC&gclid=EAIaIQ obChMlis23\_Kvh6gIViYbACh0gHwP-EAQYBCABEgKxcfD\_BwE

https://www.amazon.com/Imaginarium-Letters-Numbers-72-Pieces/dp/B002JWOKF8
## **Number Line Access Resources**

#### Printable Number Line: 0 to 20

https://www.helpingwithmath.com/printables/others/lin0301number02.htm

You may also use:

- Yard/meter stick
- Tape measure
- <u>https://www.amazon.com/Learning-Resources-Number-Counting-Blocks/dp/B01MS</u>
  <u>1JKPE?ref\_=fsclp\_pl\_dp\_13</u>
- https://www.target.com/p/50-piece-wooden-numbers-wood-craft-number-blocks-wi th-storage-tray-set-for-kids-toddlers-learning-toys-home-decor-multicolored-1-3-inc h/-/A-80405665?ref=tgt\_adv\_XS00000&AFID=google\_pla\_df&fndsrc=tgtao&CPNG=P LA\_Toys%2BShopping&adgroup=SC\_Toys&LID=700000001170770pgs&network=g&d evice=c&location=9017921&ds\_rl=1246978&ds\_rl=1248099&gclid=EAIaIQobChMI46 C-qPvg6gIVB9bACh3H7w3zEAQYDSABEgI0ZfD\_BwE&gclsrc=aw.ds

## **Survey Questions to Get You Started**

This list is meant to get you started in developing surveys your students can complete with their peers. This is a great opportunity for them to practice their speech and social skills in preparation for making a graph.

- What is your favorite snack? Chips, fruit, popcorn, candy
- Which sport do you like? Football, Soccer, Basketball
- What kind of books do you like to read? Fiction, Nonfiction
- What kind of movies do you like? Scary movies, Funny movies, Sad movies, Animal movies
- Which subject do you like best? Reading, writing, math, science, social studies, art, music, PE
- What is your favorite pet animal? Dog, cat, fish, bird, hamster

\*Once you have chosen your question and the options for people to choose from, make survey slips (see examples below) to help support the students in completing the survey. Each student should have several slips they can hand to a peer or adult to assist with asking the question. Some students may have the question already memorized and be able to ask it with minimal assistance. Other students may hand it to the person and prompt with "What do you want?" using their Core Vocabulary board. The peer or adult should circle their answer, and the student should return to class with their data to include in the graph.

<b>What is your favorite</b>	<b>What is your favorite</b>	<b>What is your favorite</b>
<b>snack?</b>	<b>snack?</b>	<b>snack?</b>
Chips, fruit, popcorn, candy	Chips, fruit, popcorn, candy	Chips, fruit, popcorn, candy
<b>What is your favorite</b>	<b>What is your favorite</b>	<b>What is your favorite</b>
<b>snack?</b>	<b>snack?</b>	<b>snack?</b>
Chips, fruit, popcorn, candy	Chips, fruit, popcorn, candy	Chips, fruit, popcorn, candy

Which sport do you like?	Which sport do you like?	Which sport do you like?
Football, Soccer, Basketball	Football, Soccer, Basketball	Football, Soccer, Basketball
Which sport do you like?	Which sport do you like?	Which sport do you like?
Football, Soccer, Basketball	Football, Soccer, Basketball	Football, Soccer, Basketball

<b>What kind of books do</b>	<b>What kind of books do</b>	<b>What kind of books do</b>
you like to read?	you like to read?	<b>you like to read?</b>
Fiction, Nonfiction	Fiction, Nonfiction	Fiction, Nonfiction
What kind of books do	<b>What kind of books do</b>	<b>What kind of books do</b>
you like to read?	you like to read?	<b>you like to read?</b>
Fiction, Nonfiction	Fiction, Nonfiction	Fiction, Nonfiction

<b>What kind of movies do</b>	<b>What kind of movies do</b>	<b>What kind of movies do</b>
<b>you like?</b>	<b>you like?</b>	<b>you like?</b>
Scary, Funny, Sad, Animal	Scary, Funny, Sad, Animal	Scary, Funny, Sad, Animal
<b>What kind of movies do</b>	<b>What kind of movies do</b>	<b>What kind of movies do</b>
you like?	you like?	you like?
Scary, Funny, Sad, Animal	Scary, Funny, Sad, Animal	Scary, Funny, Sad, Animal

Which subject do you like	Which subject do you like	Which subject do you like
best?	best?	best?
Reading, writing, math	Reading, writing, math	Reading, writing, math
<b>Which subject do you like</b>	Which subject do you like	Which subject do you like
best?	best?	best?
Reading, writing, math	Reading, writing, math	Reading, writing, math

Which subject do you like	Which subject do you like	Which subject do you like
best?	best?	best?
social studies, art, music, PE	social studies, art, music, PE	social studies, art, music, PE
Which subject do you like	Which subject do you like	Which subject do you like
best?	best?	best?
social studies, art, music, PE	social studies, art, music, PE	social studies, art, music, PE

<b>What is your favorite pet animal?</b>	<b>What is your favorite pet animal?</b>	<b>What is your favorite pet animal?</b>
Dog, cat, fish, bird, hamster	Dog, cat, fish, bird, hamster	Dog, cat, fish, bird, hamster
<b>What is your favorite pet animal?</b>	<b>What is your favorite pet animal?</b>	<b>What is your favorite pet animal?</b>
Dog, cat, fish, bird, hamster	Dog, cat, fish, bird, hamster	Dog, cat, fish, bird, hamster

## **Word Problems**

Sally eats 2 cookies each day for 3 days. How many total cookies does she eat?

2 + 2 + 2 = 6

Tom mowed 1 lawn each day for 4 days. How many lawns did he mow?

1 + 1 + 1 + 1 = 4

Fran spent 3 dimes each week for 3 weeks. How many total dimes did she spend?

3 + 3 + 3 = 9

# Dan made 2 cakes each day for 5 days. How many cakes did he make altogether?

2 + 2 + 2 + 2 + 2 = 10

# Stan brushed 3 horses in the morning, 3 horses in the afternoon, and 3 horses at night. How many horses did he brush today?

### Ann ate 2 apples every day for 3 days. How many total apples did she eat?

#### 2 + 2 + 2 = 6

Here is a link to a random number generator you can use to change up the numbers in the scenarios above or to make new scenarios.

https://www.random.org/?\_cf\_chl\_jschl\_tk\_=646b40d70712b9241a468a1147884b65cfbfd6 47-1596821626-0-ARXIZtgXF7OB9ntt22fb-JOQJ9606gjhWAC9S-nI9bWgZGAgG137W3jhOflg\_ 6xYK0KTVJmds7nvqAwA9hcfHaX0A8JJ73HyX3HDBGsSlUzvUyrj5yriU4aT4FF0z-zqoKND7Z1Fx XGDp9vulfR46tEkYeplehoyQrlKLfnlx6PbSAqseAg99tbNm6i-QiYpSxL-8lmKvtKccgdhVZpEcOT fezc6nfld2RWYvsx6vXtkf8oqI5aKl6X0dZ\_R3\_YU8GzaWdjuaQW9JSVCO40WHDD2dRnm-PaRI CwND83CMTuHq3aASR7Fi5PedzXhemICk8nfbyg9soTiaQUJ14Tvno0