

Cleo and the Climate

**FOR
GRADES
K-6**



STUDY GUIDE

by Sarah Meservy

WRITE A LETTER (PAGE 4)

Have students use the worksheet on page 4 to write a letter to the author and illustrator. Mail the letters to the address below. Be sure to include a return address so we can write back!



Plan-B Theatre
138 W 300 S
Salt Lake City, UT 84101

LEARN ABOUT CLIMATE

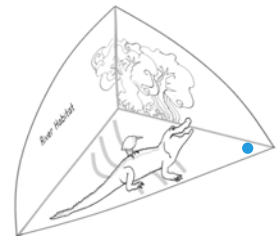
After reading *Cleo and the Climate*, assess your students understanding with these questions:

- What is the difference between weather and climate?
- What do greenhouse gases do?
- Where do greenhouse gases come from?
- What are some effects of earth's climate getting warmer?

If you have a smart board or projector, work together as a class to answer the questions on this [online quiz](#) or [play a game](#).

HABITAT DIORAMAS (PAGES 6-8)

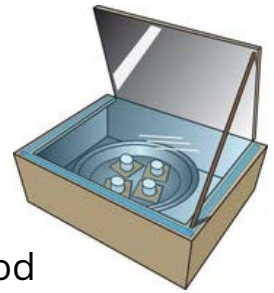
Cleo and her family visit different places around Utah. Talk about the variety of types of habitats we have in our state and the different living things that thrive in each.



Provide students with single-sided copies of the worksheets on pages 6-8. Have students color, cut out, and assemble a diorama of each habitat. Alternatively, challenge your students to create original artwork through drawing, collage, or sculpture.

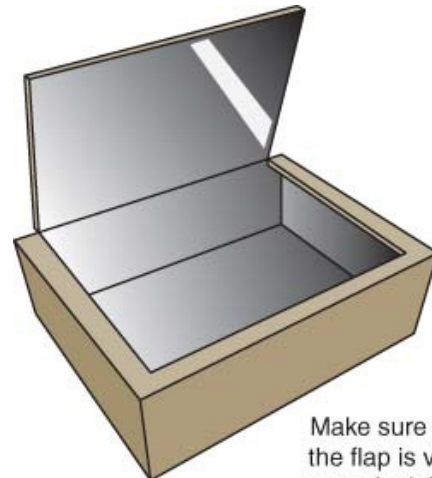
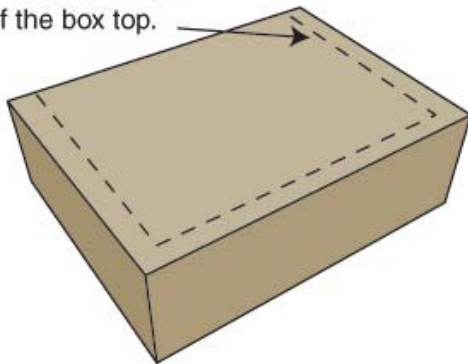
MAKE A SOLAR OVEN

A solar oven is a foil-lined box that traps some of the sun's energy to make the air inside the box hotter than the air outside the box. Build an oven with your students and make s'mores, nachos, or another delicious treat. Or, for a non-food activity, use the oven to make [rainbow crayons](#) by melting broken crayons together in cupcake liners (click the link and scroll down to see examples).

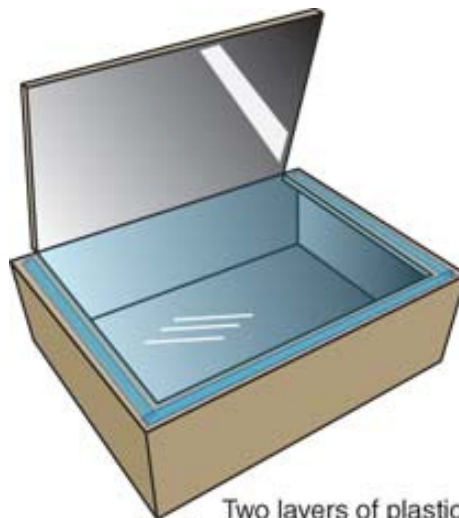


[This video](#) shows how to make a solar oven out of a pizza box. For a more in depth lesson on the scientific principles, check out [this video](#).

Cut here, 1 inch from the edge of the box top.



Make sure the foil inside the flap is very smooth, to make it like a mirror.



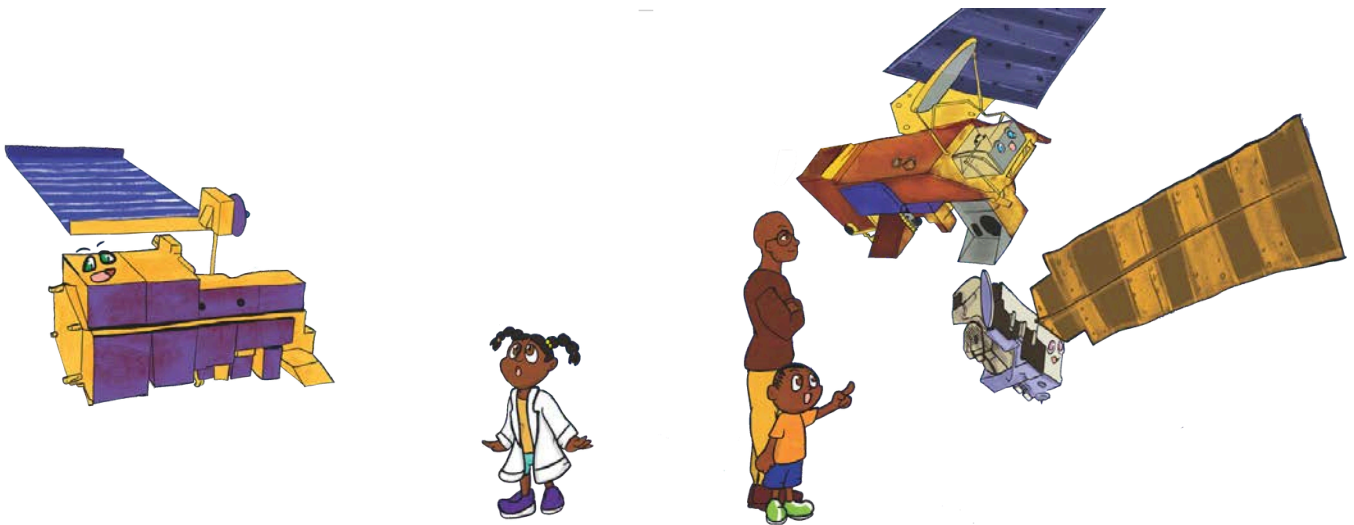
Two layers of plastic wrap over the opening will help keep heat in, while still letting all the light shine through.

MODELING WEATHER DATA

Where does data about climate come from? NASA's Jet Propulsion Laboratory (JPL) sends satellites into space to collect valuable data about the earth. This multi-level [K-6 lesson plan on JPL's website](#) explores weather patterns by using stacking cubes to graph precipitation data.

SATELLITES

- [Learn how satellites stay in orbit](#)
- [Learn more about satellites that track the weather](#)
- [Eyes on the Earth](#) is an interactive 3D map that shows the locations of NASA's satellites in real-time. Can you find Terra, Aqua, and Aura? Click on a satellite to learn more about it or explore the latest data in the vital signs menu.
- Challenge your students to build their own satellite using [this lesson plan from NASA](#).



WHAT IS SCIENCE?

(PAGE 5)

The worksheet on page 5 is adapted from Utah Science with Engineering Education (SEEd) Standards. Read through it together as a class and write definitions for each of the skills listed at the bottom of the page. Discuss how these skills help us be good scientists.

Date: _____

Dear Sarah and Avery,

In my opinion, your book Cleo and the Climate is

My favorite part is _____

because _____

I learned _____

I want to ask you: _____

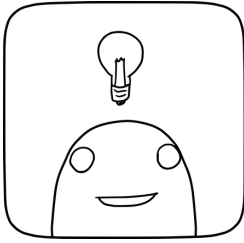
Sincerely,

Name: _____

Grade: _____

Name: _____

Date: _____



WHAT IS SCIENCE?

Science is a process for understanding the natural world. It includes asking questions, testing ideas, and then improving your ideas based on evidence.

Who is science for?

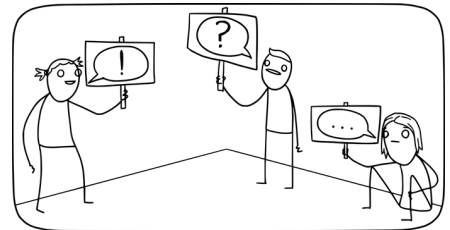
Science is for everyone! It is a shared way of knowing and doing. Science allows us to make predictions, improve our world, and deal with challenges. Science is not just a tool to be used by engineers or lab scientists but also by every citizen, every artist, and every other human who shares an appreciation for the world in which we live.

How do we learn science?

The best way to learn science is by doing it! This means gathering information through observations, reasoning, and communicating with others. We develop tools for understanding as we look for patterns, develop explanations, and communicate with others.

What skills help us be good scientists?

Working together in a group, find a definition of each of the skills listed below. Then discuss how these skills help us be good scientists.



Collaborating

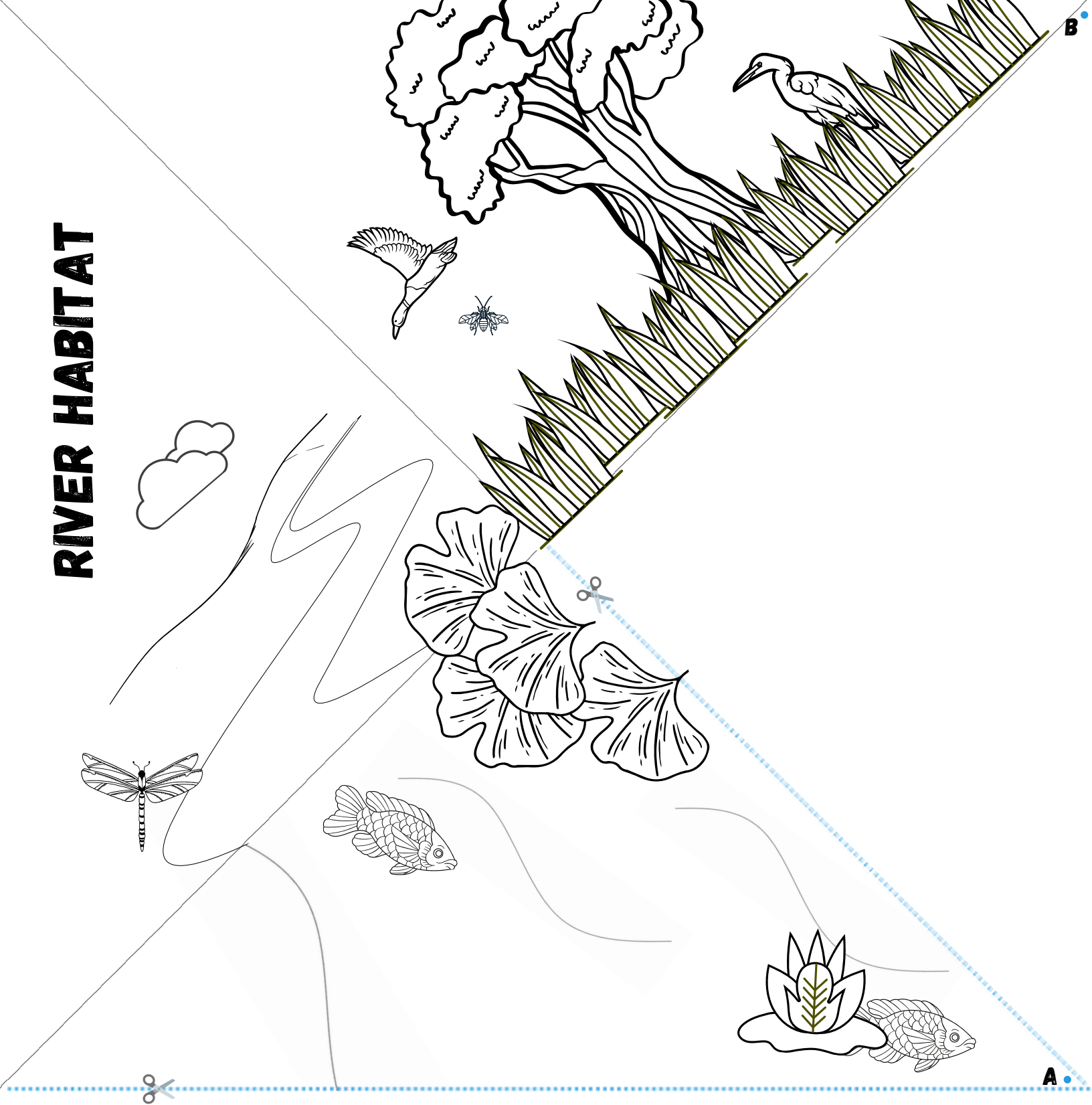
Precision

Questioning

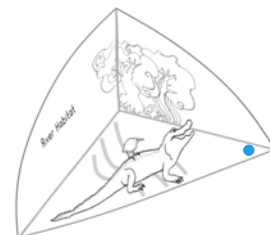
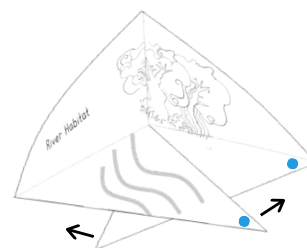
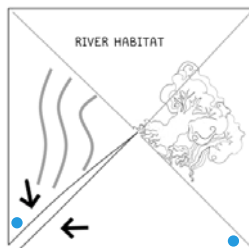
Reasoning

Thinking Critically

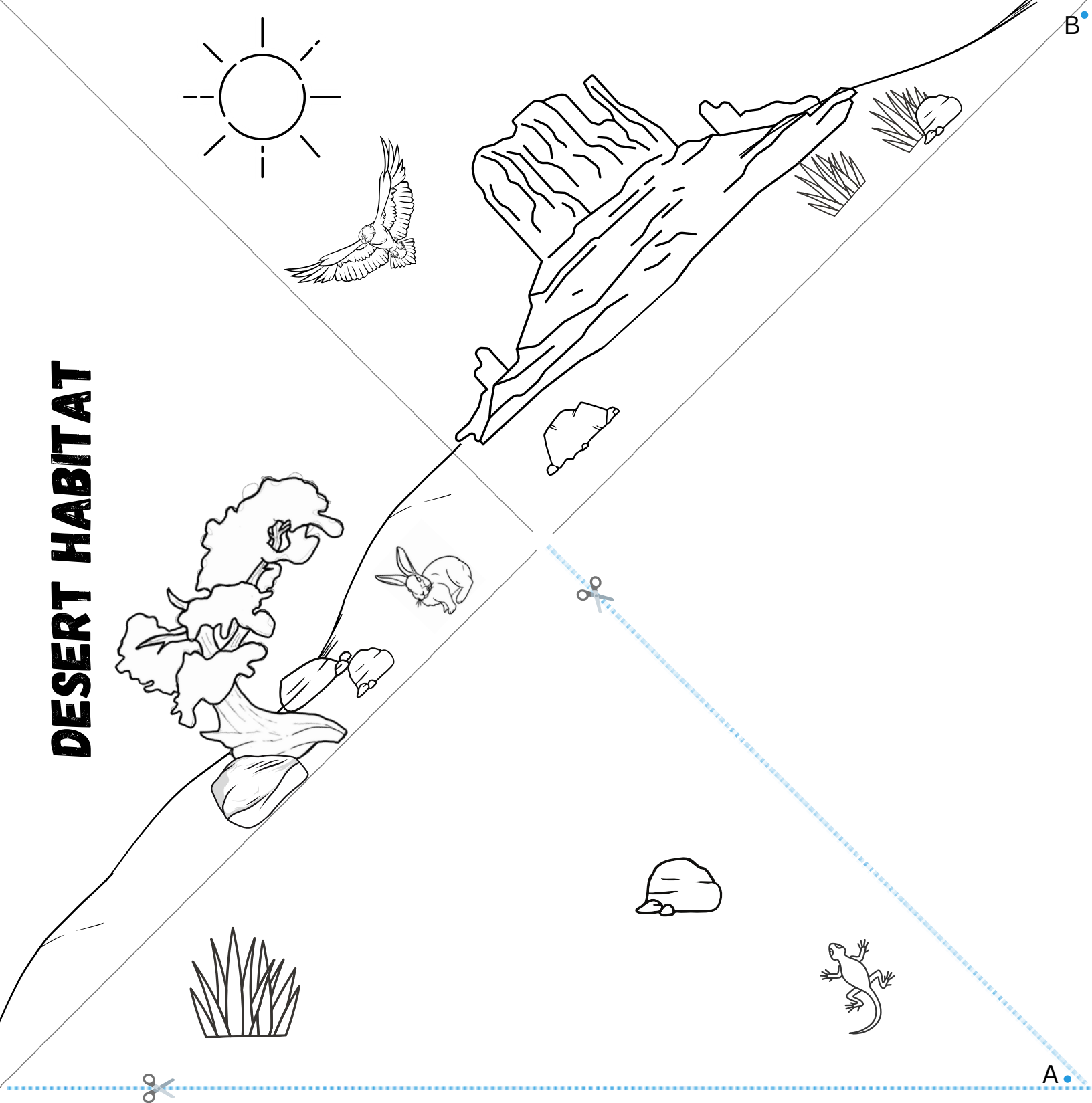
RIVER HABITAT



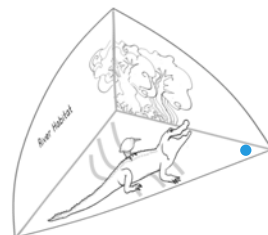
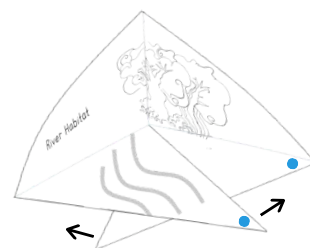
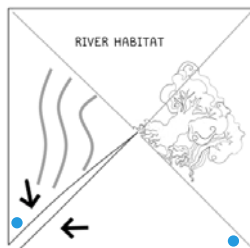
1. Color in the habitat.
2. Cut along the dotted lines.
3. Fold along the solid lines.
4. Overlap point A over point B.
5. Use glue or staples to fasten.

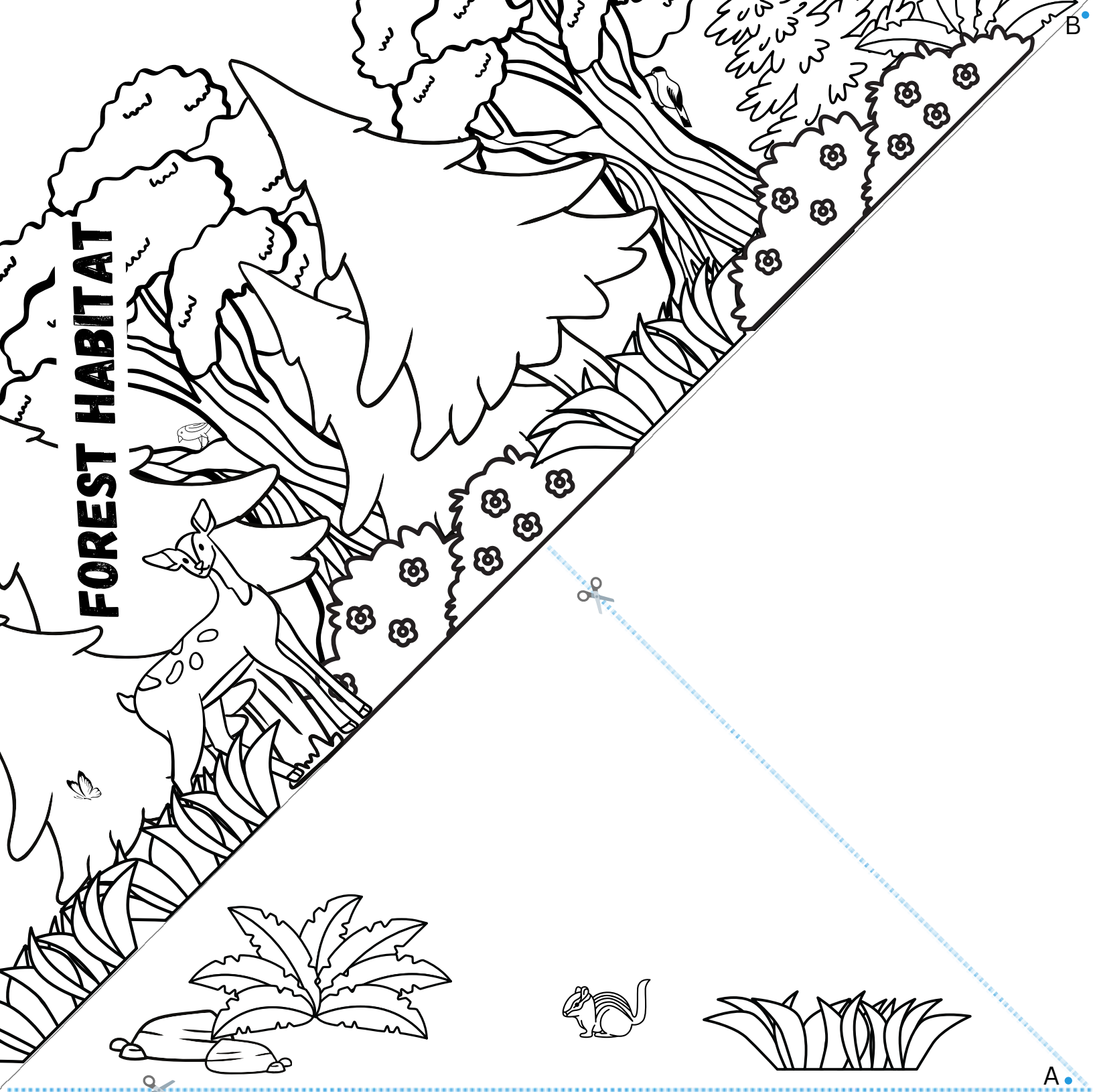


DESERT HABITAT

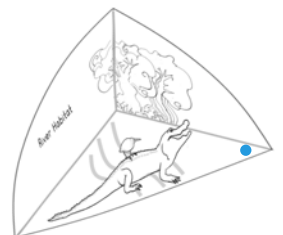
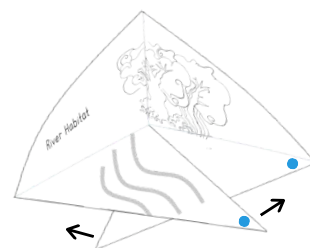


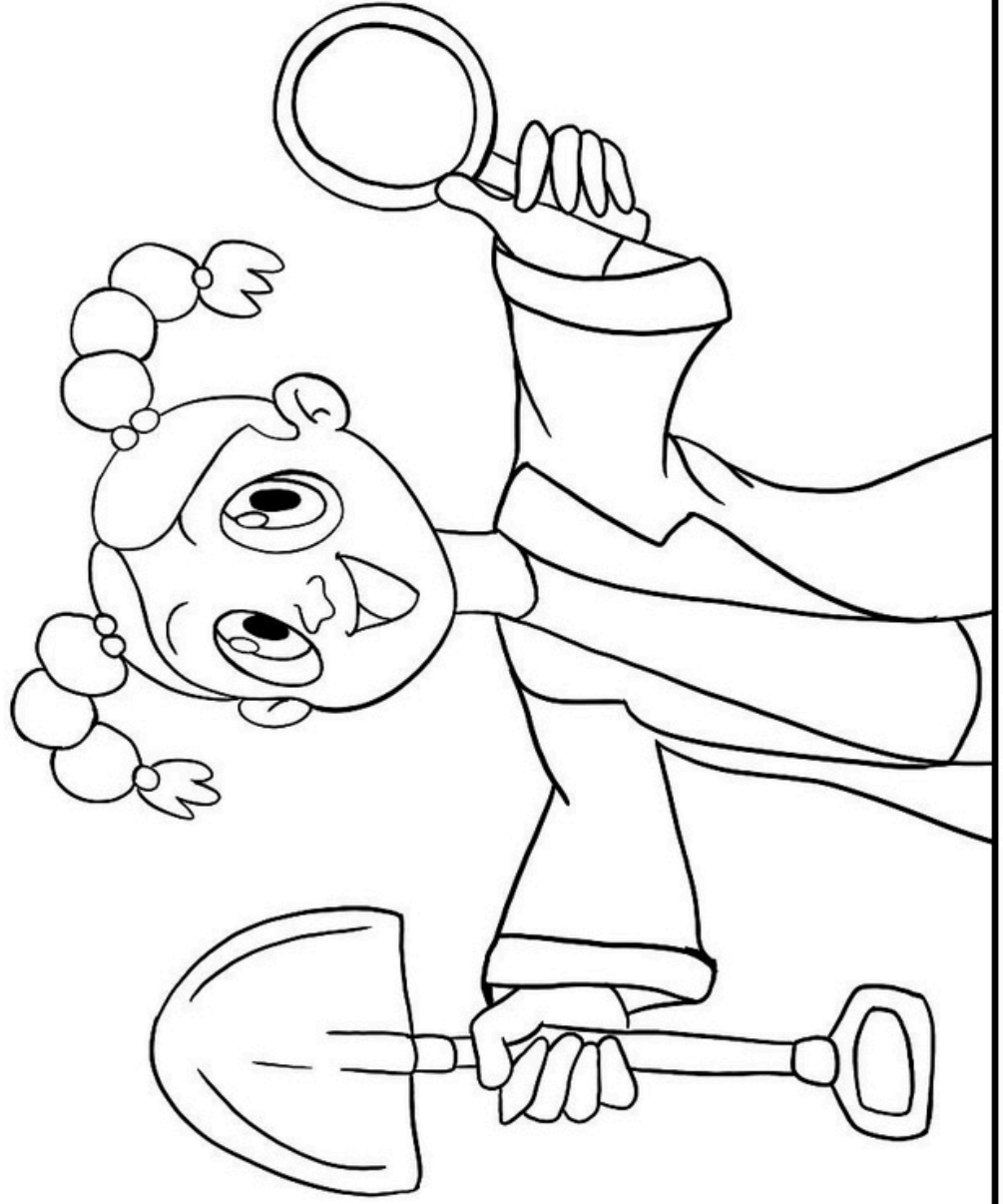
1. Color in the habitat.
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CORE STANDARDS

K.SEEEd.1: Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather to identify patterns over time. Weather scientists forecast severe weather so that communities can prepare for and respond to these events. Sunlight warms Earth's surface.

2.SEEEd.3.4 Obtain, evaluate, and communicate information about changes in matter caused by heating or cooling. Emphasize that some changes can be reversed and some cannot. Examples of reversible changes could include freezing water or melting crayons. Examples of irreversible changes could include cooking an egg or burning wood.

3.SEEEd.3.1.1 Analyze and interpret data to reveal patterns that indicate typical weather conditions expected during a particular season.

3.SEEEd.3.1.2 Obtain and communicate information to describe climate patterns in different regions of the world. Emphasize how climate patterns can be used to predict typical weather conditions.