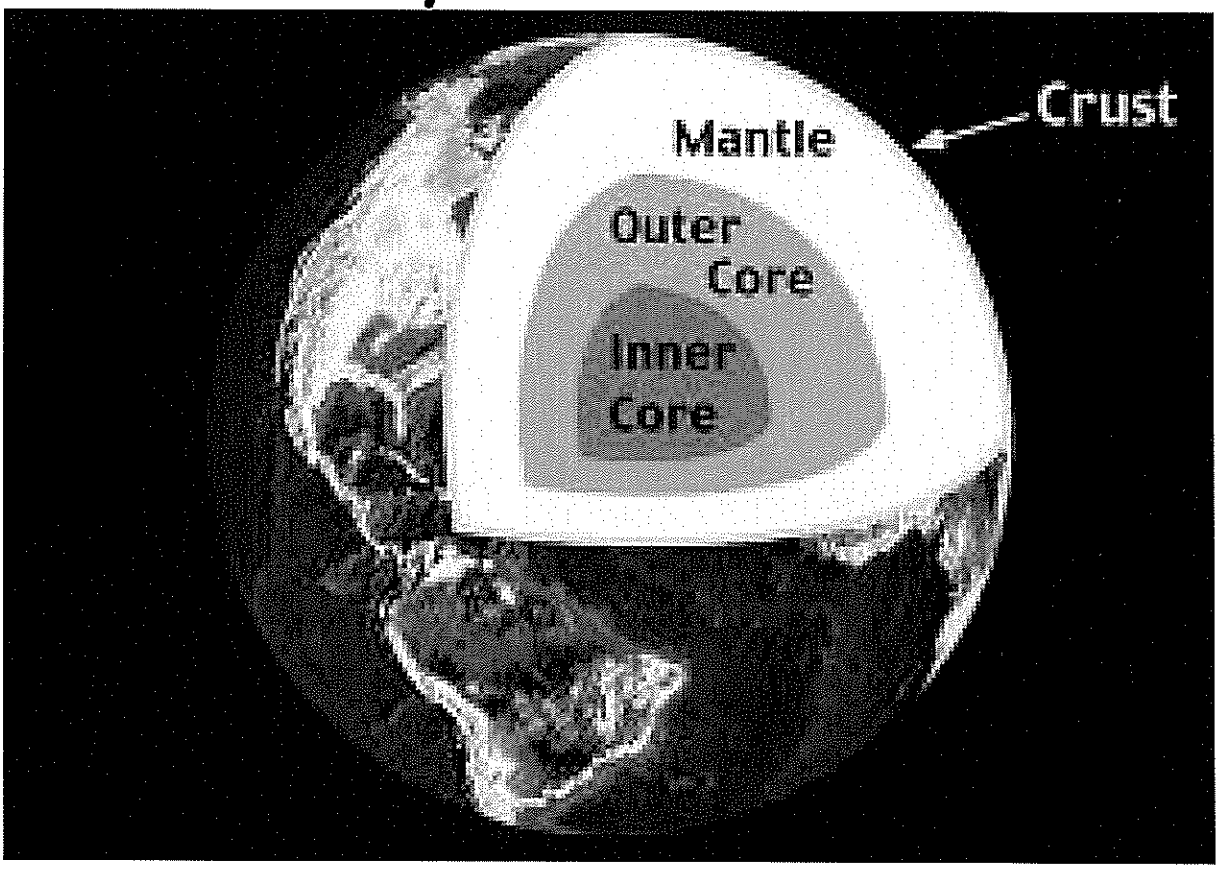
Chapter 8: Changes on Earth

Layers of Earth



The Chapter 8 test is scheduled for _____.

Review study guide on packet page 1, packet pages 6, 7, 8, and 9, and book pages 238-239 to prepare for the test.

Name _____ Section ___

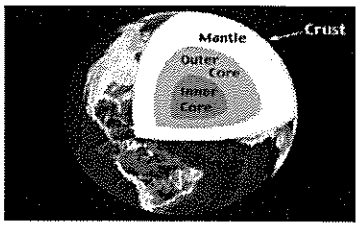
Name _____ Test Date _____

Chapter 8: Changes on Earth ---Study Guide

These items can be found in your child's packet in the science section or in their science book. All items have been discussed at length in class. Please refer to the cover of the packet to view which packet pages to study.
*Remember to refer to your clay model of the Earth's layers to help you.

Words to Know:

crust	lava
mantle	magma
core	erosion
landform	weathering



***Here is a link to help your child to study the vocabulary for Chapter 8.**
http://quizlet.com/1022447/scott-foresman-science-grade-3-chapter-8-flash-cards/
(This link, along with other links and a review powerpoint lesson are posted on your science teacher's website.)

Ideas to Know:

- Be able to identify the layers of the earth.
- A **lake** forms when the flow of water slows enough to fill an area.
- A **valley** is a low, narrow area of the crust which is formed when a river or glacier slowly cuts through rock.
- A **glacier** is a large moving body of ice.
- A **plateau** is a plain that is higher than the land around it.
- An **ocean** is salt water that covers almost ¾ of Earth's surface.
- A **hill** is a high place on the Earth's surface, but **NOT** as high as a mountain.
- A **mountain** is land much higher than the land around it.
- A **volcano** is an opening in Earth's crust through which hot, melted rock is forced up by pressure inside the Earth.
- A **river** is a natural stream of water that helps to shape the valley or plain it passes through.
- A **plain** is a large, mostly flat area.
- A **coast** is the land next to the ocean.
- **Volcanoes** and **earthquakes** can cause ***rapid*** (and sometimes dangerous) changes in Earth's landscape.
- The damage an earthquake causes depends on how close the earthquake is to the surface and how long the crust shakes. It also depends on how close the earthquake is to a city or town.
- A **landslide** is a downhill movement of rocks and earth. The loose surface slides down a slope. This can happen on the ocean floor or on land.
- Gravity can cause erosion. It pulls rocks and soil downhill.
- A **mudflow** is the quick movement of very wet soil.
- A **rockslide** is the quick movement of rocks down a slope which is often caused by gravity and earthquakes.
- **Weathering and erosion** can change the Earth's surface. They can change landforms over time.
- Weathering can be caused by plants, water, glaciers, wind, gravity, and living things. When water freezes and thaws, it can cause weathering. In dry regions, erosion is caused by wind when sand particles blow against rocks. Plants can also cause weathering when their roots grow into cracks in rocks.
- Be able to explain how weathering and erosion are alike and different.
- **Weathering** is any action that breaks rocks into smaller pieces.
- **Erosion** is the **movement** of weathered material.
- An **earthquake** is a sudden shift between parts of the Earth's crust. This causes the ground to vibrate in all directions. These shifts can cause cracks in the Earth's surface. Most earthquakes happen near cracks in Earth's crust called faults.

Name _____

Lab zone **Activity**

Does the shape of a building help it survive an earthquake?

Materials


shoe box lid

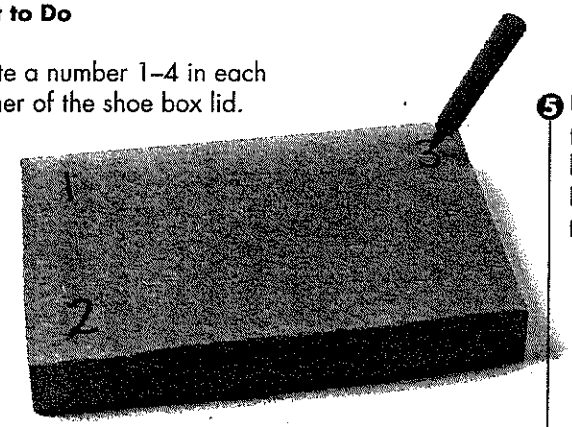

40 sugar cubes


2 books of the same size

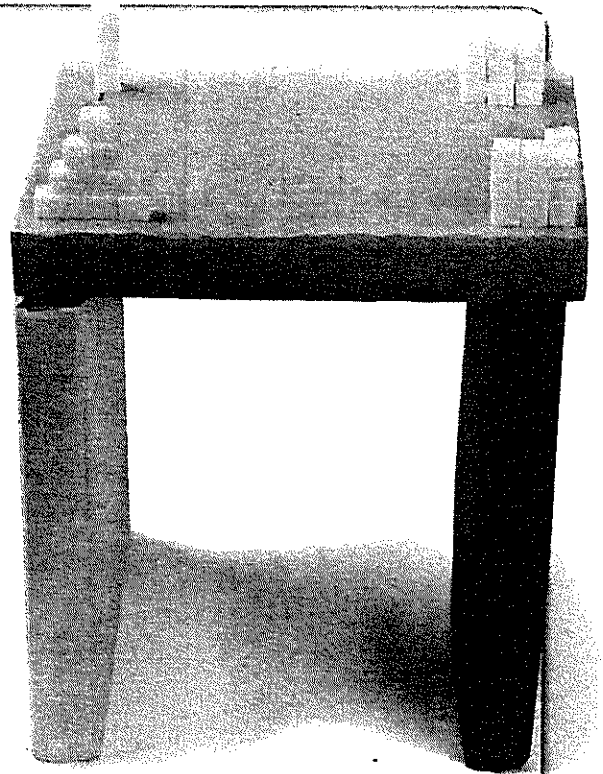

marker

What to Do

1. Write a number 1–4 in each corner of the shoe box lid.



2. Balance the lid on the two books.
3. Use the sugar cubes to **make a model** of a different building in each corner of the lid. Use all the cubes. Make each building design different.
4. **Predict** which building will stay standing the best after the lid is shaken.
5. Use your fingers to flick the bottom of the lid lightly to shake it. Record what happens to each building.



6. Flick the bottom several more times. Increase the force each time. Record what happens.

Process Skills

You **interpret data** when you use the results of your **model** to explain why something happened.

Explain Your Results

1. **Interpret Data** Which building was damaged the most? Why?
2. Which building was damaged the least? Why?

Does the shape of a building help it survive an earthquake?

Record your observation of the buildings after each earthquake in the boxes below.

Trial #	Building 1	Building 2	Building 3	Building 4
1				
2				
3				
4				

Explain Your Results

1. **Interpret Data:** Which building was damaged the most? Why?

_____

_____

2. Which building was damaged the least? Why?

_____

_____

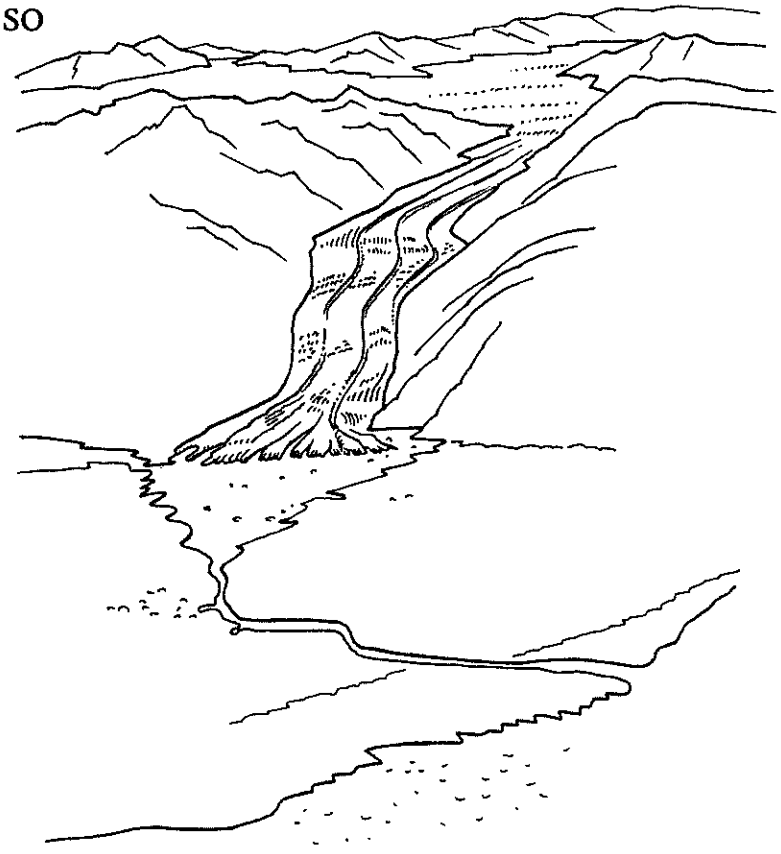
_____

Sequence

Read the science article.

Growing a Glacier

It takes many years to grow a glacier. First, in a very cold place, snow keeps piling up because it does not melt from year to year. Then top layers press down on lower layers, packing them together. Next, the weight changes bottom layers of snow into ice. Finally, the force is so great it causes the glacier to move over the ground, scraping rocks and dirt as it goes.



Apply It!

How does a glacier form? Write the steps in order on the graphic organizer.

First

↓

Next

↓

Then

↓

Finally

Notes for Home: Your child learned how to sequence events.
Home Activity: Have your child draw a sequence chart showing how forces press on a glacier and cause it to move.

Name _____

Vocabulary Preview

Use with Chapter 8.

Choose a word to complete each sentence. Underline clues that helped you decide which word to use.

erosion	**core**	**mantle**	**landforms**
crust	**lava**	**magma**	**weathering**

1. The outside layer of Earth, called the _____, is made of rock.
2. Rock in the _____, or middle layer of Earth, is hot enough to flow.
3. Though it is hottest of all, the Earth's inner _____ is packed so tightly that it stays solid.
4. Mountains, hills, valleys, and beaches are examples of Earth's _____.
5. _____ is hot, melted rock that pushes up toward Earth's surface because it is full of gases.
6. When a volcano erupts, melted rock called _____ is forced out.
7. The action of _____ changes a boulder into a pebble over time.
8. Bits of rock can be picked up and carried by wind, water, and glaciers in a process known as _____.

Notes for Home: Your child learned the vocabulary terms for Chapter 8.
Home Activity: Use vocabulary words in sentences that you and your child make up. Then have your child draw pictures to illustrate the words.

Name _____

Lesson 1 Review

Use with pages 223–225.

Reviewing Terms: Sentence Completion

Complete each sentence with the correct word.

_____ **1.** The _____ is the outer layer of Earth. (crust, core)

_____ **2.** Earth's middle layer is the _____. (core, mantle)

_____ **3.** The innermost layer of the Earth is the _____. (crust, core)

_____ **4.** _____ are solid features on Earth's crust. (Oceans, Landforms)

Reviewing Concepts: Matching

Match each landform with the correct description. Write the letter on the line next to each description.

_____ **5.** a large, mostly flat area	**a.** valley
_____ **6.** the land next to the ocean	**b.** plain
_____ **7.** a low, narrow area	**c.** coast
_____ **8.** a high place	**d.** hill

Writing

Use complete sentences to answer question 9. (2 points)

9. Write a short paragraph that describes Earth's layers.

_____

_____

_____

_____

_____

Name _____

Lesson 2 Review

Use with pages 226–229.

Reviewing Terms: Sentence Completion

Complete each sentence with the correct word.

_____ 1. _____ is hot, melted rock under the ground. (Lava, Magma)

_____ 2. Melted rock that has come out of a volcano is called _____. (lava, eruption)

Reviewing Concepts: True or False

Write **T** (True) or **F** (False) on the line before each statement.

_____ 3. Magma forms in Earth's core.

_____ 4. A volcano is an opening in Earth's crust.

_____ 5. When lava cools, it becomes sedimentary rock.

_____ 6. Magma collects underground in magma chambers.

_____ 7. Earthquake vibrations travel as waves.

_____ 8. The farther an earthquake is from a city, the more damage it causes there.

Applying Strategies: Sequence

Use complete sentences to answer question 9. (2 points)

9. Using the clue words in the sentences, write the steps of a volcanic eruption in the correct order.

Next, magma pushes up through cracks in Earth's crust.
First, magma forms deep in the Earth.
Finally, lava cools and hardens, forming igneous rock.
Then magma comes out of the volcano and is called lava.

_____

_____

_____

_____

Name _____

Lesson 3 Review

Use with pages 230–233.

Reviewing Terms: Matching

Match each description with the correct word. Write the letter on the line next to each description.

_____ 1. any action that breaks rocks into smaller pieces

_____ 2. the movement of broken rocks and Earth materials

a. erosion

b. weathering

Reviewing Concepts: Sentence Completion

Complete the sentence with the correct word or phrase.

_____ 3. Landforms _____ change. (always, never)

_____ 4. Plant's roots can cause _____. (weathering, erosion)

_____ 5. _____ makes water expand and crack rocks. (Freezing, Thawing)

_____ 6. Rainwater causes soil loss by _____. (erosion, gravity)

_____ 7. In dry areas like deserts, _____ causes most of the erosion. (wind, water)

_____ 8. A mudflow is caused by _____. (wind, gravity)

Applying Concepts: Comparing Numbers

9. Using the list below, tell what kind of rock is 10 times larger than a pebble. Explain how you know. (2 points)

Sizes of Rocks

Boulder	300 mm	Cobble	100 mm
Pebble	30 mm	Sand	1 mm

_____

_____

Measuring an Earthquake

The Richter scale measures the strength of earthquakes. Very weak earthquakes have a number from 1 to 3. The strongest earthquakes measure 7 or 8 on the Richter scale.

Richter Magnitude	Effects	Number
Less than 2.0	Not felt	About 8,000 per day
2.0–2.9	Usually not felt	About 1,000 per day
3.0–3.9	Often felt, but rarely causes damage	49,000 per year
4.0–4.9	Not much damage likely	6,200 per year
5.0–5.9	Damage to poorly made buildings over a small area	800 per year
6.0–6.9	Property destroyed over an area up to 100 miles across	120 per year
7.0–7.9	Serious damage over a larger area	18 per year
8.0 or greater	Serious damage in areas several hundred miles across	1 per year

Use the table to answer the questions.

1. About how many earthquakes with a magnitude of 5.0 to 5.9 occur each year? _____

2. What effects can an earthquake with a magnitude of 6.0 to 6.9 have? _____

   _____

3. How would you describe the relationship of the size, or magnitude, of earthquakes and the number of earthquakes that occur each year? _____

   _____

   _____

Notes for Home: Your child learned how earthquake size and strength are measured.
Home Activity: Talk with your child about any earthquakes in your area. Visit a library or Web site to learn about what to do for safety during an earthquake.

Vocabulary Riddles

Write the vocabulary word from the box that answers each riddle.

crust	mantle	core	magma

1. I am what you find inside an apple. I am the word

_____.

2. I am what you find on the outside of a pie. I am the word

_____.

3. The word "man" is part of me. I am the word

_____.

4. I am a mother with a "g" in it. I am the word

_____.

Answers: 1. core, 2. crust, 3. mantle, 4. magma

Word Puzzle

Use the words below to complete the puzzle about Earth. Write one letter in each box.

earthquake	**erosion**	**lava**
volcano	**weathering**