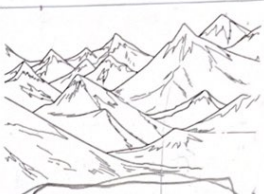
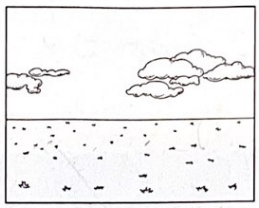
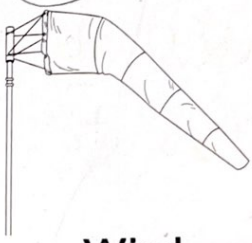
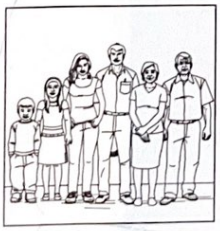
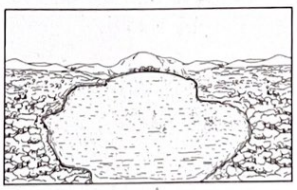
PAGE KEELEY SCIENCE PROBES

LESSON 1 LAUNCH

Mapping Earth's Surface

Circle the things you might see on a map of Earth's surface.

 Hills	 Rainfall	 Mountains
 Rivers	 Plains	 Wind
 People	 Lakes	 Trees

Explain your thinking.

I circled things found on Earth

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

ENCOUNTER
THE PHENOMENON

How can you describe this land?

GO ONLINE
Check out *Exploring the Land* to see the phenomenon in action.

Talk About It

Look at the photo and watch the video. What do you observe about the shape of this land? What questions do you have? Share your questions with a partner. Write or draw your thoughts below.

Why are some lands low while others are high?	why is land different in different places?

Did You Know?

Even land under ocean water has hills and mountains!

INQUIRY ACTIVITY

Hands On

Observe Land

Land can be described in many ways. Make observations about the land around you.

Make a Prediction How can you use marbles and water to observe the land around you?

We can observe how marbles and water move to learn about the land.

Materials


cup of water


marbles


crayons

Carry Out an Investigation

BE CAREFUL Listen to your teacher.

1. Find an area of land.
2. Pour water on the land and observe how the water moves.
3. Roll the marbles on the land and observe how they move.
4. **Record Data** Draw or write to record your observations.
5. Find an area of land that is different. Repeat steps 2–4.

INQUIRY ACTIVITY

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	Water	Marbles
Area 1	high land	fell down	Fell dow
Area 2	Flat land	did not fall down	did not Fall down

Communicate Information

6. Did what you learned match your prediction? Explain.

Yes. the water and the marbles moved to The lowest areas.

Talk About It

What are other ways you can make observations about land?

VOCABULARY

Look for these words as you read:

compass rose

landscape

map

slope

symbol

Landscapes

What do you think of when you hear the word *landscape?* You might think of plants and flowers. A **landscape** is the stretch of land that can be seen from a place.

The landscape in one area might be high and on a **slope**, or slant. The landscape in another area might be low and flat. It might be covered with trees or water. What is the landscape like around you?

Artists and cartographers study landscapes.

California Poppy Field by Granville Seymour Redmond.

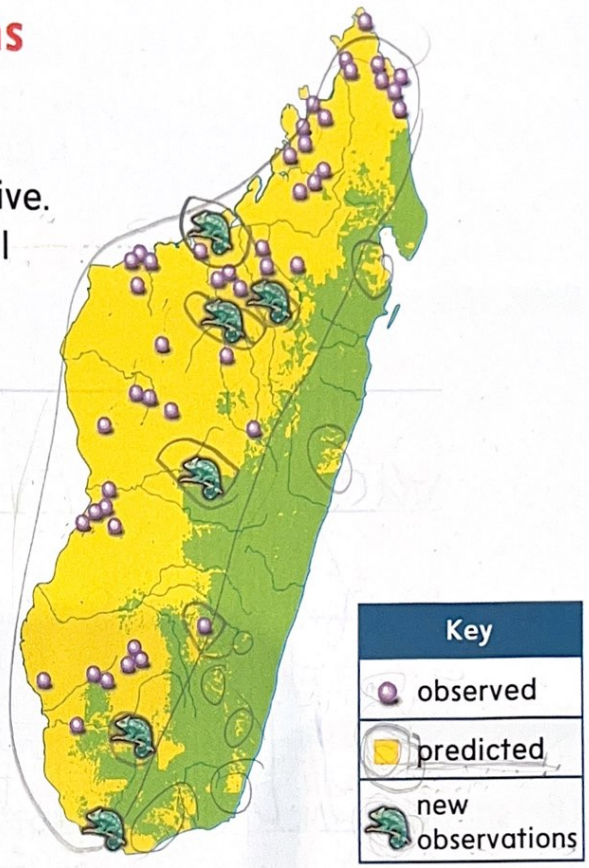
1. Describe the landscape in the painting.

The landscape has mountains and hills.

2. Circle an area on the painting that shows a slope in the landscape.

Maps Answer Questions

Maps help scientists answer questions. This map answers questions about where lizards live. Look at the key. A lizard symbol marks each new place a lizard was found. A purple symbol marks each place a lizard was observed.



1. Use the map key. Find the area that shows where scientists predicted they would find lizards. Circle it.

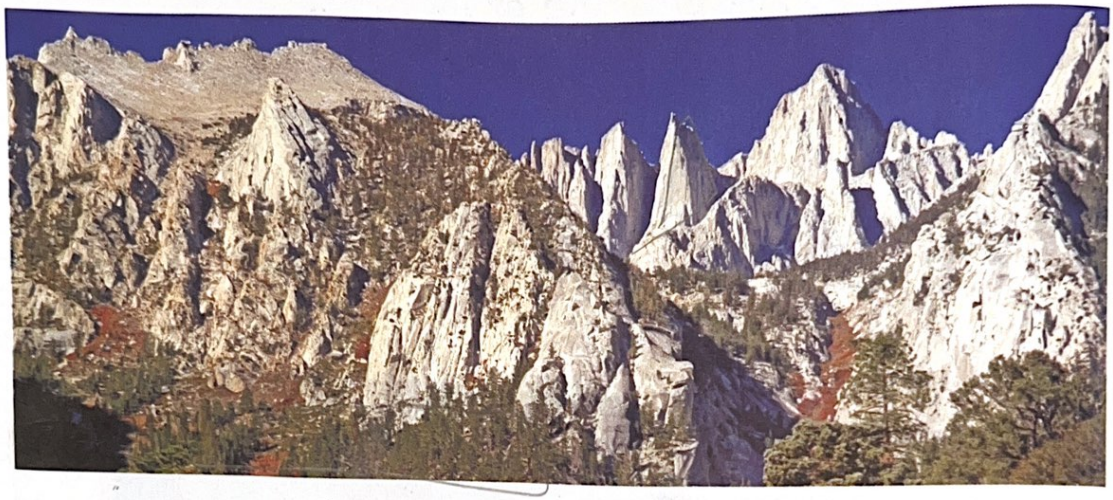
Look at the map on page 11. What patterns do you notice? Write a question about a pattern you see.

Why are areas of high land near water?

GO ONLINE Watch the video *Learning from Maps* to see how different maps can answer questions.

Landscape Shapes

Some landscapes may remind you of shapes. Look at the photo below. What shapes do you see in the land?



Use shapes to draw the landscape on a separate sheet of paper.

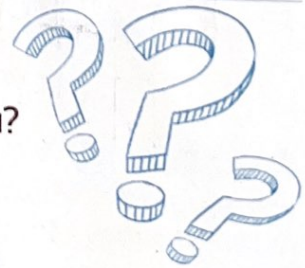
1. MATH Connection What shapes did you use to model the landscape?

I used a rectangle to show groups of trees.

I used a triangle to show mountains.

Talk About It

What shapes do you see in the land around you? Tell a partner.



INQUIRY ACTIVITY

Hands On

Model Your Landscape

Make a map of the landscape around your schoolyard. Use your map to make a model of the land around you.

Make a Claim How can you model the land around you?

I can shape clay to model the land.

I can use paper to make trees

Make a Model

BE CAREFUL Wear safety goggles.

1. Go outside and observe the land around your school.
2. SOCIAL STUDIES Connection Draw a map to show what you see.
3. Use your map to make a model of the land around your school.

Materials


safety goggles

modeling clay


sand


aluminum pan


cup of water

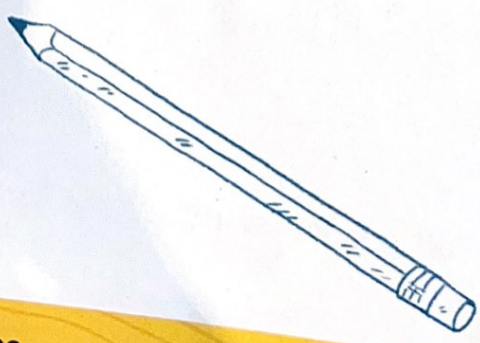

construction paper


crayons


shoebox


scissors


masking tape



LESSON 1

Review

EXPLAIN
THE PHENOMENON

How can you describe this land?

Summarize It

Describe the shape of this land.

This land has a slope and trees.

REVISIT
PAGE KEELEY SCIENCE PROBES

Revisit the Page Keeley Science Probe earlier in the lesson. Has your thinking changed? If so, explain how it has changed.

Three-Dimensional Thinking

1. Look at the map below. Which sentence can you tell is true by reading the map?

   A. Ted lives on a hill.

   B. Ted lives west of the pond.

   C. The land around Ted's school has grass.

   D. The land south of Ted's school has trees.

2. Ted wants to make a model of the map. How can Ted show that he lives on a hill?

He can put his house on a hill

N W E S

Extend It

You are a land surveyor. Your job is to find the best place for a new airport in your town. Look at a map of your town. Identify an area that would make a good place for a new airport. What would the land look like?

Draw a map of the area. Include a compass rose, map key, and symbols. Use words and pictures to describe the landscape.

We need a large piece of land. The land should be flat with no hills or water

KEEP PLANNING

STEM Module Project
Science Challenge

Now that you have learned about maps and your local landscape, go to the Module Project Planning pages.

LESSON 2 LAUNCH

Earth's Landforms

Two friends are talking about mountains. They each have a different idea. Who do you agree with?

Lonnie: *Mountains are usually found in groups of mountains.*

Diego: *Mountains are usually found as a single mountain.*

Explain your thinking.

Lonnie has the better idea. when I look at a map I see a group of mountains in the area.

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

ENCOUNTER
THE PHENOMENON

What do you observe about the land?

GO ONLINE
Check out *Artist's Palette* to see the phenomenon in action.

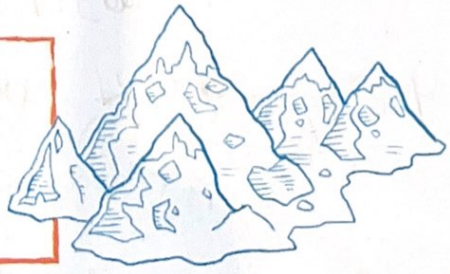
Talk About It

Look at the photo and watch the video. What do you observe? What do you wonder about this land? Talk about your questions with a partner. Record your questions below.

Why are there different shapes of lands?

Did You Know?

The tallest landform in the United States is Denali Peak. It rises 6,190 meters (20,310 feet) above sea level.



INQUIRY ACTIVITY

Hands On

OPEN INQUIRY

Earth's Land

Think about the local land you explored in Lesson 1. Look at the photos of land on Earth. Choose one photo and make a model of the land.

Ask a Question What question will your model help you answer?

what are some different kinds of land on Earth?

Materials


safety goggles


aluminum pan

modeling clay

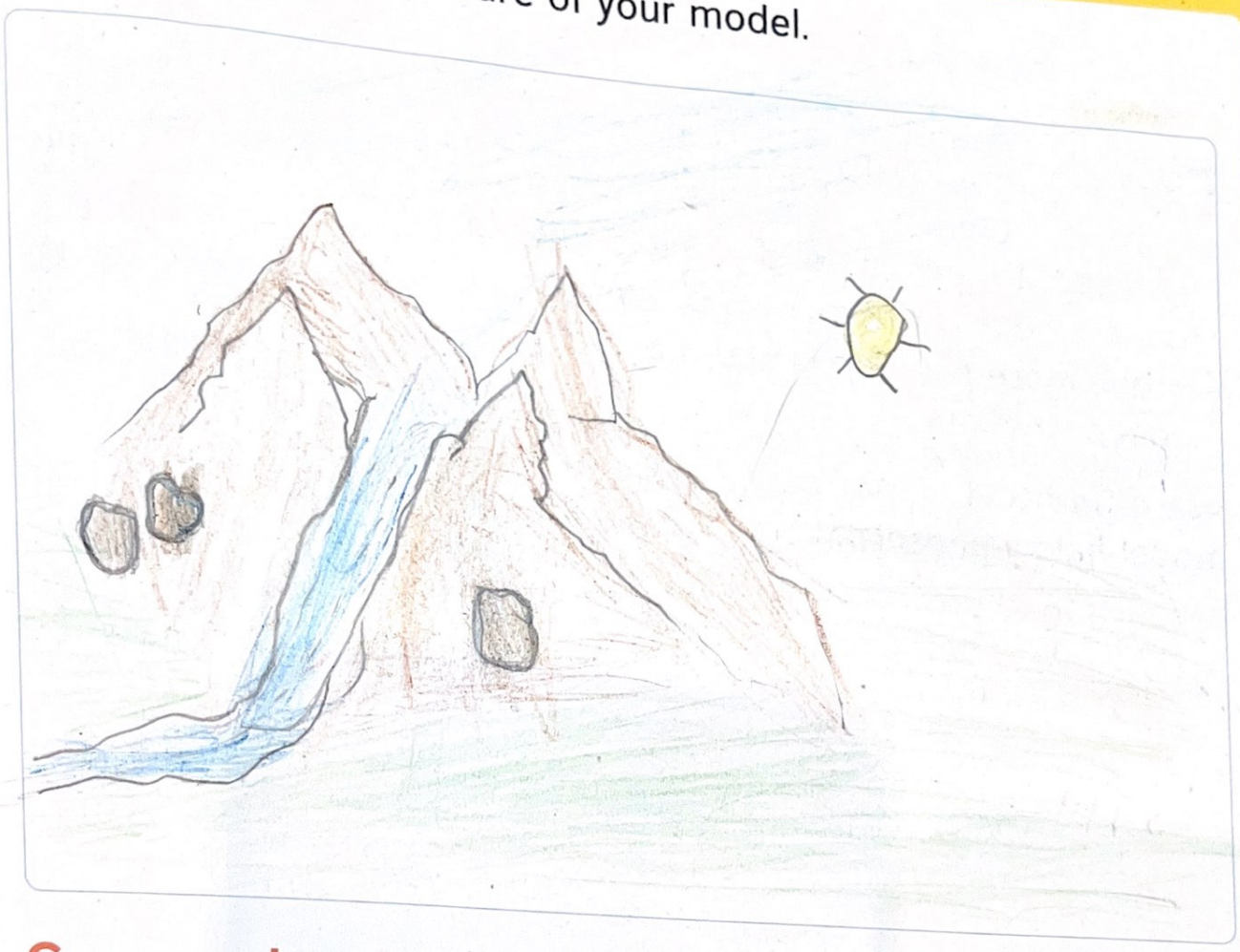

cup of water

Make a Model

BE CAREFUL Wear safety goggles.

1. Look at the photos of different land and water.
2. Place the aluminum pan on a table or the floor.
3. Use the photo as your guide. Make a model of the land in the aluminum pan using the clay.
4. Add water if needed.

5. Draw and label a picture of your model.



Communicate Information

6. Look back at the question you asked at the beginning of the inquiry. What is the answer to your question?

Some lands are high.
Some lands are flat.

Talk About It

Compare your model with a partner's model.
How is your model the same as your partner's?
How is it different?

Plains

A **plain** is land that is wide and flat. It has no hills or mountains. A plain can be a good place for farms. Plains can stretch for miles.

GO ONLINE

Watch the video *Landforms* to explore different types of landforms on Earth's surface.

2. Why do you think plains are good places for farms?

plains are flat. It is easier to grow plants on flat land than land that is high.

3. Choose two landforms. How are they similar? How are they different?

plains and valleys are low and flat. plains can be bigger than vallys.

Landforms on a Map

Some maps show high and low areas of land. This map of California shows where landforms like mountains and plains are located.

Look at the colors on the map. Smooth, green areas show where land is low and flat. Rough, brown areas show where land is high and on a

4. Mt. Whitney is the landform in Califor out where it is loc Label it on this m

5. Circle an area on that shows moun ✕ on an area th

Look at the m learned. Wh about where in California

mountain california plains

Landforms on a Map

Some maps show high and low areas of land. This map of California shows where landforms like mountains and plains are located.

Where can you find mountains and plains in California?

Look at the colors on the map. Smooth, green areas show where land is low and flat. Rough, brown areas show where land is high and on a slope.

4. Mt. Whitney is the tallest landform in California. Find out where it is located. Label it on this map.

GO ONLINE
Explore *Name the Landforms* to match a picture of a landform to its name.

5. Circle an area on the map that shows mountains. Put an X on an area that shows plains.

Look at the map and use what you have learned. What **patterns** do you observe about where landforms are found in California?

Mountains are near the edges of California.
plains are in the middle.

INQUIRY ACTIVITY

Data Analysis

Mountains Everywhere

Look at the landscape photo on the next page. Use the grid on the photo. Find out how much space mountains, valleys, and water take up in this landscape.

Make a Prediction Which will cover the most grid squares: the mountain, the valley, or water?

I see a lot of mountains in this landscape. I think most of the squares will be mountain.

Carry Out an Investigation

1. Look at the squares on the photo.
2. Decide if the square mostly contains a mountain, a valley, or water.
3. **Record Data** Put a tally mark for each square in the correct column below.
4. Count the tally marks to get a total number of squares for each item.

mountain	valley	water

Communicate Information

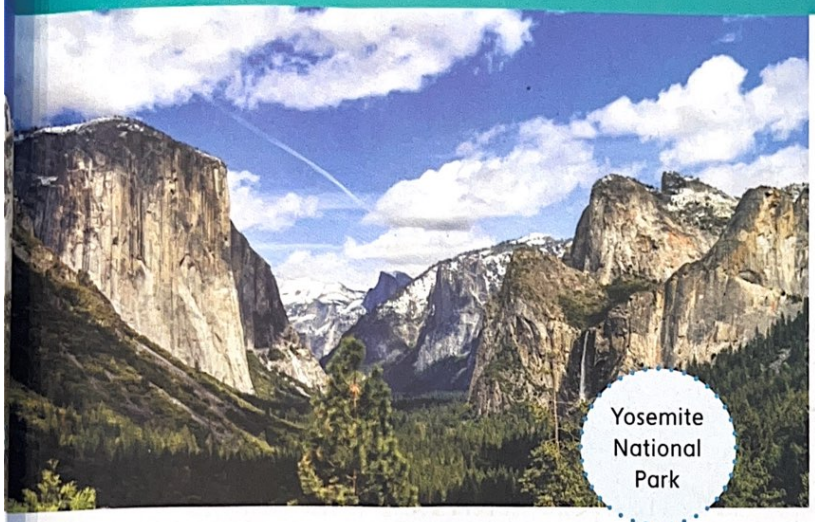
5. **MATH Connection** How many squares covered mountains?

31 squares.

6. Did your observations support your prediction? Explain.

Yes! I predicted most squares would cover Mountains.

7. Make a bar graph to show the results of your investigation on a separate sheet of paper.



Yosemite National Park

Lake Tahoe is also in the Sierra Nevada. It is North America's largest alpine lake, or lake that is high in elevation.

The Sierra Nevada stretches over such a large area that it includes three national parks: Yosemite, Sequoia, and Kings Canyon. These parks contain many valleys, meadows, rivers, and giant sequoia trees. Look at the photo of Mount Whitney. How could you use a pattern to describe what you observe?

There are lots of plants at the bottom.

Make Connections

Talk About It

How might a cartographer show a canyon on a map?

Notes

CLOSE READING

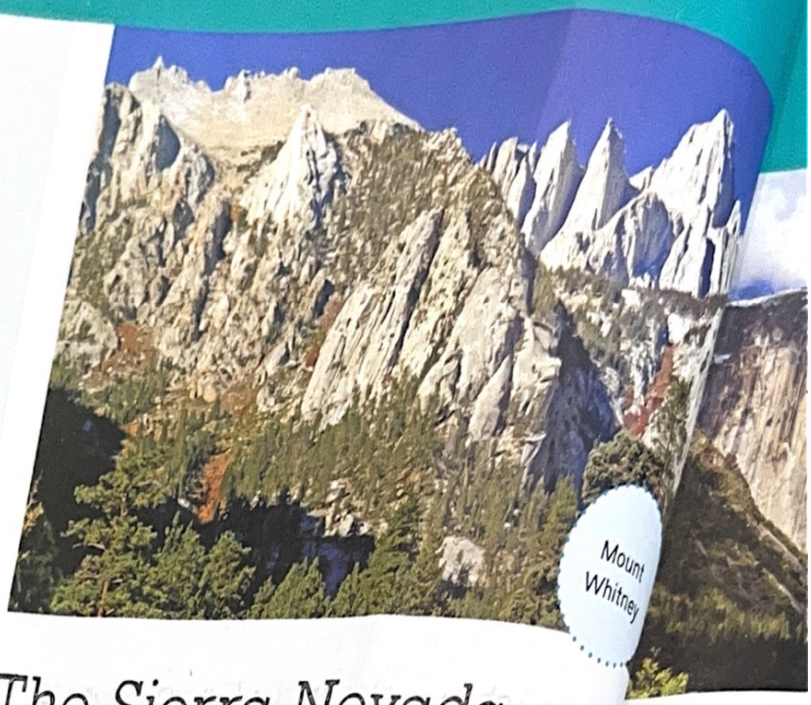
Inspect

Read the passage *The Sierra Nevada.* Highlight text that names what you would find in the landscape of this mountain range.

Find Evidence

Reread Underline a word that means *very large.* Underline text that helped you understand the meaning.

Notes



The Sierra Nevada

A mountain range is a group of mountains. The Sierra Nevada is a mountain range that can be found in the Western United States. It is over 600 km (400 mi) long and nearly 100 km (70 mi) wide. This range is massive!

The highest peak in the Sierra Nevada is Mount Whitney. Its summit is the third highest point in the United States.

Throughout the mountain range there are many landforms. Yosemite Valley is a **canyon**. A canyon is a deep valley with very high, steep sides. It was formed by glaciers millions of years ago.

INQUIRY ACTIVITY

Research

OPEN INQUIRY

Landforms on Earth

Learn more about landforms on Earth.
Research your chosen landform.

Ask a Question What question do you have about a landform?

What is the wide and flat area?

Carry Out an Investigation

1. Learn about your landform.

Communicate Information

2. Record the answer to your question.

It is the plain.

Talk About It

Share what you have learned.

LESSON 2

Review

EXPLAIN THE PHENOMENON

What do you observe about the land?

Summarize It

Describe the kinds of land you can find on Earth.

Landforms are hills, plains, mountains, islands and valleys. The mountains are very tall. The valley is a low land between mountains or hills.

REVISIT PAGE KEELEY SCIENCE PROBES Return to the Page Keeley Science Probe earlier in the lesson. Has your thinking changed? If so, explain how it has changed.