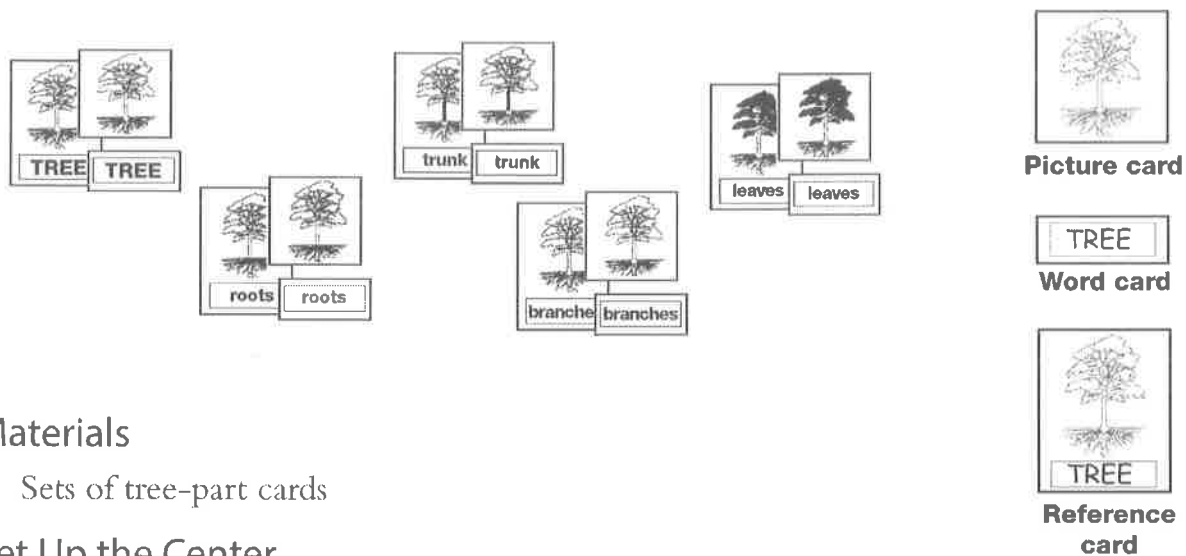


CENTER INSTRUCTIONS—TREE-PART CARDS



Materials

Sets of tree-part cards

Set Up the Center

Keep the sets of cards in zip bags. Have them ready to hand out to students.

Guide the Investigation

- 1. Distribute the cards.** Give each pair of students one set of cards to work with.
- 2. Match the cards.** Let students take the cards out of the zip bags and begin to match them without giving them assistance. If students have trouble getting started, suggest that they lay out all the reference cards, and then lay the picture and word cards on top of the reference cards.
- 3. Match without the reference cards.** If, after several practice sessions, students feel confident that they can match the word card to the picture card without the reference cards, let them do that. They can use the reference cards to check their work.

Vocabulary

Try to include these words in discussions with students:

branch, leaf, root, trunk

CENTER INSTRUCTIONS—TREE PUZZLES

Materials

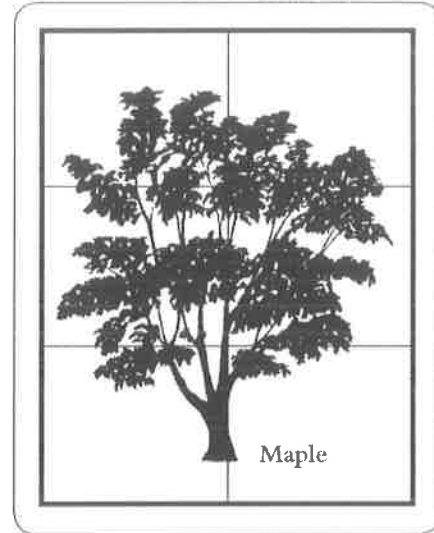
- Tree puzzles
- Plastic puzzle frames
- Puzzle reference sheets

Set Up the Center

Set out the puzzles and puzzle frames on a large table where students will have plenty of room to work.

Guide the Investigation

- 1. Demonstrate the puzzles.** Show students how to fit the puzzles into the plastic frames if the teacher has not already done so. Tell students that the puzzles are tricky because all the pieces are the same size and shape. The only way to put the puzzles together is to look carefully at the shape of the trees. Some of the puzzles have six pieces; others have nine.
- 2. Use the reference sheets.** If students seem to be having difficulty putting a puzzle together, suggest they put the reference sheet under the plastic frame.



Vocabulary

Try to include these words in discussions with students:
compare, shape

CENTER INSTRUCTIONS—TREE-SILHOUETTE CARDS

Materials

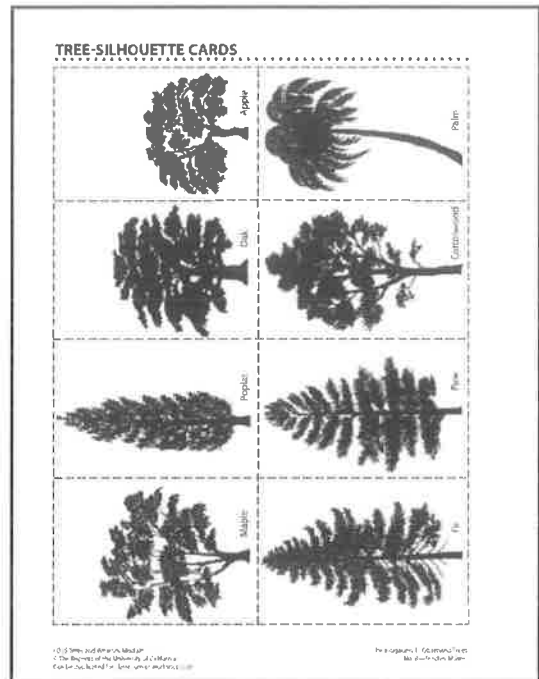
Sets of tree-silhouette cards

Set Up the Center

Have the sets of tree-silhouette cards ready to distribute.

Guide the Investigation

- Distribute the cards.** Give each pair of students two sets of cards.
- Play the matching game.** To play the matching game, give students these instructions.
 - Turn all 16 cards face down and spread them out.
 - The first player turns over two cards, one at a time.
 - If the two cards match, the player gets to keep the cards. The other player takes a turn.
 - If the two cards don't match, turn the cards face down again. The other player takes a turn.
 - Play until all the cards have been matched.



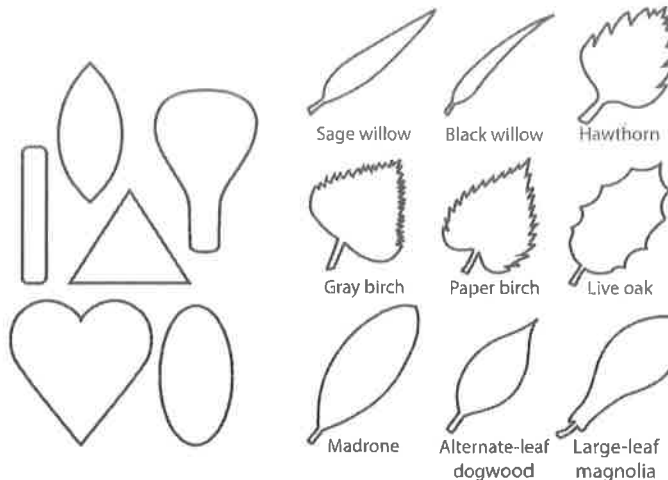
Vocabulary

Try to include these words in discussions with students:
compare, shape, silhouette, similar

CENTER INSTRUCTIONS—LEAF SHAPES

Materials

- Sets of felt leaves, green (9/set)
- Set of yellow felt geometric shapes, (6/set)
- Felt board
- Box or shopping bag
- Assorted tree leaves
- Leaf-Shape Sorting Mats*



Set Up the Center

Set up the felt board where students can reach it. Have the felt leaves and shapes in a box. Have *Leaf-Shape Sorting Mats* and leaves at a table ready to use.

Guide the Investigation

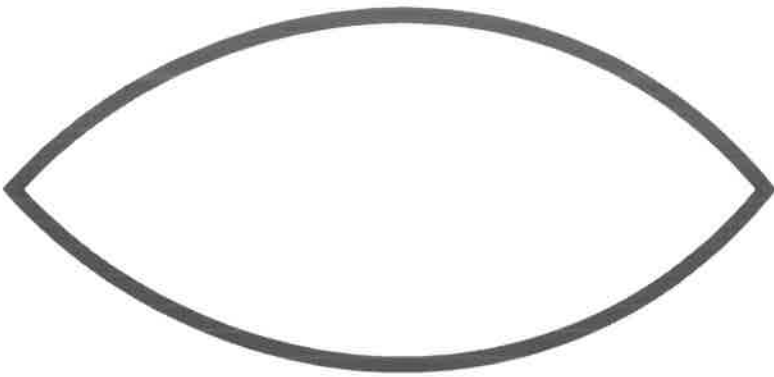
- 1. Show the first set of felt leaves.** Place one set of felt leaf silhouettes on the felt board, one at a time. As you put each new leaf on the board, have students identify similarities and differences. Ask students if they think the leaves could all come from the same tree if they were real leaves.
- 2. Match leaf shapes.** Take out one of the felt leaves from the second set. Ask a student to find the matching leaf, and place the new leaf on top of the original leaf. Call on additional students to find matches for all the leaves in the second set.
- 3. Introduce geometric shapes.** Put the yellow triangle on the felt board. Ask students to name it. Call on a student to identify a leaf silhouette that is about the same shape, and put it on top of the triangle. Continue this process with the other geometric shapes. (The line, triangle, and oval each have two felt leaves that match.)
- 4. Introduce the *Leaf-Shape Sorting Mat*.** Give students *Leaf-Shape Sorting Mats* and real leaves. Tell them to find real leaves that match the shapes on the mat.

Vocabulary

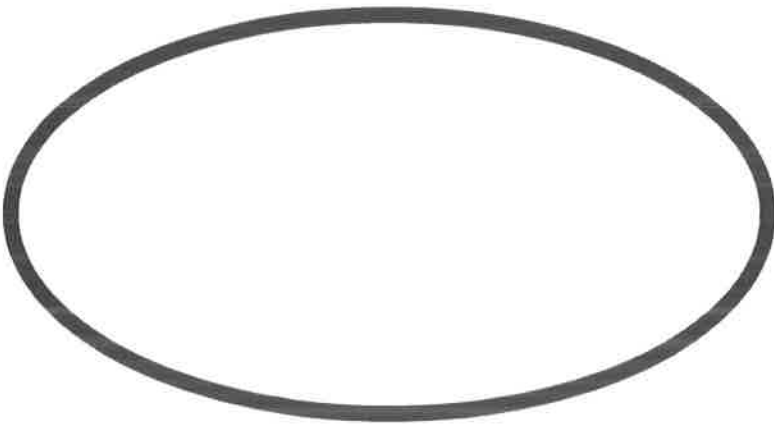
Try to include these words in discussions with students:
heart, line, oval, paddle, spear, triangle

LEAF-SHAPE SORTING MAT A

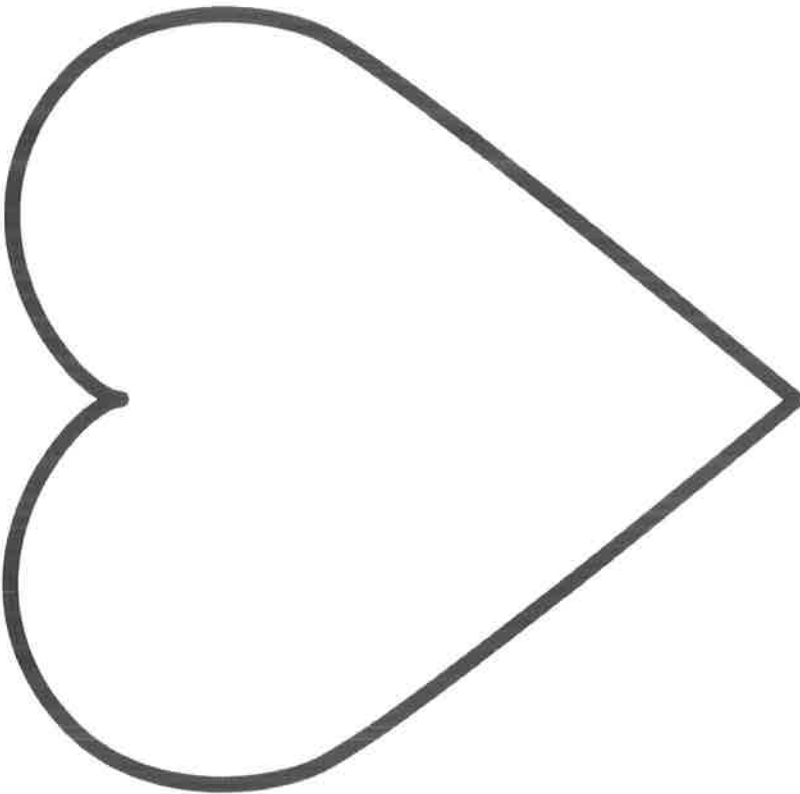
Spear



Oval



Heart

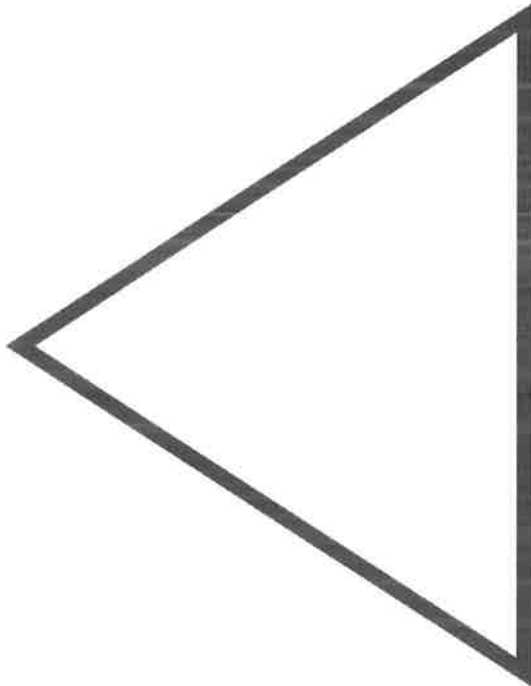


LEAF-SHAPE SORTING MAT B

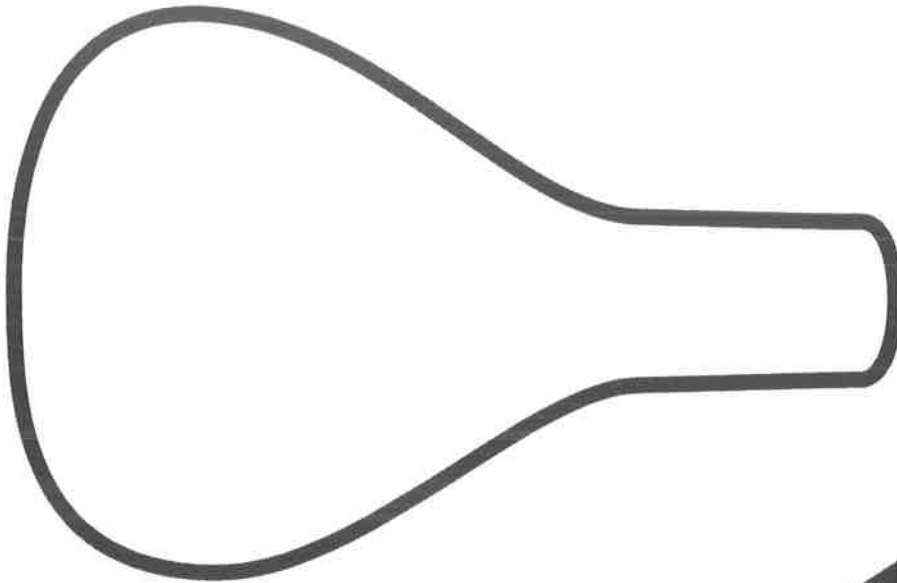
Line



Triangle


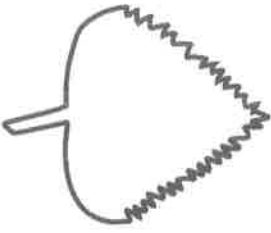
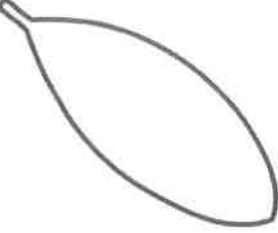








Paddle

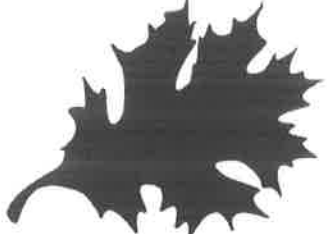

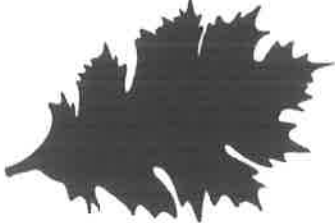

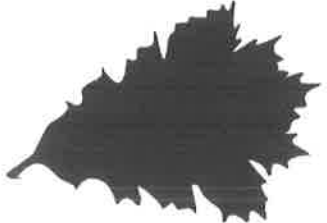



KEY TO LEAF NAMES A

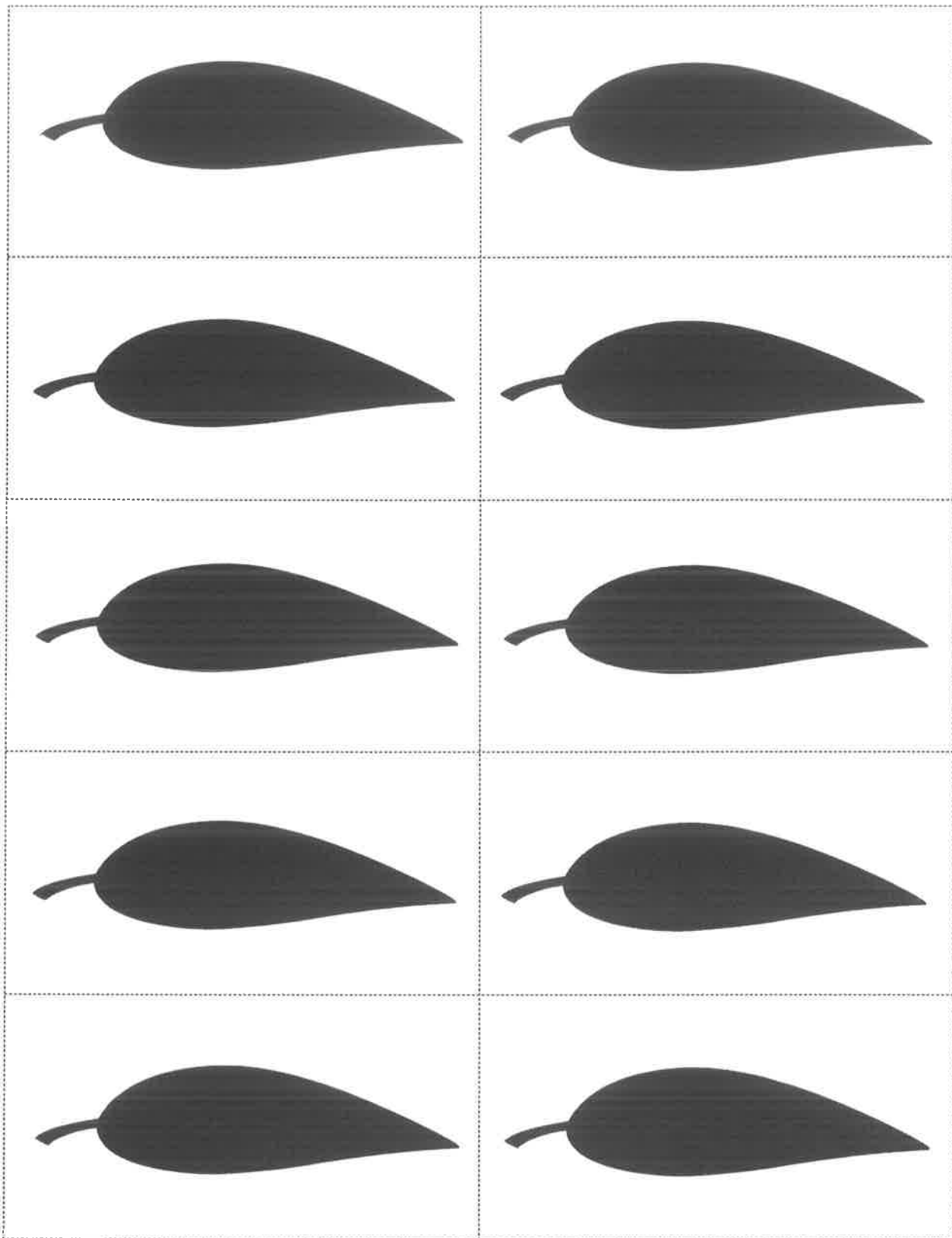
PART 2: FELT LEAF SHAPES

 <p>Sage willow</p>	 <p>Gray birch</p>	 <p>Madrone</p>
 <p>Black willow</p>	 <p>Paper birch</p>	 <p>Alternate-leaf dogwood</p>
 <p>Hawthorn</p>	 <p>Live oak</p>	 <p>Large-leaf magnolia</p>

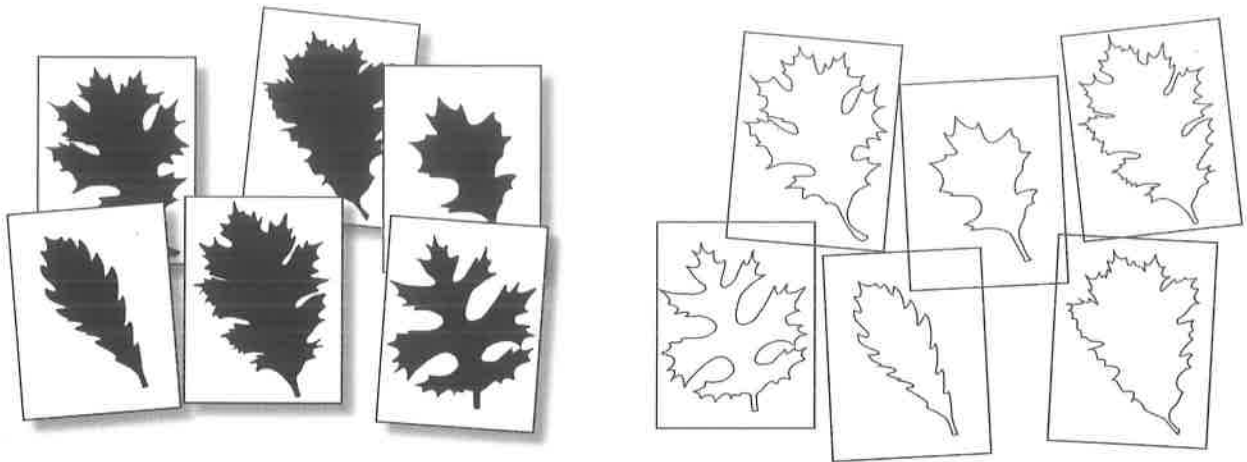
PART 4: LEAF SILHOUETTES AND OUTLINES

 <p>Black oak (1)</p>	 <p>Scrub oak</p>
 <p>Northern red oak</p>	 <p>Scarlet oak</p>
 <p>Black oak (2)</p>	 <p>Chinquapin oak</p>

LEAF REFERENCE CARDS



CENTER INSTRUCTIONS—MATCHING LEAF SILHOUETTES A...



Materials

5 Sets of leaf silhouettes and outlines in separate zip bags (12/set)

Set Up the Center

Have the sets of silhouettes and outlines ready to hand out.

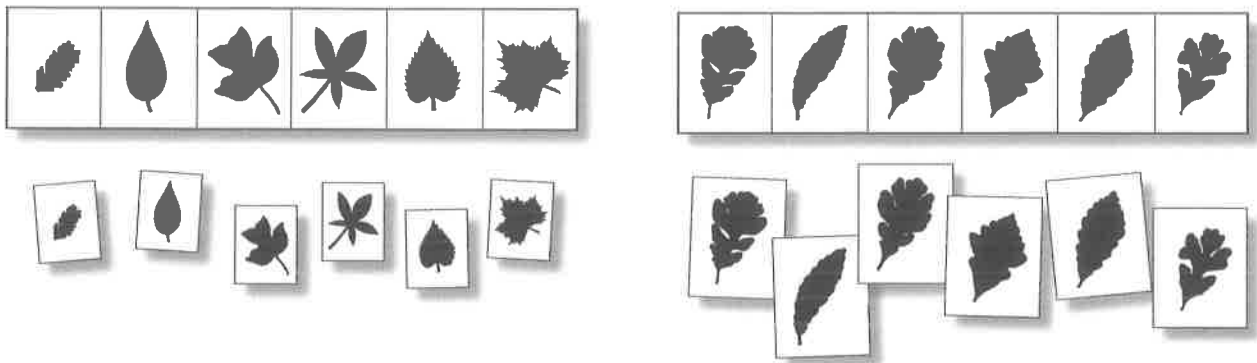
Guide the Investigation

Match leaf silhouettes and outlines. Give each student or pair of students a set of leaf silhouettes and outlines. Have students lay the silhouettes on a table or the floor. Have them find the matching outlines and place the outlines on top of the silhouettes.

Vocabulary

Try to include these words in discussions with students:
outline, silhouette

CENTER INSTRUCTIONS—MATCHING LEAF SILHOUETTES B



Materials

- 5 Sets of leaf silhouettes, big and little (6 cards plus a strip of 6 leaves)
- 5 Sets of leaf silhouettes, same size (6 cards plus a strip of 6 leaves)

NOTE: There are two kinds of leaf silhouettes. Some sets have leaves in two sizes, and some sets have leaves that are all the same size. Each set has a long strip of six leaves plus a set of individual cards.

Set Up the Center

Have the sets of leaf-silhouette cards ready to hand out.

Guide the Investigation

Introduce the games. Have students play What Matches? or What's Missing?

- What Matches?** Students set out the reference strip and lay out the individual cards in random order. They match cards, laying them on top of the leaf silhouettes on the long reference strip.
- What's Missing?** Students set out the reference strip and lay out the individual cards in random order. One student closes his or her eyes while a partner takes one of the cards away. The student whose eyes were closed tries to figure out which card is missing.

Vocabulary









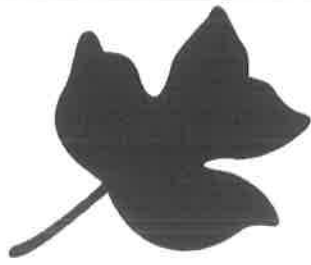
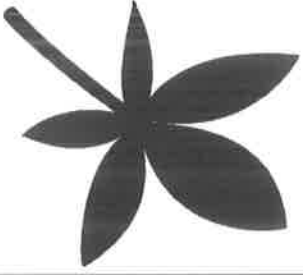

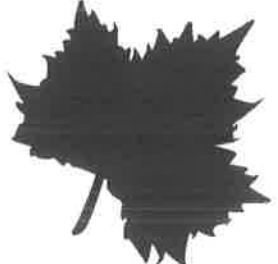
Try to include these words in discussions with students:

big, little, matching, missing

KEY TO LEAF NAMES B







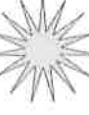

































PART 4: SAME-SIZE LEAF SILHOUETTES

PART 4: BIG AND LITTLE LEAF SILHOUETTES

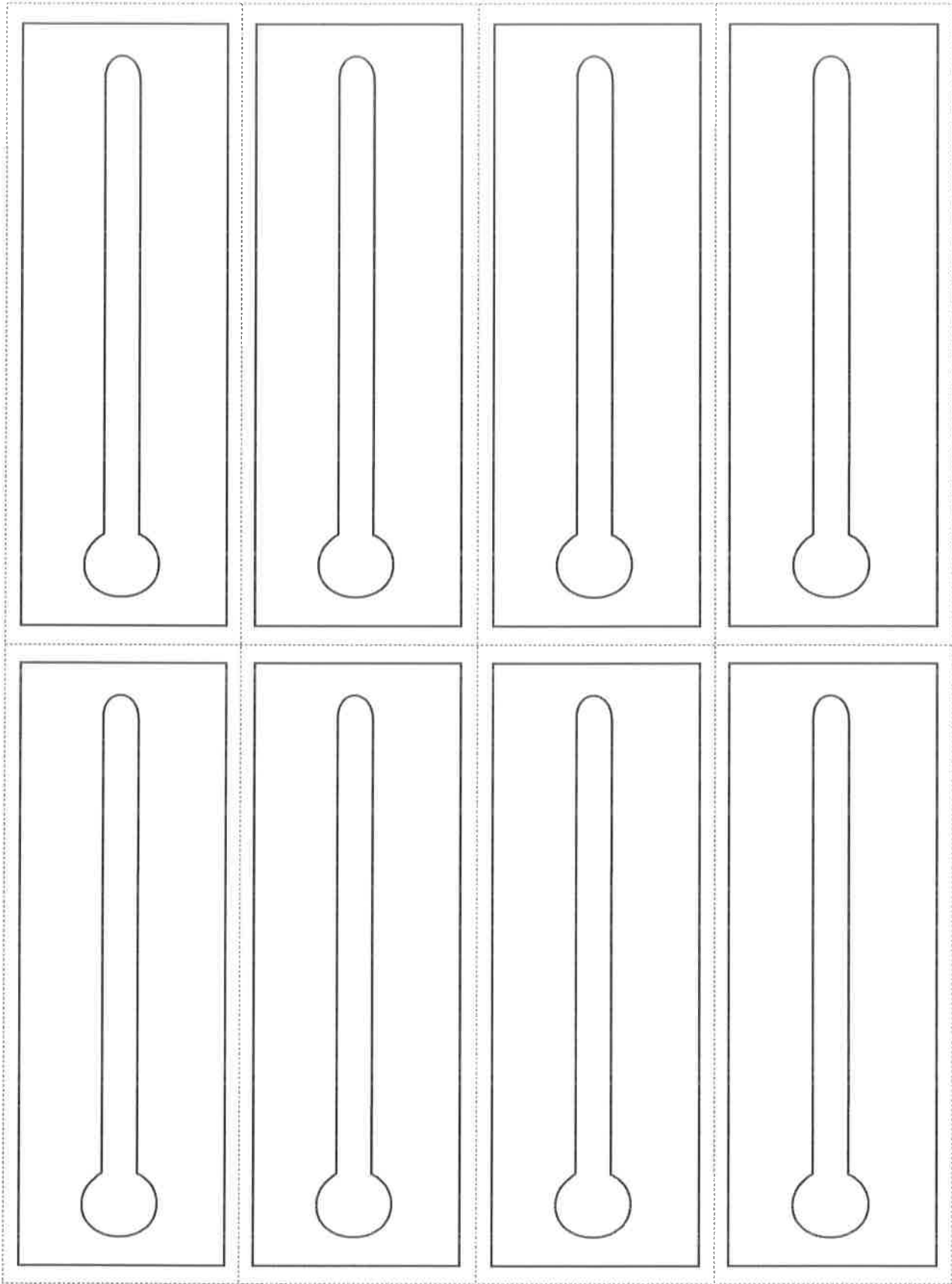
 <p>Bur oak</p>	 <p>Chinquapin oak</p>	 <p>White oak</p>	 <p>Swamp white oak</p>	 <p>Chestnut oak</p>	 <p>Post oak</p>
 <p>Eastern hemlock</p>	 <p>Panicked dogwood</p>	 <p>Yellow poplar</p>	 <p>Buckeye</p>	 <p>Balm of Gilead</p>	 <p>American sycamore</p>

WEATHER PICTURES

Cut pictures apart. Place them in cups or envelopes for daily use with class calendar.

 OVERCAST	 OVERCAST	 RAINY	 RAINY	 SNOWY	 SUNNY	 SUNNY	 PARTLY CLOUDY
 OVERCAST	 OVERCAST	 RAINY	 RAINY	 SNOWY	 SUNNY	 SUNNY	 PARTLY CLOUDY
 OVERCAST	 OVERCAST	 RAINY	 RAINY	 SNOWY	 SUNNY	 SUNNY	 PARTLY CLOUDY
 OVERCAST	 OVERCAST	 RAINY	 RAINY	 SNOWY	 SUNNY	 SUNNY	 PARTLY CLOUDY
 OVERCAST	 OVERCAST	 RAINY	 RAINY	 SNOWY	 SUNNY	 SUNNY	 PARTLY CLOUDY

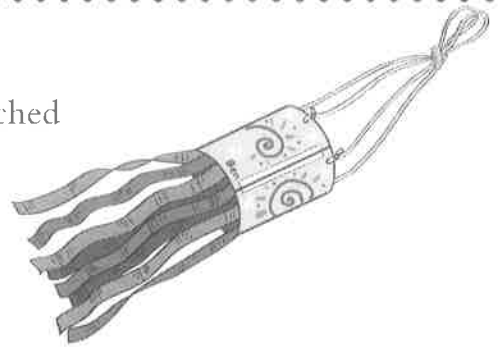
THERMOMETER OUTLINE



CENTER INSTRUCTIONS—WIND DIRECTION

Materials

- Pieces of construction paper, folded and hole punched
- Strips of crepe paper
- Pieces of yellow yarn
- Glue sticks or white glue
- Transparent tape
- Crayons or marking pens *



Set Up the Center

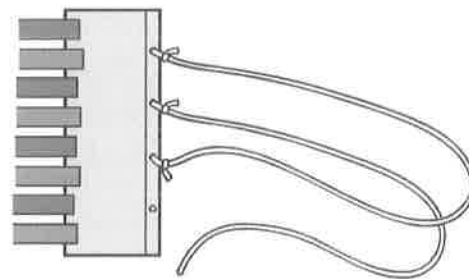
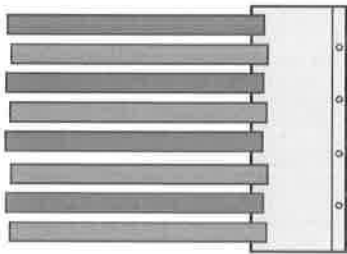
Each student needs eight strips of crepe paper, two pieces of yarn, and two pieces of construction paper. Put 9 cm lengths of tape on the edge of the table when they are needed.

Guide the Assembly

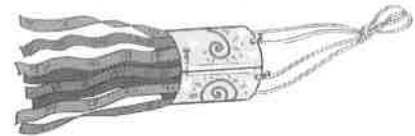
1. Give each student a piece of folded, punched construction paper. Students should write their names and draw a design on the front side (the side without the fold).



2. Glue eight strips of crepe paper side by side along the long edge opposite the folded edge.
3. Tie one end of a piece of yarn to Hole 1 and the other end to Hole 3. Tie a second piece of yarn to Holes 2 and 4. (Students will probably need help.)



4. Roll the construction paper into a tube, and secure it with a piece of tape.
5. Tie the yarn loops with a single knot.



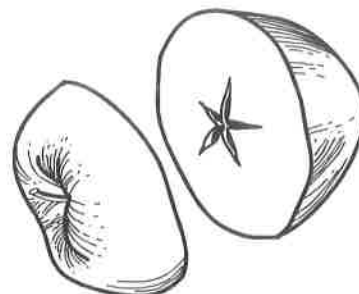
Vocabulary

Try to include these words in discussions with students:
streamers, wind sock

CENTER INSTRUCTIONS—FOOD FROM TREES

Materials

Edible fruits	Tape or glue
Paper towels	Crayons and pencils
Knife	Bag of seeds
Drawing paper	



SAFETY NOTE: Be aware of any allergies students might have to fruit, and avoid using those kinds. Remind students never to taste anything in science class unless instructed to do so. Have students wash their hands before handling the fruit that will be eaten.

Set Up the Center

Keep all the materials near you at the center to be distributed as needed.

Guide the Investigation

- 1. Review seeds.** Distribute some of the seeds collected on the schoolyard walk. Let students explore the shapes and sizes. Ask,
 - *What are seeds?*
 - *If we planted one of the seeds from the oak tree, what kind of plant would grow?*
 - *Do the seeds all look the same? How are they different?*
- 2. Distribute fruits.** Have the students wash their hands with soap and warm water. Then show students the fruits you brought to class. Explain that they all come from trees. Open a few of the fruits. Ask students to see what they can find inside. Give each student a paper towel and a piece of a fruit that includes a seed.
- 3. Record the findings.** Have each student draw the fruit on a piece of paper and tape or glue a seed next to his or her drawing. Combine all the drawings into one class poster.
- 4. Eat the fruit.** Then invite them to taste the different fruits. Cut pieces from the fruits that students observed and serve them to the group. Be aware of any allergies students might have before offering them fruit to taste.

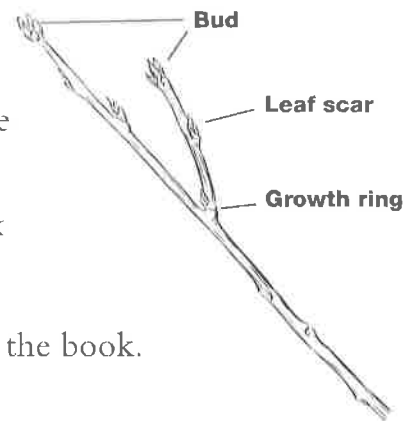
Vocabulary

Try to include these words in discussions with students:
food, fruit

CENTER INSTRUCTIONS—WINTER TWIGS

Materials

Book, <i>Our Very Own Tree</i>	Twigs	White glue
Tree-trunk rounds	Split twigs	Loupes
Transparent tape	Twig cross sections	Scrapbook



Set Up the Center

Keep all the materials near the center. You will start with the book.

Guide the Investigation

- 1. Introduce twigs.** Read page 4 from *Our Very Own Tree*. Discuss how to tell a branch from a twig.
- 2. Observe winter twigs.** Give each student a twig. Discuss gentle handling.
- 3. Discuss observations.** Give students time to observe their twigs. Ask,
 - *What do you see at the tip of the twig?* [Bud.]
 - *Can you find any other buds on the twig?* [Along the sides.]
 - *What else do you see on the twig?* [Scars.]

Show students the twig with the leaves. Remove a leaf, and let students observe the leaf scar. Let them compare the leaf scar to the marks on their twigs.

- 4. Look for growth rings.** Ask students to look at their twigs, starting at the tips and continuing down. Ask if they see a circle or ring that goes around the twig. Explain that this growth ring shows how much the twig grew last year. Let students trade twigs with a partner to look for growth rings.
- 5. Examine cross sections.** Distribute twig cross sections, split twigs, and tree-trunk rounds with loupes/magnifying lenses. Let students observe and compare the wood inside.
 - *What is the color of the wood inside? Is there only one color inside?*
 - *Where does the bark start? Is it thick or thin?*
 - *How does it smell?*
- 6. Add twigs to the scrapbook.** Add a twig or two to the scrapbook. Have students help label the parts and add their comments. Save room for spring twigs.

Vocabulary

Try to include these words in discussions with students:

bark, branch, bud, leaf scar, growth ring, trunk, twig

CENTER INSTRUCTIONS—FORCING TWIGS

Materials

- Twigs
- Soft-drink-bottle vases
- Tape
- Scrapbook
- Water

Set Up the Center

Have all the materials near the center.

Guide the Investigation

1. Observe the spring twigs. Give each student a spring twig to observe. Bring out the scrapbook, and have students compare the spring twigs to the winter twigs. Ask,

- *How are the spring twigs different from the winter twigs?*
- *Can you find new growth rings?*
- *Can you find the end bud?*
- *Can you find other buds?*
- *Are the buds the same size as they were in winter?*

2. Put twigs in vases. Have students put twigs from one kind of tree in a soft-drink-bottle vase. Ask students what they think might happen.

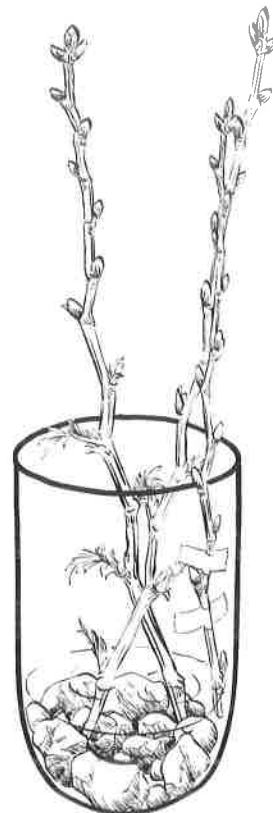
The water and warmth of the room will stimulate some twigs to develop—a process called forcing. Buds may continue to swell, and the bud scales may fall off. The buds may open to reveal flowers or leaves.

3. Get ready for the next group. You might want to return the twigs to one of the vases before the next group arrives at the center so all students have the opportunity to sort the twigs into types.

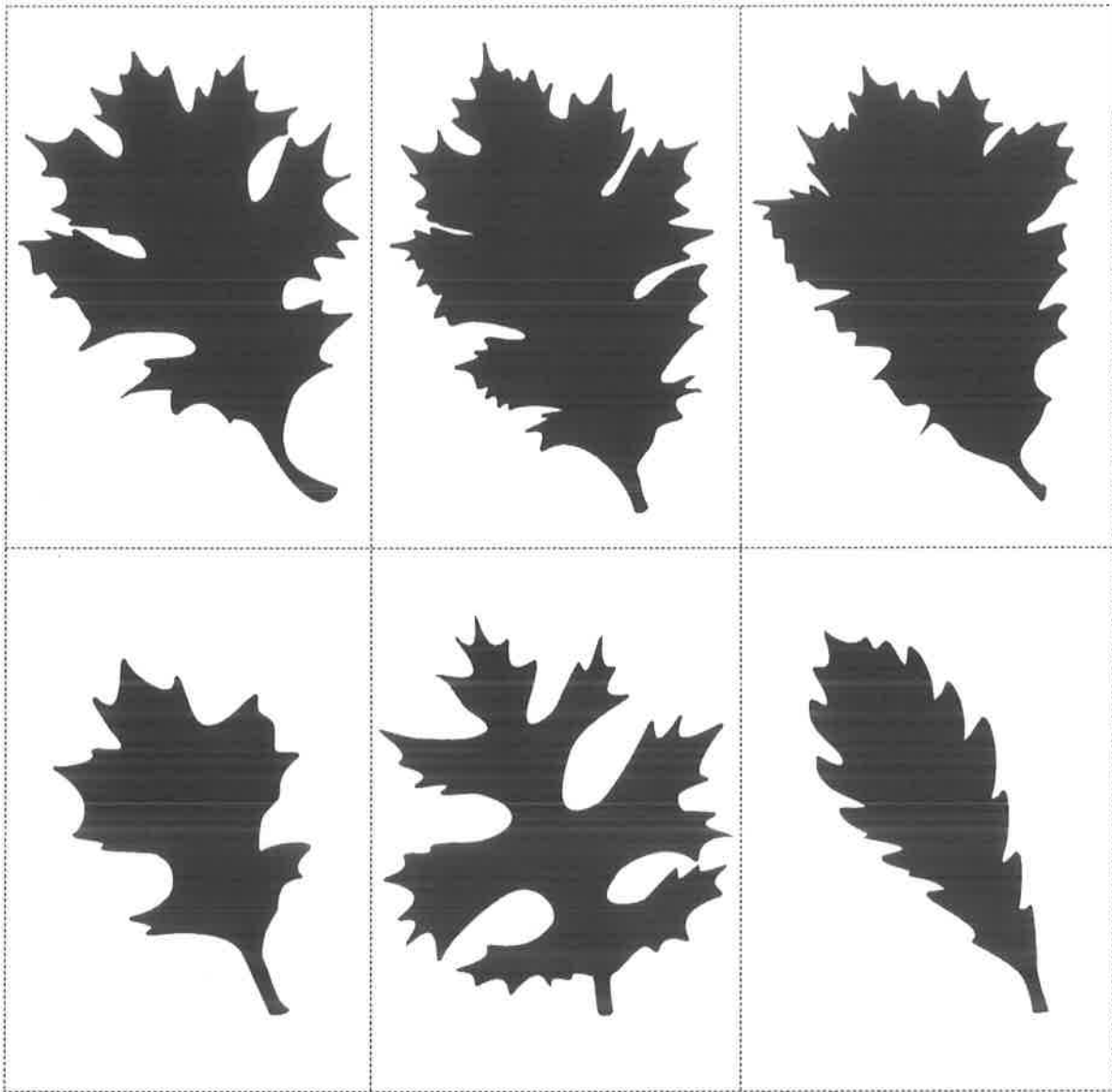
Vocabulary

Try to include these words in discussions with students:

blossom, flower, forcing, growth ring, scar, swollen



SILHOUETTE REPLACEMENTS



Photocopy this sheet onto plain paper. Cut the six silhouettes apart on the dotted lines.