

Changes to the Environment

Teacher Facilitation Notes

In General . . .

- Project the slide deck in edit mode—do not show it as a slideshow.
- Hide the speaker notes before projecting. (View/Show Speaker Notes)
- Hide the toolbar. (Click on the up arrow at the right end of the tool bar.)
- Call on students to read the various content shown on slides.
- For each investigation, assemble the needed materials for each group and place in a central location for ease of distribution.
- Duplicate copies of the data sheets for each student.

Materials Needed Per Student:

Engage: I Spy an Environment

Science notebook Pencil

Explore: Floods, Droughts, and Wildfires, Oh, My!

Science notebook Pencil

Board or chart paper Marker

Explain: Moving With the Times!

Water, Water, Everywhere Crayons

Dry Land Pencil

On Fire!

Elaborate: See - Think - Wonder Gallery Walk

See - Think - Wonder Gallery Walk Data Sheet

Pencil

Evaluate

Quiz Pencil

Changes to the Environment

Teacher Facilitation Notes

Engage: I Spy an Environment

- Call on a volunteer to read the introductory paragraph. Discuss.
- Tell students to study the photo of the coral reef carefully. Instruct them to list 3 living things and 3 nonliving things that would be found in a coral reef such as the one pictured here.
- Read the paragraph on the page with the pond illustration. Point out other interactions taking place in the illustration or ask these kinds of questions:
 - From what nonliving thing in the ecosystem do the plants get energy to make their own food?
 - What living and nonliving things does a spider interact with in this ecosystem?
 - What other interactions can you see?
- Read the information about habitats. Ask students what might happen to the deer if there was a forest fire. Be sure they mention both of these: the deer might die OR the deer will have to move to a different location.
- Read and discuss the final slide in this section.

Explore: Floods, Droughts, and Wildfires, OH MY!

Part 1: Floods

- Read the introductory slide about changes to environments.
- Lead students through a 3 - 2 - 1 Bridge thinking routine:
 - Have students turn to a blank page in their science notebooks and write the title "Floods" at the top of the page.
 - Under the title, have them divide the rest of the page into 2 columns. Label the first column "Before Learning" and the second column "After Learning".
 - Instruct the students to write 3 things they already know about floods in the first column.
 - In the second column, they write two questions they have about floods.
 - In the third column, they write a metaphor or simile about floods. Give them a sentence starter such as, "I think floods are like _____ because _____."
 - Tell students they will revisit this page after learning about floods to compare what they already knew with new information they learned.
- Watch the video and read through the slides about floods. Have them complete the data page for floods.
- Go back to their notebook page with the 3 - 2 - 1 Bridge thoughts. Have them complete the "After Learning" section in the same manner as they did before reading about floods. Have students make connections between what they already knew and anything new that they learned.

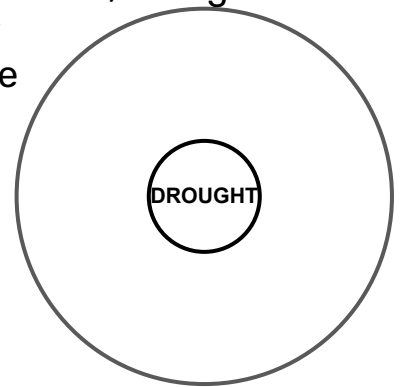
Changes to the Environment

Teacher Facilitation Notes, p. 2

Explore: Floods, Droughts, and Wildfires, OH MY!, continued

Part 2: Drought

- Do not tell students what a drought is prior to beginning this part of the lesson.
- Watch the video. Ask students to think about what they believe a drought is based on prior knowledge and what they saw in the video.
- Draw a small circle on the board or on a piece of chart paper. Write the word DROUGHT in the middle of the circle. (Do this in a place where the circles can be left up during the course of this part of the lesson.)
- Draw a large circle around the small circle containing the word, drought.
- Brainstorm terms and phrases the students might know about droughts. Write the terms and phrases in the large circle around the word DROUGHT.
- Watch the video and read the information about droughts.
- Go back over the circle map and add any new information the students learned. Discuss as desired.



Part 3: Wildfires

- Begin by asking students to brainstorm a good definition of the term "wildfire". Record their responses on the board or a piece of chart paper.
- Direct their attention to the topic by asking questions, such as the following:
 - Do you think the terms "wildfire" and "forest fire" mean the same thing?
 - Are all wildfires forest fires? Are all forest fires wildfires?
 - Do you think a wildfire is a planned or an unplanned event? Why?
- Watch the video about wildfires. Reiterate that a wildfire is any unplanned and uncontrolled fire. It can happen in areas covered by forests, shrub, or grassland.
- Read and discuss the causes, control and effects of wildfires.
- Go back to the original brainstorming activity and add any new terms students learned.

Changes to the Environment

Teacher Facilitation Notes, p. 3

Explain: Perishing, Surviving, or Thriving

- Read through the information about floods. Have students follow the directions on the data sheet using text evidence to answer questions. (The information on the data sheet is the exact same information just read on the slides.)
- Read through the information about droughts. Have students follow the directions on the data sheet using text evidence to answer questions. (The information on the data sheet is the exact same information just read on the slides.)
- Read through the information about wildfires. Have students follow the directions on the data sheet identifying causes and effects of wildfires. (The information on the data sheet is the exact same information just read on the slides.)
- Discuss as desired.

Elaborate: See-Think-Wonder Gallery Walk

- NOTE: This activity can be done in two ways:
 - OPTION 1: Print out one copy of the Station photographs using a color printer. Post the photographs in various locations in the classroom. Have students number off from 1-6. Number one students start at Station #1, number 2 students start at Station #2, etc. Students move from station to station, completing their gallery walk as they view each photograph.
 - OPTION 2: Show the slides to the class. Student complete their gallery walk data sheets independently as they are displayed.
- Discuss as desired.

Evaluate

- Let students complete the quiz independently.
- Discuss evaluation as desired.

Changes to the Environment

Name: Key

Evaluation

Directions: The following statements are all effects of forest fires on environments. Put a "P" in the blank next to any positive effects. Put an "N" in the blank next to any negative effects.

- N** Many trees and bushes are destroyed.
- P** Wildfires clear the forest of dead and/or unhealthy trees and bushes.
- P** New grasses and plants have space to grow.
- N** Some organisms perish or lose their habitats.
- A student told his class that floods harmed many organisms living in an ecosystem. What information would help the student prove his thinking?
Information—
 - about pollution in the area
 - that shows there are less organisms in the environment after the flood
 - that shows there are more organisms in the environment after the flood.
 - about how much water soaked into the ground during the flood
- What happens to plants and animals during a drought?
 - All the plants in an environment die.
 - All the plants in an environment survive and thrive.
 - Some plants survive while others perish.
 - Some plants absorb more water from the air.
- The National Weather Service says that some parts of Texas will have very heavy rainfall every day for the next four weeks. How might this affect the environment?
 - There will be a drought in the rest of Texas during those weeks.
 - It will be more likely for wildfires to happen in those areas.
 - Most of the rain will soak into the ground.
 - Flash floods could cause some organisms to perish.

Changes to the Environment

Name: Key

Evaluation

8. During a bad drought, many blackberry vines in an environment dried up and could not make seeds. Which of the following could result from this change in the environment?
- F Birds will have more blackberries to eat.
 - G There will be less blackberry vines the next year.
 - H There will be more oxygen in the air because there are fewer vines.
 - J The blackberry vines will have to move to a new location.
9. Which of the following is a positive effect of a flood on an environment?
- A Water from floods can create new habitats for some organisms.
 - B During a flood, many organisms perish.
 - C Environments that are flooded can take months to dry out.
 - D There are no positive effects from a flood in an environment.
10. Which of the following can cause wildfires? Mark all that apply.
- F An earthquake
 - G A campfire
 - H Lightning strike
 - J A landslide
 - K Burning trash
 - L Heavy rainfall

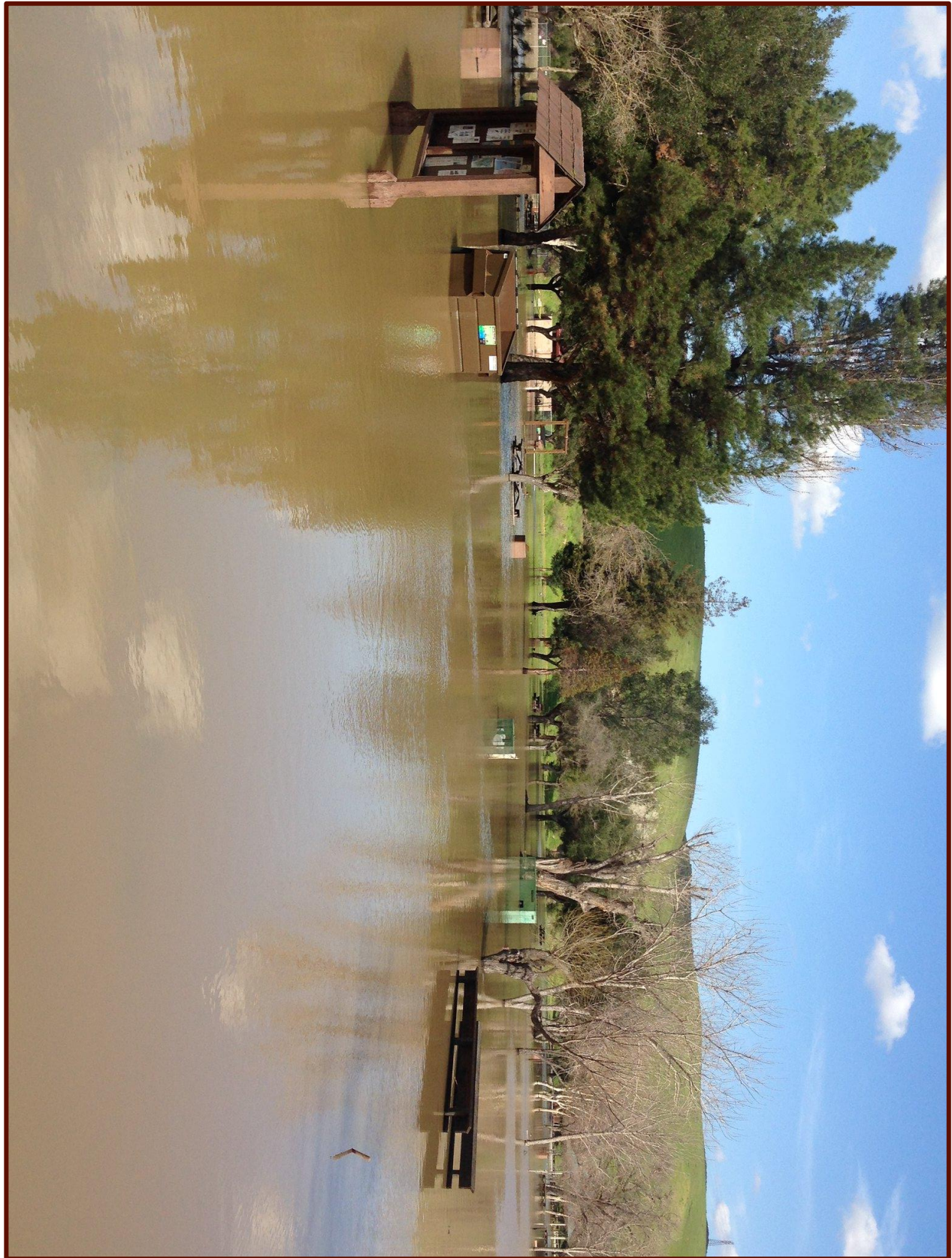
Complete each sentence below using the terms **drought**, **flood**, or **wildfires**.

11. A flood is an overflow of water on land that is usually dry.
12. Wildfires are large, destructive fires that spread very quickly.
13. A lack of rain over a long period of time can cause a drought.

Changes to the Environment Gallery Walk Station #1



Changes to the Environment Gallery Walk Station #2



Changes to the Environment

Gallery Walk Station #3



Changes to the Environment Gallery Walk Station #4



Changes to the Environment Gallery Walk Station #5



Changes to the Environment Gallery Walk Station #6



Changes to the Environment

Name: _____

Water, Water, Everywhere!

Floods are an overflow of water on land that is usually dry. Floods are caused by different things, including too much precipitation, or rain, from storms and hurricanes.

When flood water rises, it can be very dangerous and harmful to people, plants, and animals. Flood waters can also damage buildings, highways, and bridges. Animal habitats can be flooded with water, causing the animals to lose their homes and sources of food.

Floods can also bring good changes to an environment. Flood waters deposit soil in new locations over a large area. This soil has nutrients that plants need in order to grow and thrive.

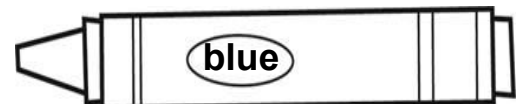
A flood's effect on the environment depends on how bad the flood is and how long it lasts. Changes to the environment by a flood can affect the way an organism survives. Some organisms thrive during these changes, while others die or move to new locations.

Use Text Evidence

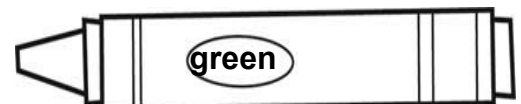
Underline the evidence with the color indicated on the crayon.



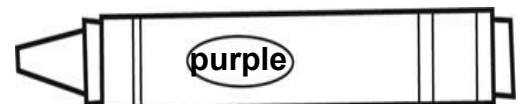
Underline a word that means the same as *precipitation*.



Underline a sentence that tells a good effect of floods.



Underline a sentence that tells what the effects of a flood depends on.



Underline a sentence that tells a bad effect of floods on environments.

Changes to the Environment

Name: _____

Dry Land!

Droughts can change the environment in which organisms live. Droughts are periods of dry weather with little to no rainfall. The weather is usually hot during a drought.

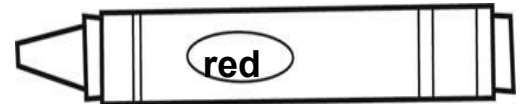
Droughts are caused by a lack of precipitation, such as rain or snow. This causes a decrease in the amount of water in rivers, streams, and lakes. The hot temperatures during a drought also cause more evaporation, leading to even less water in and on the ground. There is also less water for drinking, bathing, and watering yards and plants.

Droughts can be very harmful. During a drought, crops do not grow. This means less food for consumers, including people. Because plants get very dry during a drought, wildfires can occur more easily. Wildfires can cause a loss of life, property, and habitats.

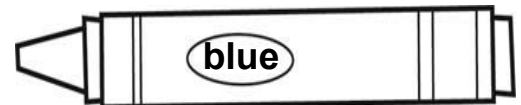
Droughts can have at least one positive effect on environments. Less water and grass means that some organisms have to live closer together to get food. This makes it easier for predators to catch their prey!

Use Text Evidence

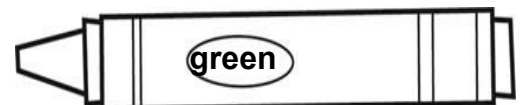
Underline the evidence with the color indicated on the crayon.



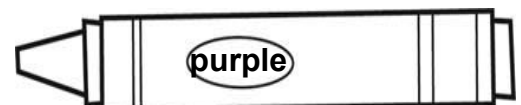
Underline the sentence that defines *drought*.



Underline a sentence that tells what causes droughts to occur.



Underline a sentence that tells a positive effect of droughts.



Underline a sentence that tells how hot weather affects water during a drought.

Changes to the Environment

Name: _____

On Fire!

Directions: Complete the graphic organizer about wildfires by writing each phrase below in the correct box.

Humans: burning trash, campfires	The habitats of many organisms are destroyed
Healthier, taller trees can grow	Lightning strikes on dry grass or plants
Water and air can become polluted	Long periods of drought and high temperatures

CAUSES

1.

2.

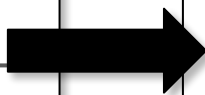
3.

EFFECTS

1.

2.

3.



Changes to the Environment

Name: _____

See-Think-Wonder Gallery Walk, page 1

What do you see, think, and wonder as you look at the images in the gallery? Record your thoughts in the graphic organizer. Be sure to tell what caused the changes in the pictured environments.

	SEE	THINK	WONDER
Station #1			
Station #2			
Station #3			

Changes to the Environment

Name: _____

See-Think-Wonder Gallery Walk, page 2

What do you see, think, and wonder as you look at the images in the gallery? Record your thoughts in the graphic organizer. Be sure to tell what caused the changes in the pictured environments.

	SEE	THINK	WONDER
Station #4			
Station #5			
Station #6			

Changes to the Environment

Name: _____

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1. _____ Many trees and bushes are destroyed.
2. _____ Wildfires clear the forest of dead and/or unhealthy trees and bushes.
3. _____ New grasses and plants have space to grow.
4. _____ Some organisms perish or lose their habitats.

5. A student told his class that floods harmed many organisms living in an ecosystem. What information would help the student prove his thinking?
Information—
 - A** about pollution in the area
 - B** that shows there are less organisms in the environment after the flood
 - C** that shows there are more organisms in the environment after the flood.
 - D** about how much water soaked into the ground during the flood

6. What happens to plants and animals during a drought?
 - F** All the plants in an environment die.
 - G** All the plants in an environment survive and thrive.
 - H** Some plants survive while others perish.
 - J** Some plants absorb more water from the air.

7. The National Weather Service says that some parts of Texas will have very heavy rainfall every day for the next four weeks. How might this affect the environment?
 - A** There will be a drought in the rest of Texas during those weeks.
 - B** It will be more likely for wildfires to happen in those areas.
 - C** Most of the rain will soak into the ground.
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10. Which of the following can cause wildfires? Mark all that apply.
- A An earthquake
 - B A campfire
 - C Lightning strike
 - D A landslide
 - E Burning trash
 - F Heavy rainfall

Complete each sentence below using the terms drought, flood, or wildfires.

11. A _____ is an overflow of water on land that is usually dry.
12. _____ are large, destructive fires that spread very quickly.
13. A lack of rain over a long period of time can cause a _____.