

Cause-Effect in the Garden



In this lesson, students will formulate and interpret cause-and-effect relationships using a 3-column chart to organize their ideas. Students will apply the concept of “cause” as something that always happens first, and the effect is the resulting outcome (or what happens second).

SUPPLIES

Journals • pencils • whiteboard • sentence strips • graphic organizer (one per student)

INSTRUCTIONS

Notice

What are some things you have done at school, home, or other community space to maintain the outdoor environment?

- *Have you watered plants?*
- *Have you planted seeds?*
- *Have you picked up litter?*

Spend some time walking around the outdoor classroom looking for current or potential problems (such as an area of erosion, weeds taking over a bed, a plant with an apparent insect problem, etc.)

Explore

Using the example attached, select one of the “problems” you identified and go back to that area to identify the “cause” and “evidence”.

Create a 3 column chart like in this example:

CAUSE	EFFECT	EVIDENCE
The veggie bed was ignored over the summer.	The veggie bed has a lot of weeds.	Allow students to pull weeds and tape into journals.

Write About It

Write a cause and effect sentence using the information in your chart.

The “cause” is why something happened and the “effect” is what happened as a result.

“Evidence” is what allows you to “infer” the cause of the problem you identified. This is a strategy you can use when reading - putting together clues to come to a conclusion about an idea.

Think about the book you are currently reading or the most recent book you have read in class. What cause and effect relationships can you identify in that book?

Continue to page 2



For Parents

Students can brainstorm solutions to the cause and effect relationships they identify in the outdoor classroom and work toward carrying out their solutions.

Start a story about a character who goes on an adventure in the outdoor classroom where one event causes another. Encourage students to use signal words and phrases such as “as a result” or “due to” to help them consider the cause and effect relationships.



Students will observe weather and make predictions based on their observations. Students will write a weather forecast and compare weather in different cities.

SUPPLIES

Paper • Pencil

INSTRUCTIONS

Notice

Make observations of the clouds you see each morning and afternoon this week. What do clouds tell us about weather? How do meteorologists use observations to make weather predictions?

Attachments:

Cloud Viewer OT (1).pdf

Out Teach Cloud Journal.pdf

Explore

Go outside and record some weather data about your city! What weather conditions do you observe? Compare your observations to the actual measurements using <https://weather.com/>

You can make the chart on paper, in a notebook, or print it out if you are able.

Compare the weather conditions in your city to another city around the world using <https://weather.com/> Why are they currently experiencing similar or different weather conditions?

Attachments:

Weather Conditions Data Collection Sheet.pdf

Write About It

Meteorology is the science of studying weather.

Pretend you are a meteorologist and write a weather report for today's weather.

You can watch a meteorologist deliver a weather forecast on your local news channel on TV or online.



For Parents

Have your child go outside daily to record the weather.

Ask them how they would graph this data on graph paper-

<https://www.weatherbase.com/compare.php3> compares weather of two cities.

<http://www.wolframalpha.com/widgets/view.jsp?id=af6f68d0d4a05be5938e0f09c414703a> creates line graph comparing the weather in two cities at the same time.



Students will use knowledge of life cycles to collect evidence of the stages of life a plant goes through.

SUPPLIES

Hand Lense • Journal • *A Seed is Sleepy* by Dianna Hutts • Ziplock bags

INSTRUCTIONS

Notice

Read a few pages from *A Seed is Sleepy* by Dianna Hutts Aston.

https://www.youtube.com/watch?v=9_vElnekJzI

What is one thing you learned from this book?

This book talks about the different shapes and sizes seeds come in and how they are scattered around.

Engage

Go on a seed hunt, collecting different seeds in a ziplock bag.

Is there a tool we could use to see that seed more closely?

What would this seed need to grow?

Where did this seed come from? How did it get there?

Write About It

Use a hand lens by holding it close to the eye and pulling the object (seed) close until it comes into focus.

If you do not have a hand lens you can hold it closer for observation.

Draw your seeds.

Tape one seed in your journal. And write the answer to these questions:

- *What stage will come next?*
- *And what stage will come after that?*
- *How will we know when a plant becomes an adult?*



Students will learn how descriptive words make stories clearer and more interesting.

SUPPLIES

Journal • Pencil

INSTRUCTIONS

Notice

Play the game “I Spy” outdoors with a friend, family member, classmate, etc.

Describe objects with words really well (size, shape, color, texture, similarity to other objects, etc.)

Engage

Find a pebble that you can hold in the palm of your hand.

Find a comfortable place and observe the pebble carefully. Memorize it’s size, shape, color, texture, smell, etc. Try to form a mental picture of your pebble. You can draw a picture of your rock or write words that describe your rock.

Write About It

Line your pebble up with 10 other pebbles.

Without looking at your rock/pebble, complete this sentence on your paper or in your journal:

I remember my pebble because _____.

See if your friend, family member, classmate, etc. can find your pebble in the line based on the words you used to describe the pebble.

For Parents

Good authors use words to paint pictures in the reader’s mind. One way authors do this is by using their senses and adjectives to describe the details of objects and events. A good writer does not need lots of big words to paint a picture, but good writers do observe objects and events very closely, looking for details.



Students will listen to the text and explore the garden to connect details from the text to their surroundings.

SUPPLIES

Journal • Pencil • “Bugs in the Garden” text (see page 2)

INSTRUCTIONS

Notice

Did you know:

Bees have hair on thier eyes?

Mosquitos flap their wings 500 times every second (let students see how fast they can flap their arms)?

A worm has ten hearts?

Engage

Have an adult, friend, older sibling, teacher, etc. read the “Bugs in the Garden” text aloud.

Use the information from the text to help you explore the garden/courtyard.

Look for bugs or evidence of bugs.

Ask yourself:

- *How can you describe the place where you found _____ ?*

- *What happens when _____ ?*

- *Say more about the bugs that you are finding.*

Write About It

Ask students to draw or write a response to the following prompt:

Demonstrate the difference between where a worm and a spider might live in the garden according to the text.



For Parents

Bugs in the Garden

If you explore your garden, you will find many different kinds of bugs. Some bugs, like ants and worms, burrow under the ground to make their homes. Flying bugs, like bees and butterflies, drink nectar from flowers. A few bugs, like beetles, will eat holes in the leaves of vegetable plants. Spiders like to make webs in the branches of bushes to catch their prey or hide under rocks. When the weather is not too cold, you can find bugs in the ground, on plants, and flying through the air in your garden.



Students will experiment with different areas of the outdoor classroom that absorb heat from the sun the best.

SUPPLIES

Paper • Pencil • Ice Cubes • Small bags to hold ice cubes

INSTRUCTIONS

Notice

Look at an ice cube.

What will happen to it as long as it is outside of a freezer?

Engage

Get several ice cubes and choose different places to set them down.

Look at the ice cubes melting.

Ask yourself:

- *Where did you place the ice cubes (grass, concrete, sun, shade)?*
- *Do some ice cubes melt faster than others?*

Write About It

Write a sentence about the effect of the sun on the ice cubes in the sunny locations versus those in the shade. You can also draw a picture!

Why does the sun have this effect?

(The sun is the source of energy and light that warms the land, air, and water on Earth)

For Parents

Engage in a discussion, asking questions such as:

- *Why would it melt more slowly in the grass?*
- *Why would it melt faster on brick?*
- *Did it melt as fast on the sidewalk as it did on the brick?*



For Parents, continued

Tell what you think would happen if the same experiment were performed on a cloudy day. Would the results be the same? Explain your thinking.

Demonstrate how the sun can heat foods we eat by using marshmallows and chocolate to make s'mores:

Break graham crackers into halves.

Put a marshmallow on one half and a small chocolate bar on the other.

Place on small paper plates, cover with plastic wrap, place outdoors in the sun or in a sunny windowsill, and allow time for both substances to melt in the sun.

Have students make observations and write brief descriptions at three times during the day. Then, uncover and mash the two halves together to make a s'more.



Students will observe, measure, sort, and examine (shapes and textures) of leaves individually, in groups, and in relationship to the entire plant.

SUPPLIES

Journal • Pencil • Broken crayons (for rubbing) • Photocopy of 3-4 leaves found outside
• Tear-by-hand packaging tape

INSTRUCTIONS

Notice

Where do you see leaves?

What do you notice about the trees/plants?

Do all the trees/plants have the same kind of leaves?

Engage

Using the copies of the leaves, ask yourself:

- *Does each leaf shape look the same?*

- *Do you think they belong to the same plant?*

Go on a leaf hunt, trying to match a leaf you find outside to each leaf on the sheet.

When you have a match, tape it directly on top of the leaf's silhouette on the paper.

Write About It

Look at the leaves and see if they have anything in common.

(They all have lines in them... viens)

Choose a leaf to "rub" in your journal. Place a leaf under the page, and using a crayon, rub gently. It will reveal the leaf's texture in your journal.

Label the stem and veins of the leaf rubbing in your journal.

Grab 2 or 3 different types of leaves.

Sort the leaves into groups according to their common characteristics.



Write About It, continued

Use your journal to respond (in words and/or pictures) to one of the following prompts:

- *There are a lot of ways to sort leaves, for example* _____
- *When I look at my leaves, this is what I see* _____
- *This is what I want to remember about my leaves* _____
- *This is what I can tell you about my leaves* _____

For Parents

Go outside and choose 3-4 recognizably distinct leaves that students would be able to find.

Make a black and white copy of the leaves.

The veins that each leaf has, are for carrying water and nutrients from the soil.



In this lesson, students will understand that plants need water and light to live and grow.

SUPPLIES

Journal • Pencil

INSTRUCTIONS

Notice

What did you have for breakfast?

How did you eat it?

Why do we need food?

What do plants have for breakfast?

How do plants eat?

Why do plants need food?

Engage

Choose a plant and water it.

Observe what happens.

Make a picture that shows what plants eat and how they eat it.

Write About It

Write a sentence about how plants get their food.

For Parents

Plants get energy from the sun by using their leaves to absorb particles of light. They use their roots to absorb water and nutrients in the soil.

Make sure to emphasize that only plants can do this while animals and insects must eat plants to get that energy.

In a way, this means the leaves and roots of the plants are a lot like two different mouths on the plant.



In this lesson, the students will be given time to create their own understandings about the parts of plants as they explore plants hands-on outdoors.

SUPPLIES

Journal • Pencil • Plants to explore • Tear-by-hand tape for sample taking (optional)

INSTRUCTIONS

Notice

Did you know that plants have body parts like we do?

They eat and breathe like we do, and they even have a way of talking to each other. Plants send special signals to each other underground to warn other plants of danger or sicknesses.

Engage

Explore plants to find their different “body parts.”

Create a sketch or diagram of two different plants and label each part.

Ask yourself:

- *How do you think this part of the plant helps the plant?*
- *How does this part look different from the other parts?*
- *Which words could you use to describe this part of the plant?*
- *Can you compare and contrast these two different parts?*

Write About It

Think of foods that you know come from plants.

Draw the food and label which part of the plant the food comes from. Examples:

Root: carrot

Stem: celery

Leaves: lettuce

Flower: broccoli

Fruit: any fruit

Seeds: sunflower seeds



For Parents

Students can research a particular plant on particular aspects like where does it thrive, how big does it get, etc.

Every plant has some form of roots, stems, leaves, flowers, seeds and fruit (except for spore plants like ferns).

Student friendly definitions:

Roots: Anchor plants to the ground, bring up water and food from the soil; **Stems:** Help the plant stand up and move food and water from the roots to the top parts of the plant; **Leaves:** The part of the plant that turns sunlight into food. Leaves also have little openings that let the plant breathe. **Flowers:** Attract pollinator insects so that seeds can be form; **Fruit:** Some plants produce a fruit around the seed which is can often be eaten by people and other animals. **Seeds:** The part of the plant that will grow into a new plant.

Mythology in the Outdoors



Students will identify characteristics of myths by creating their own explaining a natural phenomenon outdoors.

SUPPLIES

Paper • Pencil

INSTRUCTIONS

Notice

Read the ancient Greek myth of Persephone here:

<https://www.dltk-teach.com/fairy-tales/persephone/story.htm>

Watch the ancient Greek myth of Persephone here:

<https://www.youtube.com/watch?v=2C6AiLxIYgw>

What makes the story of Persephone a myth?

- *A myth is a made-up story that explains a natural phenomenon (where the sun comes from, how earthquakes are made, why thunder exists, etc.)*
- *Myths often include gods and goddesses or supernatural characters who have the power to make extraordinary things happen*
- *Myths are still popular today even though we know the natural reasons for the phenomena*

Compare the Persephone myth to the actual cause of the seasons.

Explore

Explore outdoors to identify your own natural phenomena.

- *Wind, sun, clouds, growing plants, water, etc.*

Write About It

Write a myth about why or how your natural phenomena occurs using the characteristics of a myth. Include illustrations if you'd like!

Compare your myth to the actual causation of the natural phenomena.



For Parents

Ask your student if they know of any other myths that describe a natural phenomena vs their actual scientific cause.

Ask your student when in their life they have hear the word “myth” used.

When a rumor is making its way around, but no one can confirm if it is true, or it is false.



In this lesson, students will develop their fluency with addition through a “real-world” application of collecting data about insects in the garden.

SUPPLIES

Paper • Pencil • Access to insects

INSTRUCTIONS

Notice

Did you know:

Bees have hair on their eyes?

Did you know worms have five pairs of hearts?

Did you know that mosquitos flap their wings 500 times every second? How many times can you flap your arms in one second?

Engage

Go outside and ask yourself:

- *Where can I find bugs in this area? (flying around, under the leaves, in the soil)*
- *What kind of bugs am I finding?*
- *How am I keeping track of the different bugs I see?*

You do not need to touch the bugs. If you leave them alone, they will not bother you.

Make a table to collect tally marks from each area you are finding bugs.

If you know the name of the bugs, add them to your table!

Write About It

Create addition problems with the number of bugs you collected in your table.

Think about:

Why a farmer or gardener might want to know the numbers of bugs in an area?

Answer:

Some bugs are pests: they eat the food crops; other bugs are helpers: they eat the pests, or they are pollinators.



For Parents

The world of insects provides many connections to Language Arts in both fiction and non-fiction texts. Consider using this activity while you are exploring books about insects to strengthen the connections that students make.

Insect features also provide a useful subject for first grade science lessons that deal with inherited traits and examining how insects use their parts for survival.



Students will explore the biome in which they live while comparing it to other major biomes around the world.

SUPPLIES

Observation Sheet • Pencil

INSTRUCTIONS

Notice

Do you think black bears live in your community? Why or Why not?

Engage

Take a look around your area and make observations about animals, plants, weather/climate, soil, and any thing else you notice.

You can create a chart on paper on in a notebook to record your observations.

Write About It

Based on your observations, what biome do you live in?

Write a paragraph to support your answer.

Where on Earth would you find similar climate, plants, and animals?

Where on Earth would you find different climate, plants, and animals?

Write a paragraph to support your answer.

Create a picture book including each of the world's major biomes (terrestrial and aquatic).

For Parents

Ask students to compare their observations to other areas around the world- Antarctica (Tundra), Madagascar (Tropical Rainforest), Africa (Savanna/Grasslands), Maine (Taiga), Arizona (Desert).

If students are unfamiliar with these terrestrial biomes, use <https://explore.org/livecams> to show live video of these biomes to make comparisons.



Students will make it a regular practice to record weather data using thermometers, wind vanes and rain gauges.

SUPPLIES

Journals • pencils • Air thermometer • Air thermometer • Wind socks (can be a strip of plastic bag) • BRIT Cloud viewers • Rain gauge (if available) • Weather Data Handout

INSTRUCTIONS

Notice

Use your senses to describe today's weather?

Is it sunny or cloudy?

Rainy or dry?

Is the wind blowing?

Explore

Go outside and collect some data about the weather.

You can use a measuring cup for rain collection, a thermometer if you have one in the kitchen, use a plastic grocery bag to see if the wind is blowing.

You can make the chart on paper, in a notebook, or print it out if you are able.

If possible, print these resources to collect data everyday:

[*Cloud Viewer OT \(1\).pdf*](#)

[*Out Teach Cloud Journal.pdf*](#)

[*Weather Conditions Data Collection Sheet.pdf*](#)

Write About It

Meteorology is the science of studying weather.

Pretend you are a meteorologist and write a weather report for today's weather.

You can watch a meteorologist deliver a weather forecast on your local news channel on TV or online.



For Parents

Have your child go outside daily to record the weather.

Ask them how they would graph this data on graph paper-

<https://www.weatherbase.com/compare.php3> compares weather of two cities.

<http://www.wolframalpha.com/widgets/view.jsp?id=af6f68d0d4a05be5938e0f09c414703a> creates line graph comparing the weather in two cities at the same time.