PLTW | Launch

Launch Log
Light and Sound
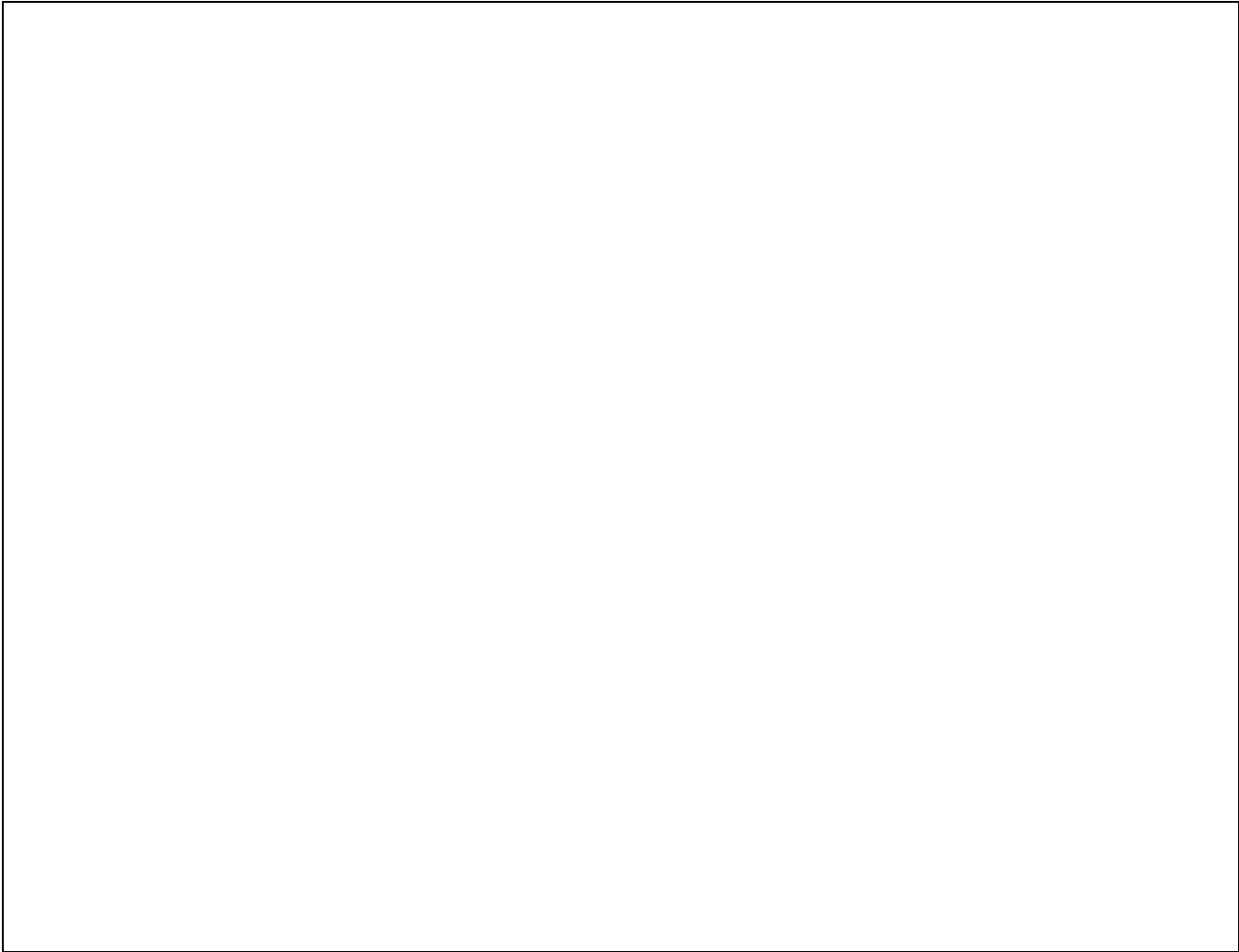
Name:

_____

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Table of Contents

Activity 1: Introduction to Light and Sound

Draw a picture below showing the problem from the story:

_____

_____

_____

_____

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_____

Design Process
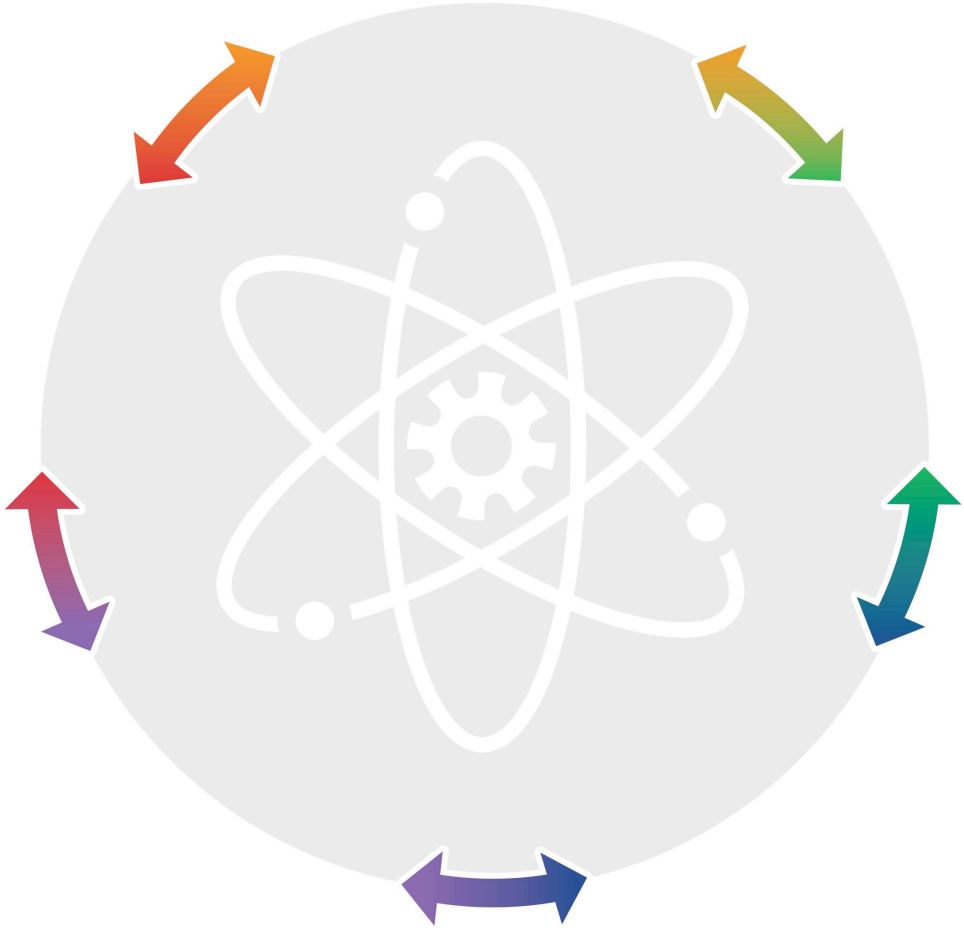
Activity 2: Sound

Exploring Sound

Draw a picture below showing how we hear sounds.
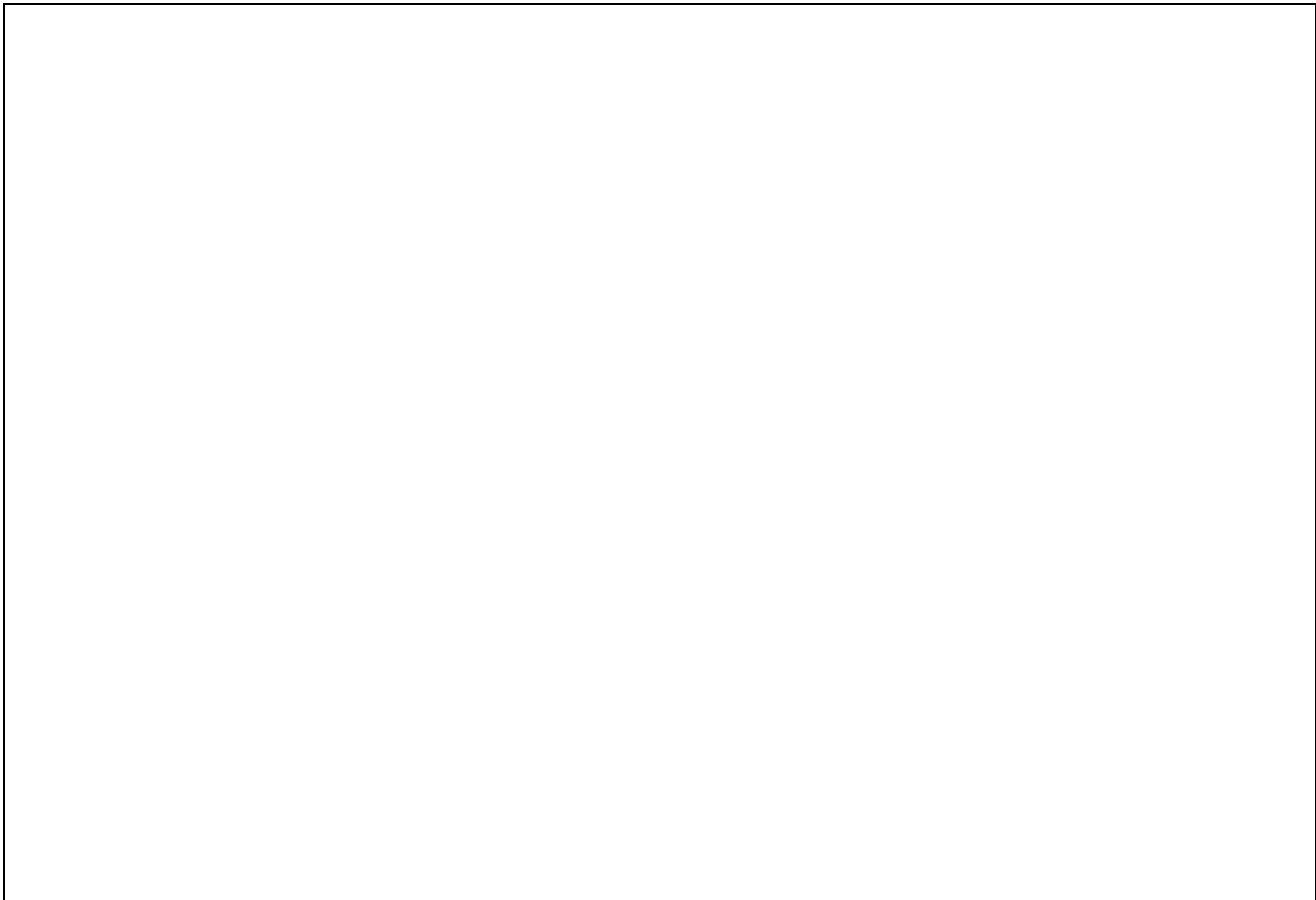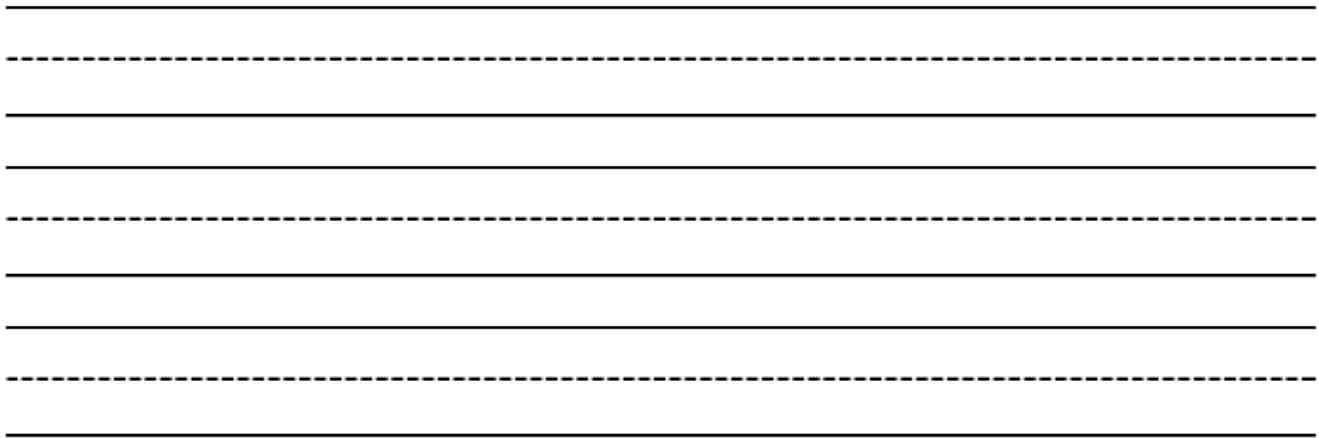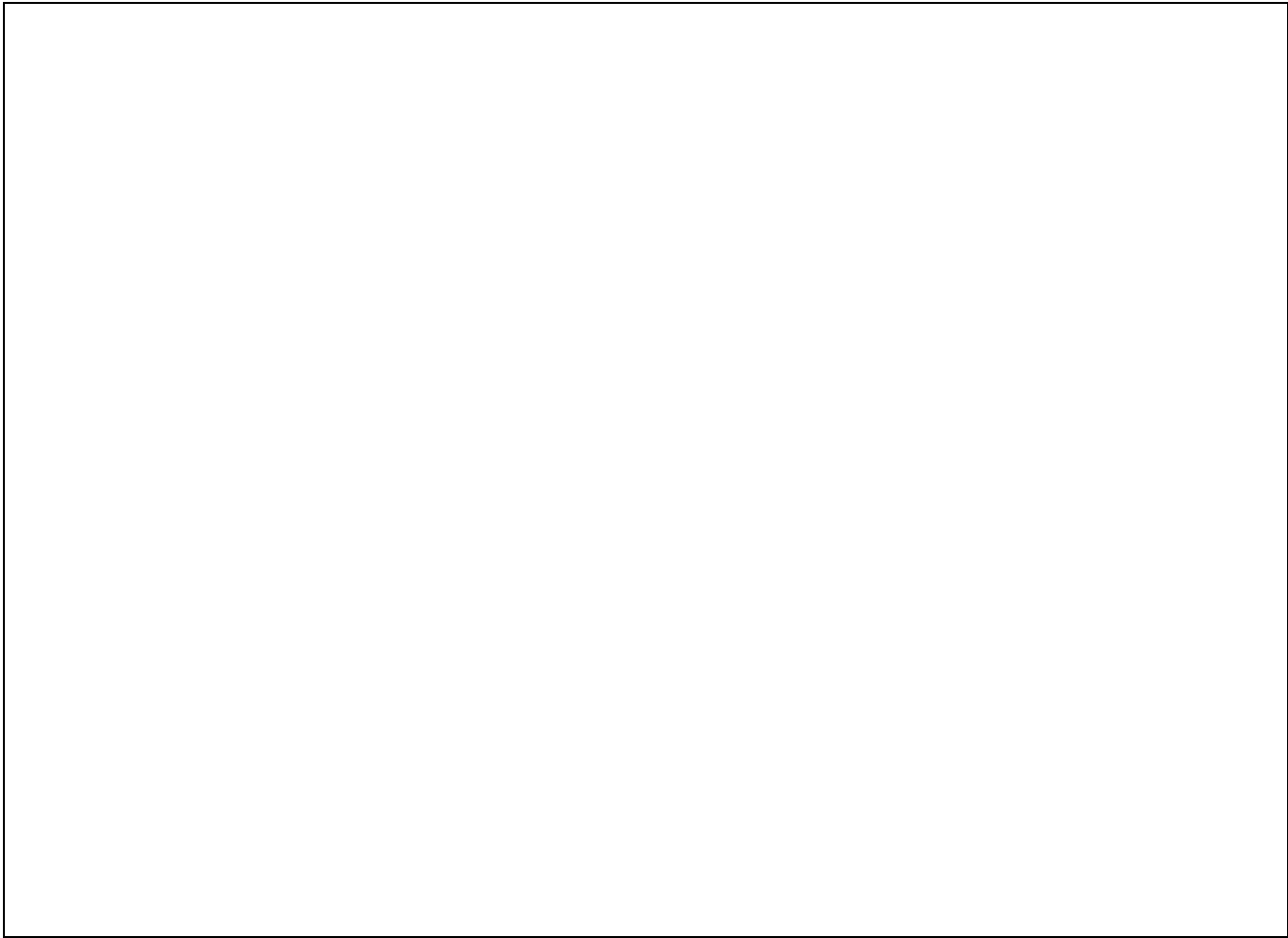
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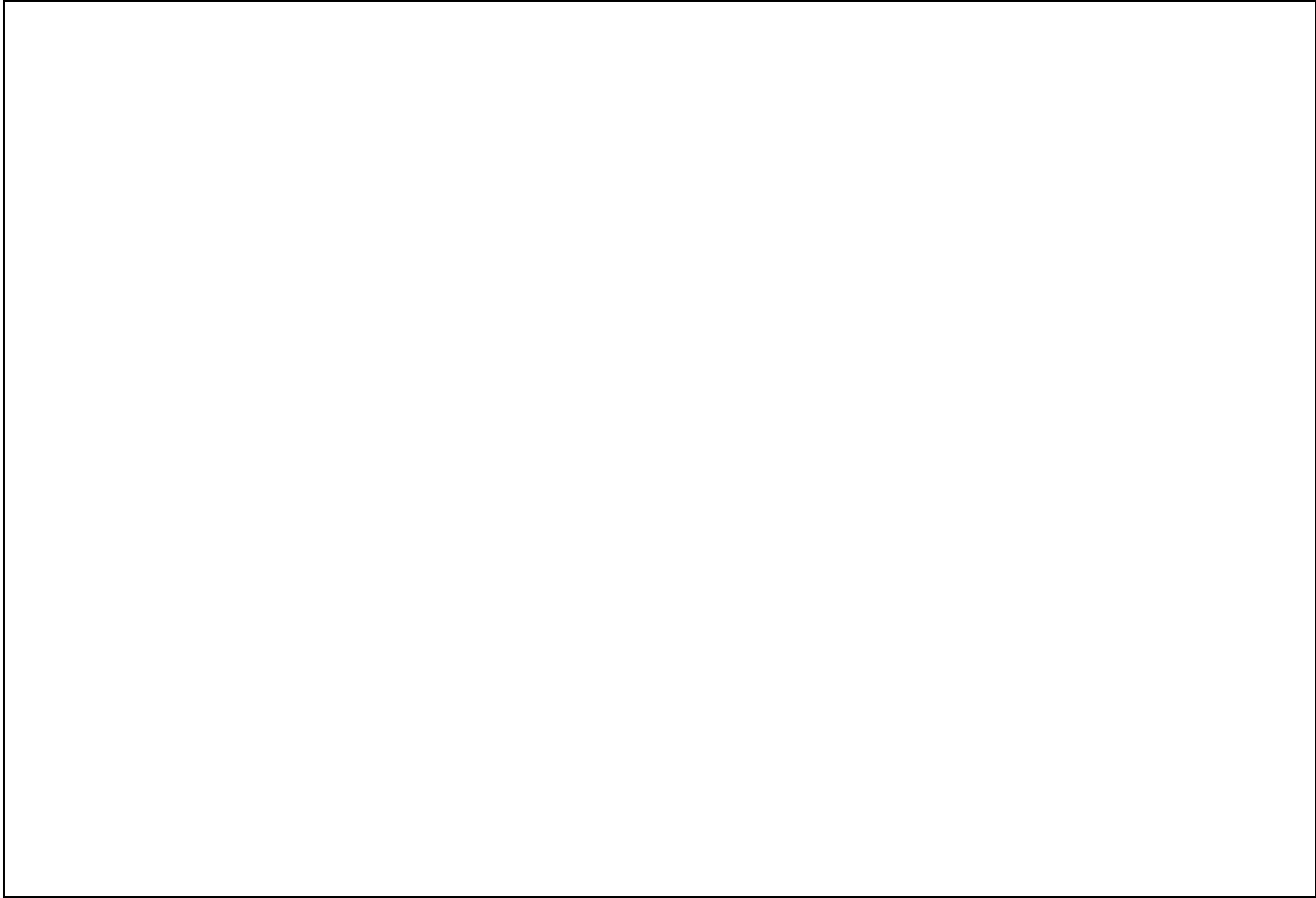
Sound Stations

What did you do to get a sound from the rubber bands?

_____

_____
_____

_____
_____

_____

What did you do to get a sound from the metal water bottles?

What did you hear when you held the stethoscope to your chest? How did the sound travel to your ear?

_____

_____

_____

_____

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_____

Sound and Vibration

Does your phone work better when the string is pulled tight or when it hangs loose?

_____

_____

_____

_____

Hold the string when you talk. Is it easier or more difficult to hear? Why?

_____

_____

_____

_____

_____

_____

Activity 3: Light

Exploring Light

A. The Sun

How many lights can you count in your classroom?_____

B. Lightning

How far away did lightning strike if you hear thunder 5 seconds after you see the spark?

How long would it take to hear thunder from a lightning strike 2 miles away?

C. Shadows

Draw a picture below with the sun, you, and your shadow.

D. Reflection

What would make the best mirror: ice, sand, or a leaf? Why?

_____

_____

_____

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_____

_____

E. Color

What color do you see when the colors of red, blue, and green are mixed together?

_____

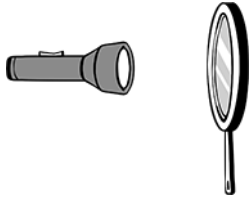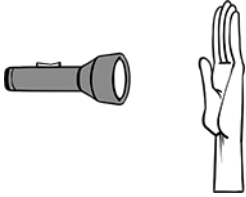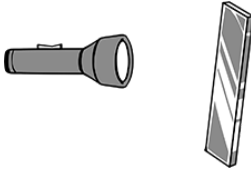---

_____

F. The Human Eye

We see an object when _____ bounces off
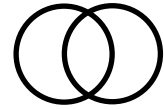
of it and enters our _____.

Light and Dark

Why can you not see objects in total darkness?

_____

_____

_____

_____

Project: Light Investigation

Object	Light
Mirror	
Hand	
Colored Lenses	
Spectroscope or Diffraction Grating	Draw the image you see in the tube or through the grating.

Color Investigation

Red + Blue = _____

Red + Green = _____
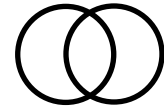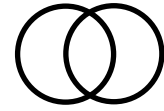
Blue + Green = _____

Blue + Yellow = _____

_____

_____

_____

_____
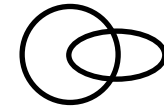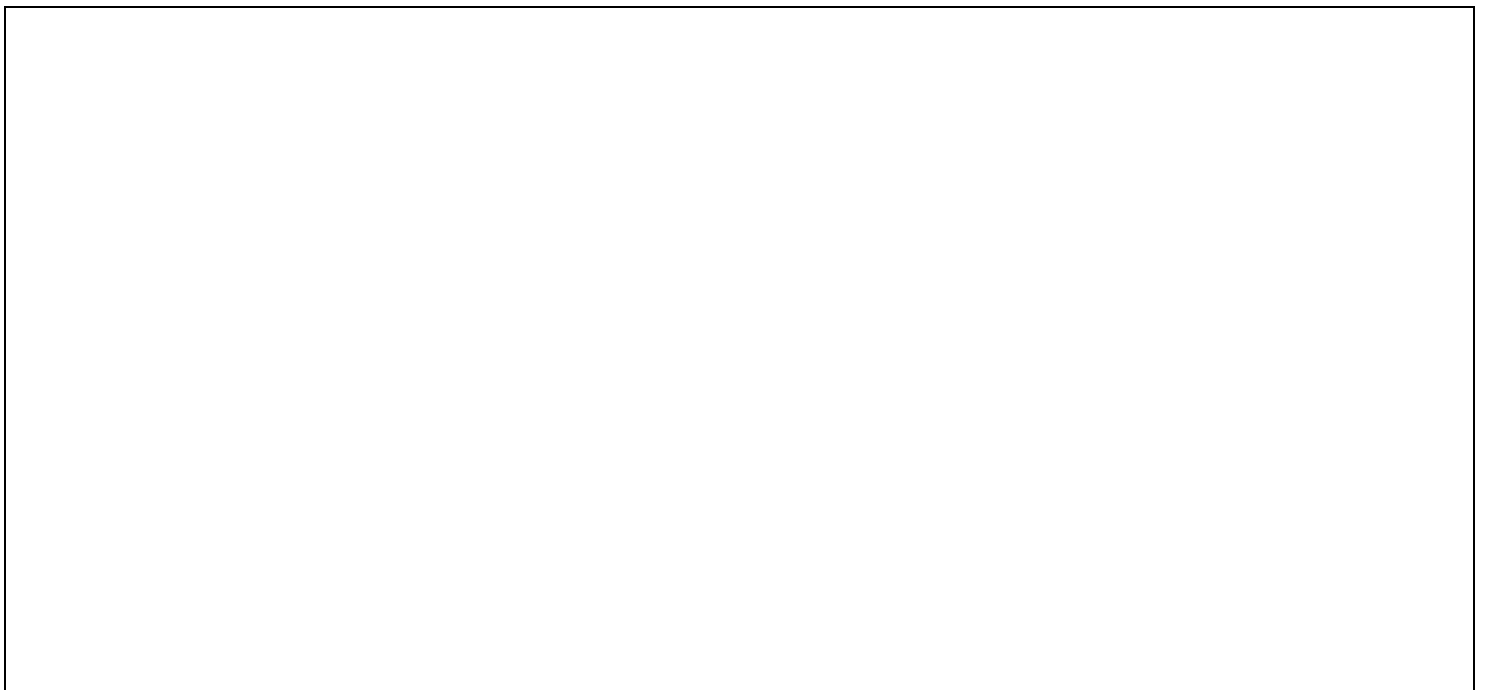
Problem: Communicating with Light and Sound

Ask – What is the problem?

_____

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Reflection

Design Process Step 1: Ask	
• I can explain the design problem.	
• I can find information that I need to solve the problem.	
Teacher Notes	

Use this space if you need more room for drawing.

Explore – How can you try to solve the problem? Write or sketch ideas below.

_____

_____

_____

_____

Talk to your team and share ideas. **Circle one idea** you think will work best to solve the problem.
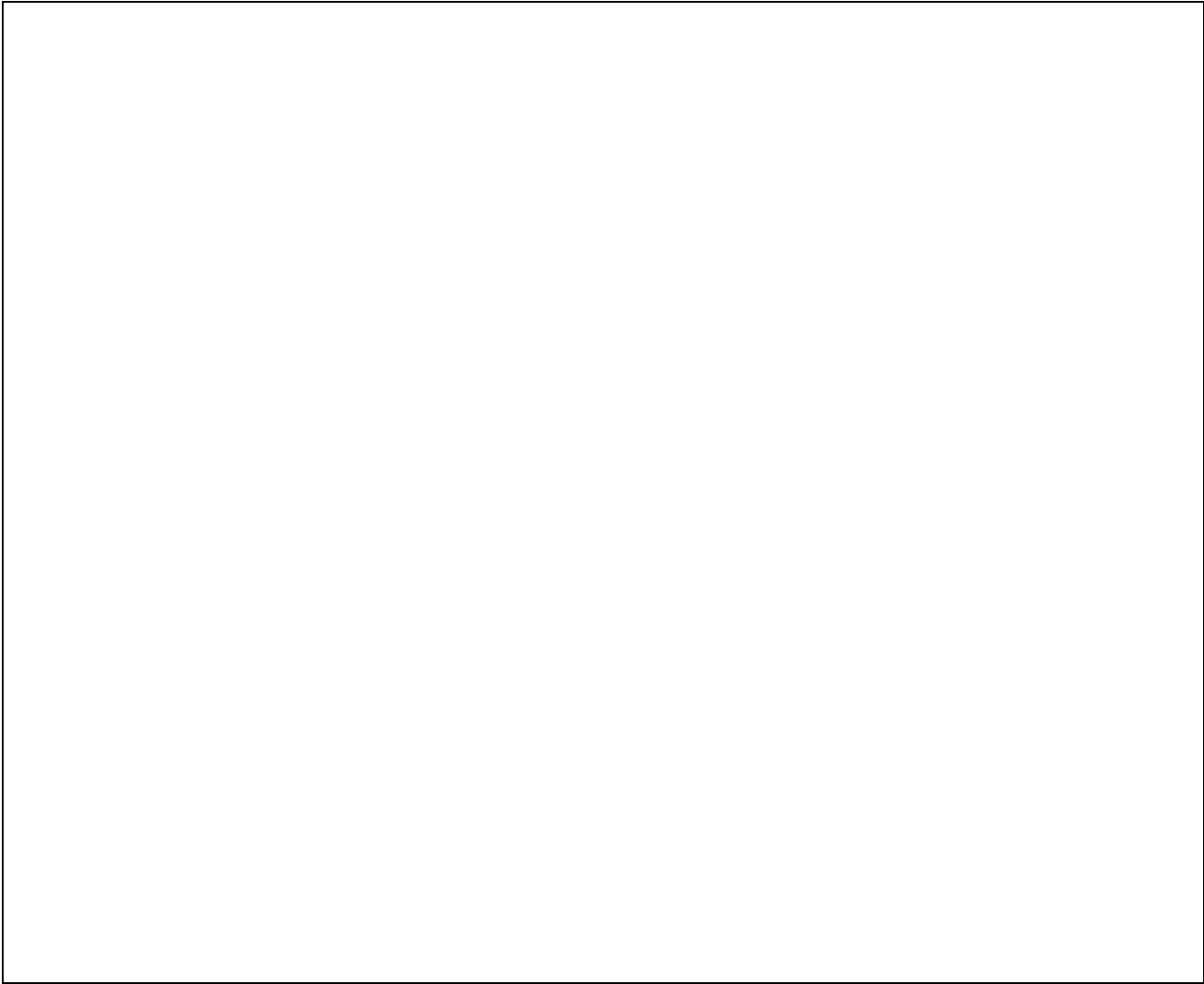
Reflection

Design Process Step 2: Explore	
• I can research to find out about ways to solve the problem.	
• I can brainstorm ideas of how to solve the problem.	
Teacher Notes	

Use this space if you need more room for drawing.

Model – Draw or insert a picture of your final design.

_____

_____

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Reflection

Design Process Step 3: Model	
• I can draw a sketch of my plan.	
• I can explain my sketch and my plan.	
• I built a model that solves the design problem.	
Teacher Notes	

Use this space if you need more room for drawing.

Evaluate – Draw or insert a picture of you and your partner testing the design.
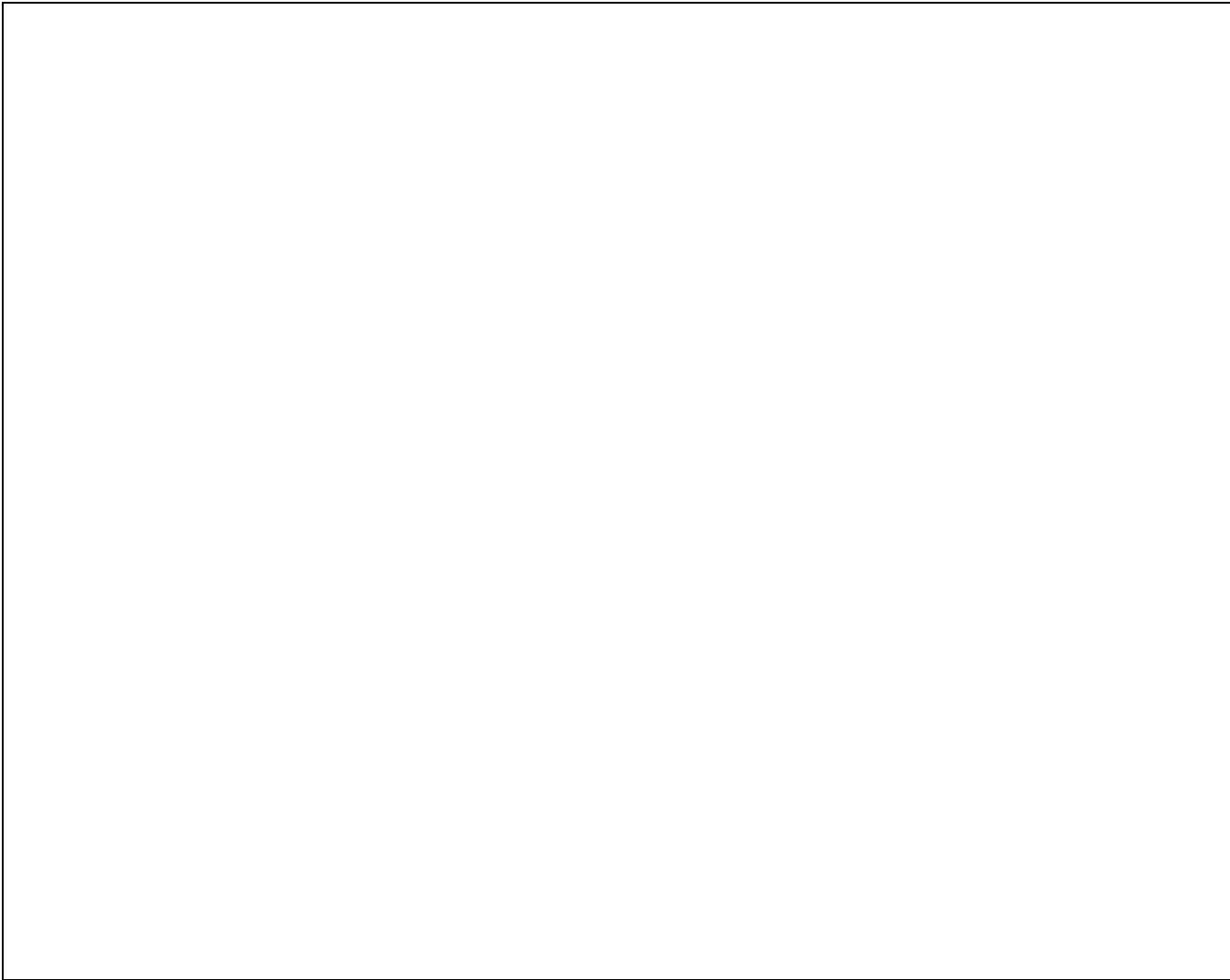
Explain one strength and one weakness of your model.

_____

_____

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Reflection

Design Process Step 4: Evaluate	
• I can explain the strengths and weaknesses of my model.	
• I can compare how my model performed with other models.	
Teacher Notes	

Use this space if you need more room for drawing.

Explain – Did your model solve the problem? Why or why not?

_____

_____

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Explain – How would you change your design? How would these changes improve your design?

_____

_____

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Use this space to draw a picture of how you would change your design.

Reflection

Design Process Step 5: Explain	
• I can explain how my model works and how it solved (or did not solve) the problem.	
• I can suggest ways to improve my design.	
• I can predict how my improvements will solve the problem.	
Teacher Notes	