

تم تحميل هذا الملف من موقع المناهج الإماراتية



كتاب الطالب الوحدة الثالثة Environment the Change منهج انسباير

موقع المناهج ← المناهج الإماراتية ← الصف الثالث ← علوم ← الفصل الثاني ← كتب للطالب ← الملف

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ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي للمدرس

المزيد من مادة
علوم:

التواصل الاجتماعي بحسب الصف الثالث



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الثالث والمادة علوم في الفصل الثاني

أسئلة الاختبار التكويني الأول

1

حل مراجعة دروس الوحدة الخامسة تغيرات الأرض

2

مراجعة دروس الوحدة الخامسة تغيرات الأرض

3

ورقة عمل درس دورة الماء في الطبيعة

4

أسئلة الامتحان التكويني الأول

5

LESSON 1 LAUNCH

Extinct Today



Four friends went to a science museum. They looked at the fossils of extinct plants and animals that lived millions of years ago. They had different ideas about why the plants and animals are no longer living today. This is what they said:

Norma: *I think they died out because they eventually grew too big.*

Max: *I think they just got too old and died out.*

Eshana: *I think their environment changed and they could no longer survive.*

Diego: *I think they were overhunted by humans who used them for food, clothes, and shelter.*

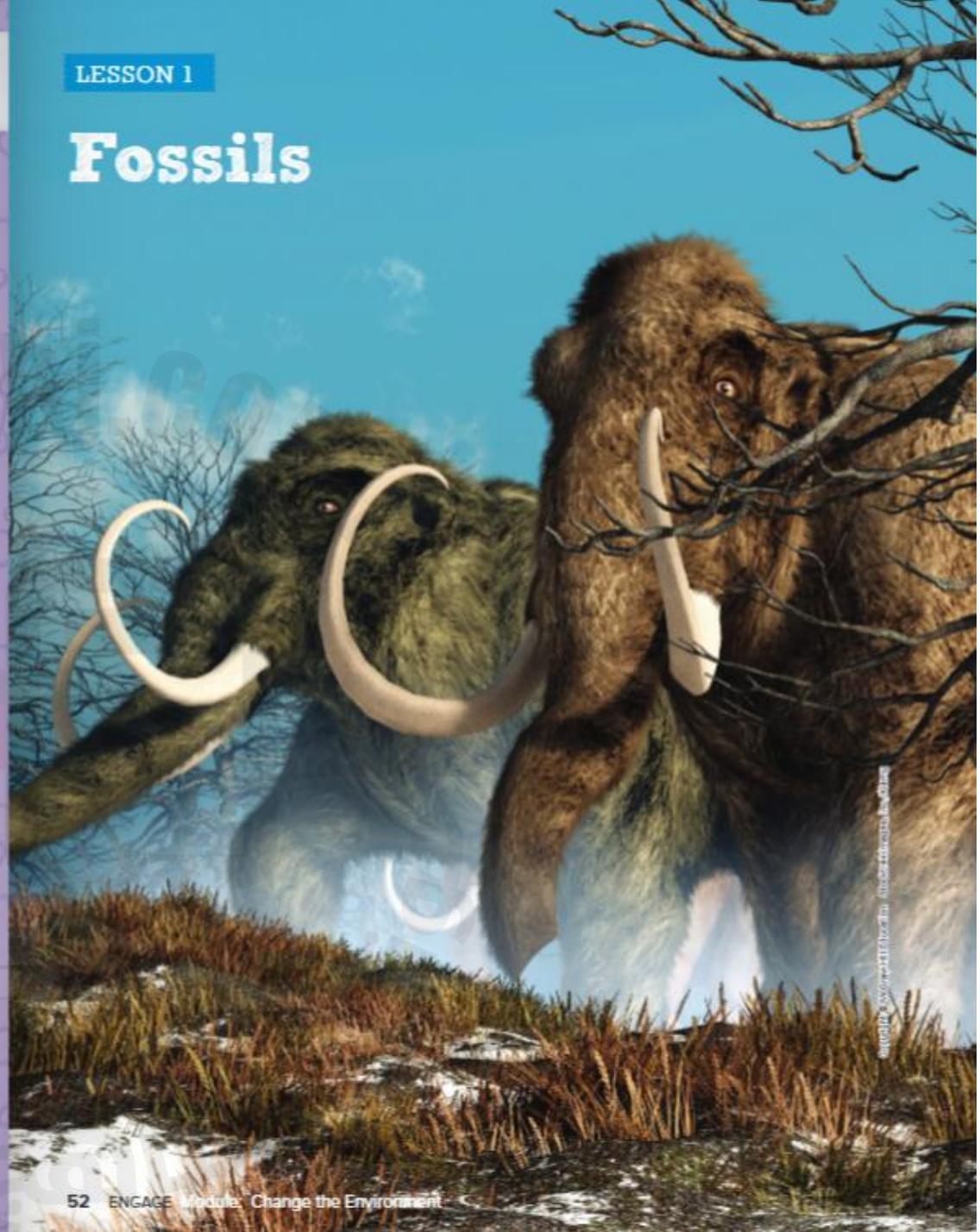
Which friend do you agree with the most? _____

Explain why you agree.

You will revisit the Page Keeley Science Probe later in the lesson.

LESSON 1

Fossils



credit: everett/istockphoto.com/istockphoto.com

ENCOUNTER

THE PHENOMENON

Why don't mammoths exist anymore?



Fish Fossils

GO ONLINE

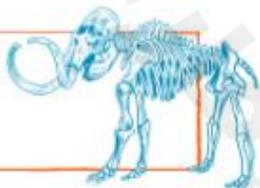
Watch *Fish Fossils* to see the phenomenon in action.

Talk About It

Look at the illustration and watch the video *Fish Fossils*. What questions and observations do you have about mammoths and the fish fossils?

Did You Know?

Mammoth fossils have been found from Ohio and Illinois all the way to Southern California.



INQUIRY ACTIVITY

Hands On

Layers and Fossils, Part 1

Mammoths are no longer living, so how do we know so much about them? Earth has different layers of rock and soil. Scientists use the layers of Earth and the fossils found in them to study organisms that lived long ago.

Make a Prediction How can you tell which fossils are oldest?

Carry Out an Investigation

BE CAREFUL Wear safety goggles to protect your eyes from the sand.

1. Use the plastic spoon to mix two tablespoons of glue with two tablespoons of water in the plastic cup.
2. Pour a thin layer of colored sand into the paper cup. The sand will represent a layer of rock.
3. Add an object to the paper cup. Cover the object with the same color of sand you used in step 2. Record the color of each layer in your model and include the "fossil" you placed there in step 6.
4. Add about 1 tablespoon of the glue and water mixture to the sand to make it stay together.
5. Repeat steps 2–4 two more times so you have three layers of "rock" and "fossils."

Materials



safety goggles



tablespoon



white glue



cup of water



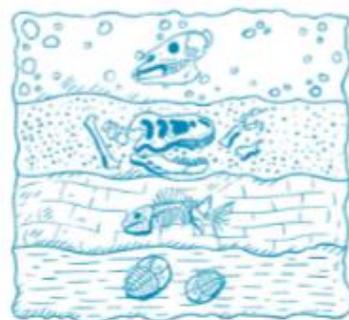
paper cup



3 different colors of sand



natural objects



6. Draw a diagram of what the layers should look like in the drawing box below. Label the placement of each of the fossils.



Communicate Information

7. Which "fossil" in your model was placed first?

8. Which fossils on Earth are the oldest? Explain.

9. How is it possible to find old and new fossils in the same area?

Talk About It

How do you think technology can help find fossils?

VOCABULARY

Look for these words as you read:
extinction
fossils

Fossils

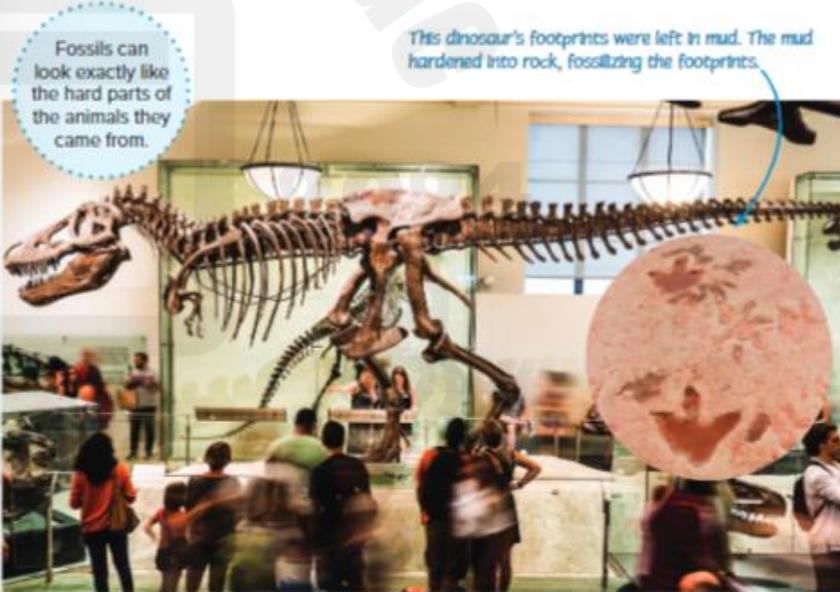
A **fossil** is a trace of the remains of a living thing that died long ago. Fossils can be shells, bone, skin, leaves, or even footprints. They can form in several different ways.

Trace Fossils

Sometimes an animal leaves a footprint on the ground as it walks. The shape of the animal's footprint leaves an imprint in mud or clay. The mud hardens and changes to rock over time. These fossils are called trace fossils. They record a trace of a once-living organism.

Preserved Remains

Some fossils are the actual remains of an organism trapped in Earth's materials. Amber fossils formed when insects became trapped in tree sap, which hardened over time. Preserved remains also have been found in tar and ice.



Molds and Casts

Some fossils, such as bones and teeth, look like the actual parts of animals. When scientists find a bone of a dinosaur, they really have found rock hardened into the shape of a bone.

A seashell can make an imprint, or a mark, in mud or sand. Over time, the shell is buried in more layers of sand or mud. Water and minerals seep into the ground. The shell breaks down, but the material around it hardens into rock. The shell-shaped space that is left is called a mold. The empty space can be filled with a new material to show what the original shell looked like. This kind of model is called a cast.

1. Think back to the Inquiry Activity, *Layers and Fossils, Part 1*. What type of fossils did you create?

2. How are preserved remains different from fossils in stone?

3. What can a scientist learn from studying a mold fossil of an ancient seashell?

GO ONLINE Watch the video *Fossils* to learn more about how different fossils form.



This insect's entire body was trapped in tree sap and is now a fossil.



The fossil on the bottom is a mold. The fossil on the top is the cast.

What Fossils Tell Us

Earth is about 4.5 billion years old. People have lived on Earth only a small part of that time. Scientists learn about Earth's past by studying fossils.

We know about organisms that lived long ago because of the fossil record. Mammoths are examples of such animals. No one has ever seen a mammoth, but we know about them because people have studied their fossils.



This photo shows a fossil of a mammoth. From their fossils, scientists know they were large mammals.

Changes in Living Things

The fossil record shows that the kinds of things on Earth have changed over time. Early in Earth's history, many fish swam in the oceans. There were few animals on land. Later, many species of fish became extinct. **Extinction** is when there is no more of an organism's kind left on Earth.

Evidence of Earth's Changes

Looking at fossils also tells us about how Earth's environment has changed over time. Today, Antarctica is a cold place. It is covered in snow and ice. Scientists have found fossils of leaves and wood there. These fossils tell scientists that Antarctica was once a warm, wet area.

Scientists use details they find from fossils to piece together the story of Earth's past. From each new fossil found in Earth's surface, we learn a little more about our planet's history.



This coral once lived in a warm sea. Over millions of years, the area has changed to dry land in the center of the continent.

REVISIT Revisit the Page Keeley Science Probe on page 51.



INQUIRY ACTIVITY

Hands On

Layers and Fossils, Part 2

Uncover the “fossils” in the layers of rock that were made earlier in this lesson.

State the Claim How are your “fossil” cups like real fossils that scientists discover?

Make a Model

1. Trade cups with another group.
2. Place the cup on the plate and carefully remove the rock formation from the cup.
3. Starting at the top, brush away the sand or use the end of a brush to uncover the fossils.
4. **Record Data** On a separate sheet of paper record the objects found and the order.



Communicate Information

5. Did your findings support your claim? Explain.



You made a **model** of part of **Earth's system**. How is your model like Earth? How is it different?

Materials



safety goggles



“fossil” cups



paper plate



paintbrush

Learning from Fossils

Some fossils give clues about a living thing's size, shape, and environment. The woolly mammoth became extinct thousands of years ago. Fossils tell us that it had a large trunk and tusks. Yet, fossils cannot tell us how this animal used its body parts. Instead, scientists learn how animals that lived long ago used their body parts by studying similar animals living today.



What do elephants and woolly mammoths have in common? What is different about them?

How deep a fossil is buried gives clues about when an organism lived. Fossils found closest to the surface are usually the youngest. Fossils found in deeper layers are usually older. This helps scientists put together a picture of what organisms lived at the same time.

Clues in rocks can also give hints about what Earth was like at different points in the past. Many fish fossils are found on land. This means that millions of years ago, that land was covered with water. Over time, the land rose above the water. Fossils remained in the rock and soil that had been underwater.

Scientists may find many fossils buried at the same depth. What do they know about these fossils?

INQUIRY ACTIVITY

Simulation

Fossil Dig



GO ONLINE

Use the *Fossil Dig* simulation to investigate the layers of a fossil dig.

Make a Prediction What information about an organism can you get from a fossil dig?

Choose one area of the simulation, and record data below.

Layer	Did it live in water or land?
A	
B	
C	
D	

Communicate Information

1. How did you know whether an organism lived on land or in water?

2. How did you know which fossils were older?

3. Select one fossil, and describe the environment in which it lived.

FOLDABLES®

Cut out the Notebook Foldables tabs given to you by your teacher. Glue the anchor tabs as shown below. Describe the fossils and animals shown in the pictures and explain what they tell us about prehistoric life.

Glue anchor tab here



Glue anchor tab here



STEM Connection

What Does an Archaeologist Do?



Archaeologists study human history. They conduct digs to uncover fossils and the tools humans used in the past. They learn about past human societies and how humans have developed and changed over time.

Francis Turville-Petre was an archaeologist. He worked in different parts of the world conducting digs. He is famous for discovering a new fossil never seen before.

It's Your Turn

Think like an archaeologist. Complete the activity on the next page to uncover the answers that fossils hold.



Talk About It

What would you be most interested in researching about human life in the past?

INQUIRY ACTIVITY

Hands On

Fossil Mystery

Make a model of a fossil, and see whether your classmate can identify your fossil. Use the fossil to determine the environment the animal lived in.

Make a Prediction What can you learn about a fossil from its characteristics?

Carry Out an Investigation

1. Choose a favorite animal. Then use a pencil and the key to draw your fossil on a separate sheet of paper.

If your animal is a...	then draw a...
mammal	circle
bird	square
amphibian	rectangle
reptile	triangle
fish	star



2. Use the key below to draw marks on your fossil.

If your animal...	then mark your drawing with...
only lives in water	red triangle
only lives on land	blue circle
lives in water and on land	purple star
is a carnivore (eats meat)	black square
is an herbivore (eats plants)	yellow square
is an omnivore (eats meat and plants)	green square

Materials



colored pencils

paper

- Trade your model fossil with a person sitting next to you. Use the key to find out about the animal your classmate chose.
- Using what you have learned about the mystery fossil, draw a picture of the animal the mystery fossil represents. In your drawing, show the environment the animal lived in and what it ate for food.

Communicate Information

- Share your drawing with your partner. Did your drawing represent the fossilized animal your partner chose? Explain.

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EXPLAIN
THE PHENOMENON

Why don't mammoths exist anymore?

Summarize It

Explain what fossils tell us about the environment.



Revisit the Page Keeley Science Probe on page 51. Has your thinking changed? If so, explain how it has changed.

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Three-Dimensional Thinking

1. A type of organism that has no living population is said to be _____ .
 - A. fossil
 - B. remains
 - C. an organism
 - D. extinct

Use the table below to answer question 2.

Animal	Feature
saber-toothed cat	long, sharp teeth
woolly mammoth	flat teeth
pterodactyl	long wingspan
triceratops	leathery skin

2. Which animal was most likely a meat-eater?
 - A. saber-toothed cat
 - B. woolly mammoth
 - C. pterodactyl
 - D. triceratops
3. The fossil of a fish was found at the top of a mountain. Which statement is MOST likely true?
 - A. The mountain was once a hill.
 - B. Fish used to live on the mountain.
 - C. The mountain was once under water.
 - D. Someone moved the fossil to the mountain.

Extend It

You have been asked to be a guest teacher in a first grade classroom. You will need to create an activity to do with your students about extinct animals. Be creative when planning your activity. Design a game, write a skit to perform, or create a craft project to help teach your class.

OPEN INQUIRY

What questions do you still have?

Plan and carry out an investigation to answer one of the questions.

KEEP PLANNING

STEM Module Project
Science Challenge



Now that you have learned about fossils, go to your Module Project and explain how the information will affect your plan for your model.

LESSON 2 LAUNCH

Changes in Ecosystems

Changes in ecosystems affect organisms. Some of these changes include the temperature, food and water supply, and shelter an organism needs to survive. Circle any of the boxes that best describe what can happen to a group of organisms when there is a forest fire.

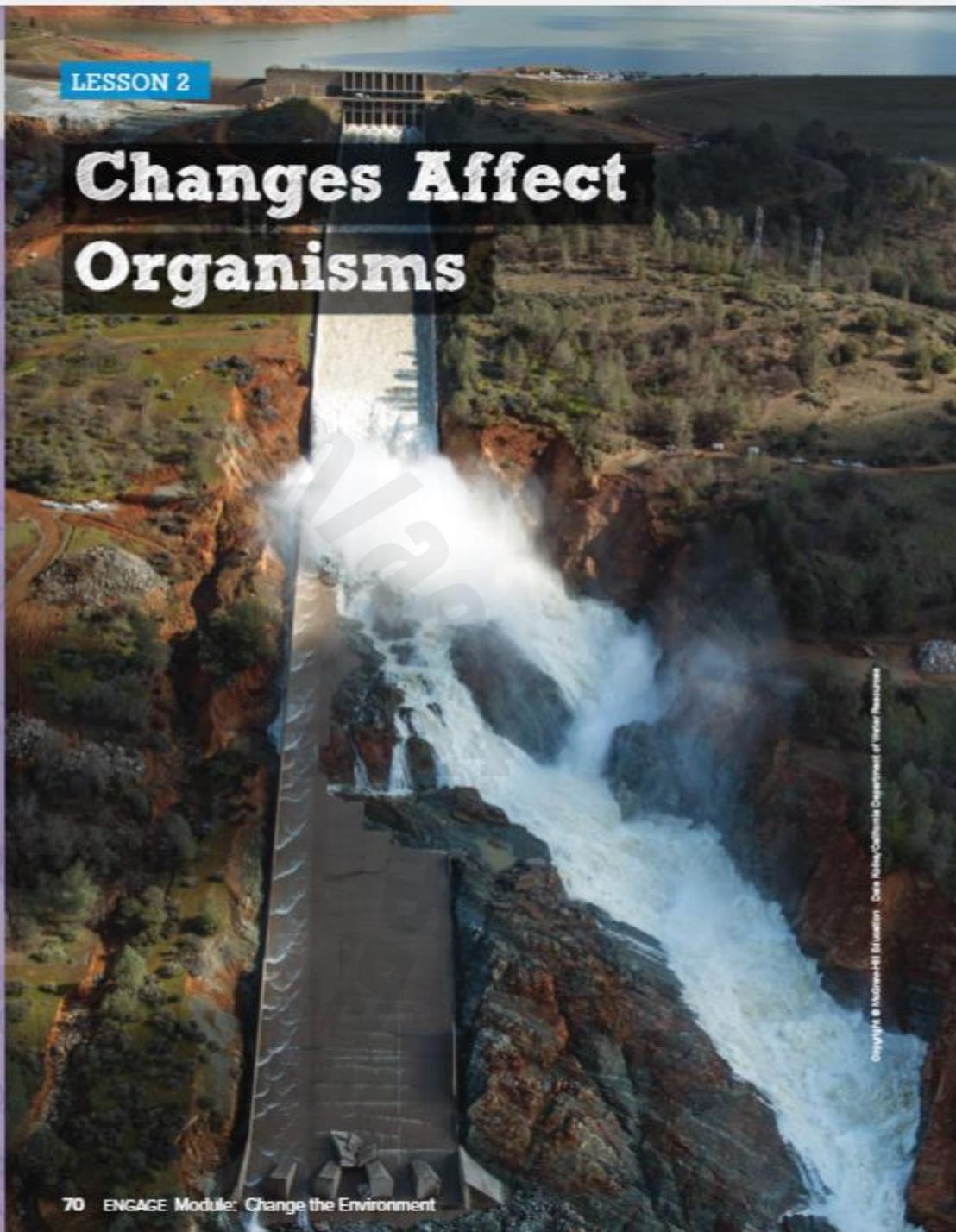
None of the organisms will survive and reproduce.	Some organisms will survive and reproduce.	All the organisms will survive and reproduce.
None of the organisms will move to new locations.	Some of the organisms will move to new locations.	All of the organisms will move to new locations.
None of the organisms will move into the changed environment.	Some of the organisms will move into the changed environment.	All of the organisms will move into the changed environment.
None of the organisms will die.	Some of the organisms will die.	All of the organisms will die.

Explain your thinking. How did you decide what happens to organisms when there is a forest fire?

You will revisit the Page Keeley Science Probe later in the lesson.

LESSON 2

Changes Affect Organisms



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ENCOUNTER

THE PHENOMENON

How will the broken dam affect the area around it?



GO ONLINE

Check out *Oroville Dam Breach* to see the phenomenon in action.

Talk About It

Look at the photo and watch the *Oroville Dam Breach* video. What observations and questions do you have about the phenomenon?



Did You Know?

In February 2017, the Oroville Dam's main spillway was damaged. Water gushed over the emergency spillway. Experts feared the dam would collapse. Almost 200,000 people were evacuated.



INQUIRY ACTIVITY

Hands On

Changes by Humans



You used fossils to investigate how Earth has changed over millions of years. Many things change suddenly, like when a dam breaks. Investigate how humans have changed the environment.

Make a Prediction How do you think humans have changed the environment around your school?

Carry Out an Investigation

1. Go outside and record your observations about the environment around your school.
2. On a separate piece of paper, record the living things, nonliving things, and the things made by humans that you see.



Communicate Information

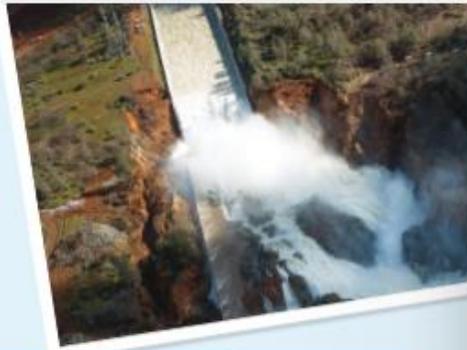
3. Look at the things that you listed as living, nonliving, and human-made. Describe how humans have changed your environment.

Talk About It

Did your findings support your prediction? Explain.

MAKE YOUR CLAIM

How have humans changed their environment?



Make your claim. Use your investigation.

CLAIM

Humans change their environment by _____.

Cite evidence from the activity.

EVIDENCE

The investigation showed that _____.

Discuss your reasoning as a class. Tell about your discussion.

REASONING

The evidence that supports the claim is _____.

You will revisit your claim to add more evidence later in this lesson.

VOCABULARY

Look for these words as you read:
invasive species

Ecosystems

Living things depend on one another. They also depend on nonliving things, such as sunlight. Earth has many different kinds of ecosystems. Different organisms live in different parts of an ecosystem. Living things get food, water, and shelter from their habitats. Many different habitats make up an ecosystem.



Interactions in Ecosystems

The different parts of an ecosystem interact. All of the parts depend on and affect one another. For example, animals depend on plants for food and shelter. Squirrels get acorns from trees to eat and gather branches to make nests in trees. Squirrels can change and affect how trees grow. Trees and other plants give off oxygen that animals need to survive.

Living things also depend on and affect nonliving things in an ecosystem. The grass on a meadow could not grow without air, water, sunlight, nutrients, and soil. When chipmunks and rabbits dig in the ground, they break up rocks, which helps form the soil.

Seeds blow onto bare ground. The environment changes as plants take in water and nutrients.

As more plants grow, animals move in to the environment. They use the plants for food and shelter.



Historical Dam

WRITING Connection Look at the two photos below. On a separate sheet of paper, write a paragraph describing three ways the ecosystem changed when the dam gates opened. Also, describe a possible problem that could have occurred if the dam was not built.

PRIMARY SOURCE



Dam 96 can be found at the J. Clark Salyer Wild Refuge.



After Dam 96 at the Souris River Basin was opened.

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CLOSE READING

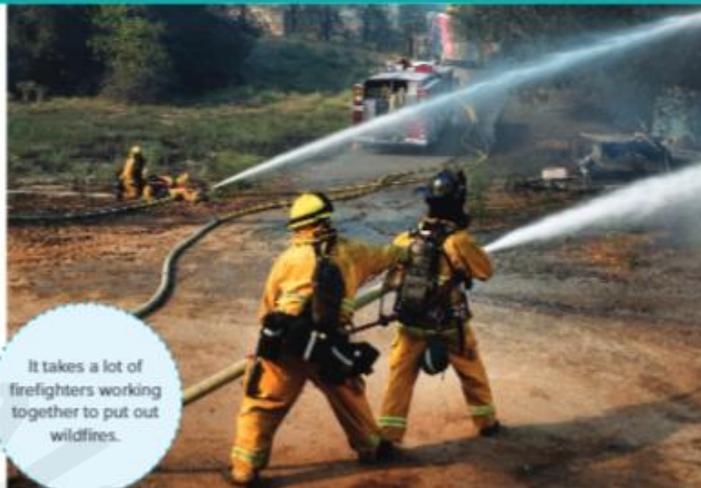
Inspect

Read the passage *Southwest Forest Fires*. Underline text evidence about how a park ranger helps with forest fires.

Find Evidence

Reread What happens to animals after a fire? Highlight evidence that supports your answer.

Notes



It takes a lot of firefighters working together to put out wildfires.

Southwest Forest Fires

The southwest region of the United States can experience wildfires when conditions are dry due to lack of rain. This area of the country often experiences periods of drought. Once a fire starts, it is hard to stop it from spreading. This is especially true when a forest is dry.

Park rangers have an important job when there is a wildfire. First, they let people know to stay away. They do this by talking to news reporters and by using social media. After the fire is out, they take care of the animals that survived the fire. Some small animals hide underground or in logs. Park rangers help to rehabilitate the animals.

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Experts say birds and large animals usually survive wildfires. Flying above the smoke and flames or large strides make them able to flee quickly when a fire first begins.

Where do you think wild animals go after their homes are destroyed? Most animals find another forest to call home. It can take time to find a new forest. This is why some people who live in areas that experience forest fires see wild animals like coyotes walking along the highway. It is not safe for wild animals to explore outside of their natural habitat, though. They are not used to living among humans. As animals seek refuge, they sometimes wind up in neighborhoods. In these cases, park rangers and other wildlife experts are called in to help with their relocation.

REVISIT Revisit the Page Keeley Science Probe on page 69.
PAGE KEELEY SCIENCE PROBES

Make Connections

Talk About It

Why might it be difficult for humans and wild animals to live in the same habitat?

Notes

Handwriting practice lines with a large watermark reading 'Allannah' and '© 2024' overlaid on the page.

STEM Connection

What Does a Park Ranger Do?



Park Rangers work in state or national parks. They lead tours and give visitors information about the parks. They spend a lot of time outside, and they sometimes work inside a visitor center.

That sounds like fun, but park rangers also have to do a lot of hard work. Sometimes they need to find lost hikers. In some parts of the country, park rangers need to protect people and animals if there is a forest fire.

It's Your Turn

Think like a park ranger. Complete the activity on the next page to explore how a park ranger might work to solve problems that arise.



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Talk About It

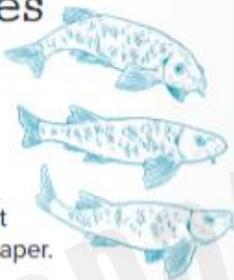
As a park ranger, what could you do to protect animals and park visitors if there were a forest fire? How might a forest fire change the environment in a park?

INQUIRY ACTIVITY

Research

Solve for an Invasive Species

A park ranger has noticed that an invasive species has taken over. Research an invasive species, define a problem it causes, and design a possible solution to help the park ranger.



Research Find information about an invasive species that interests you. Record your notes on a separate piece of paper.

1. What is the name and location of the invasive species?
2. How did this species affect the ecosystem it is in now?

State a Claim Identify a problem caused by the invasive species.

Design a Solution

3. Use what you have learned about ecosystems to design a model of a solution to the problem caused by the invasive species that you researched.

Communicate Information

Talk About It

4. Share your solution with a partner. Ask your partner how they would build on or improve your idea. Write the ideas above in your solution.



LESSON 2

Review

EXPLAIN THE PHENOMENON

How will the broken dam affect the area around it?

Summarize It

Explain how humans affect their environment.



Revisit the Page Keeley Science Probe on page 69. Has your thinking changed? If so, explain how it has changed.



Past, Present, and Future

You have been hired as a wildlife rehabilitator. You will construct models of the forest at different time periods. Using what you have learned throughout this module, you will design models of the forest's past, present, and future.



Planning after Lesson 1

Apply what you have learned about fossils that will help in your project planning.

How can you use fossils to create a model of the forest?

Record information to help you plan your model after each lesson.



Poppy
Park Ranger



Planning after Lesson 2

Apply what you have learned about changes in the environment to your project planning.

How does a change in the environment cause problems for plants and animals? Give an example.

Sketch Your Model

Draw your ideas of what your forest looked like before a forest fire. In your sketch, include living and nonliving things.





Research

 Read the Investigator article *Wildfires Renew Forests* to learn more about how forest fires affect the environment. Using the resources provided by your teacher, research how a forest is restored after a fire. List living and nonliving things that will be in your plot of land in the past column. You will need to list how the living and nonliving things will be restored.

Past	Future

Past, Present, and Future

Look back at the planning you did after each lesson. Use that information to complete your final module project.

Build Your Model

1. Make a plan for how you will restore the forest.
2. Make a list of living and nonliving things, including fossils, found in the forest.
3. Design a model of the forest before the fire, immediately after the fire, and four years after the fire.
4. List the materials you will need to build your model.
5. Share your plan and designs with a classmate and discuss if your plan will work.
6. Record the improvements made to the design after meeting with your classmate.

Materials

MODULE WRAP-UP

REVISIT THE PHENOMENON

Using what you learned in this module, explain how the fire affects all living things in a forest.



Revisit your project if you need to gather more evidence.



Have your ideas changed? Explain.

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Science Glossary

A

adaptation a structure or behavior that helps an organism survive in its environment

atmosphere a blanket of gases and tiny bits of dust that surround Earth

attract to pull toward

axis an imaginary line through Earth from the North Pole to the South Pole

B

balanced forces forces that cancel each other out when acting together on an object

birth the beginning or origin of a plant or animal

C

camouflage an adaptation that allows an organism to blend into its environment

climate the pattern of weather at a certain place over a long period of time

competition the struggle among organisms for water, food, or other resources

D

direction the path on which something is moving

distance how far one object or place is from another

E

ecosystem the living and nonliving things that interact in an environment

electrical charge the property of matter that causes electricity

environmental trait a trait that is affected by the environment

extinction the death of all of one type of living thing

F

floodwall a wall built to reduce or prevent flooding in an area

force a push or pull

fossil the trace of remains of living thing that died long ago

friction a force between two moving objects that slows them down

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