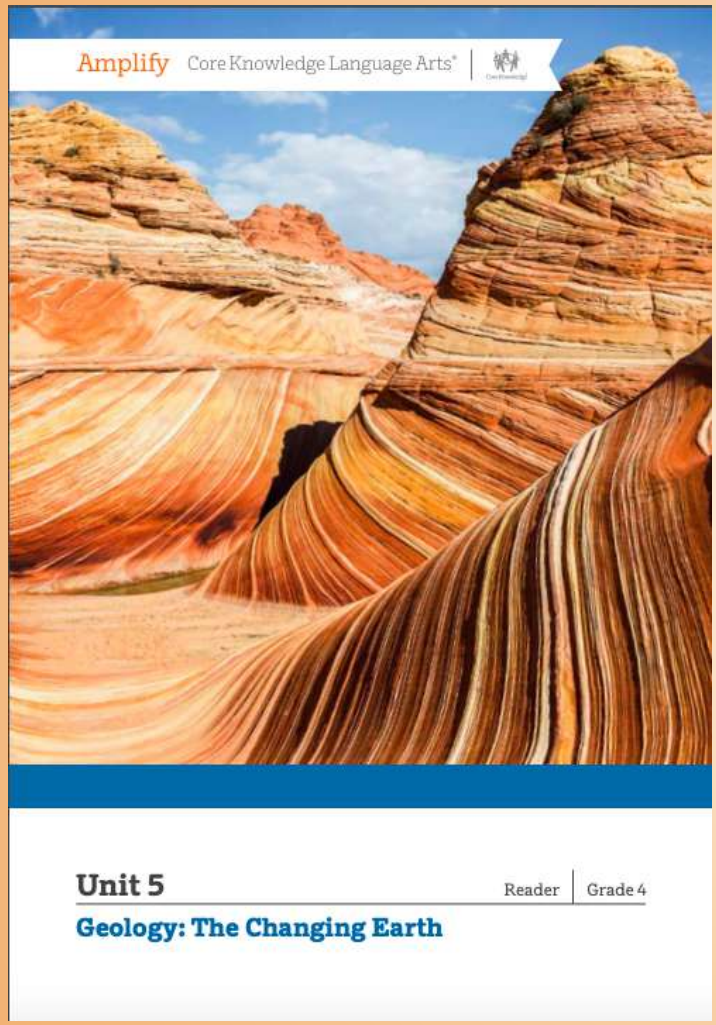
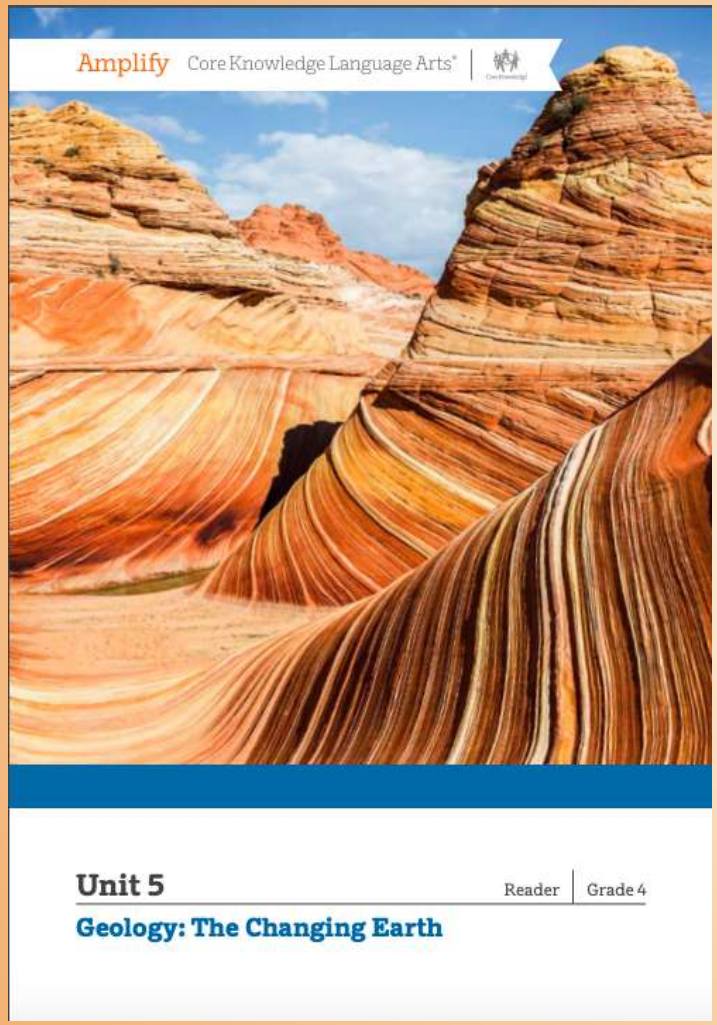


Today we will begin a unit called Geology. The reader is called: The Changing Earth. That gives you a hint about the topics that we will be learning about during this unit.

Turn to your partner and share two things you know or think you know about the earth.

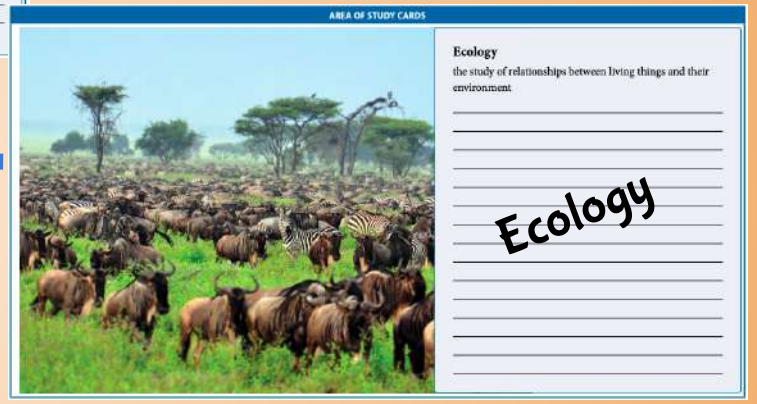


Take a minute or two to look through the reader. You can take a look at the Table of Contents, pictures, diagrams, etc.

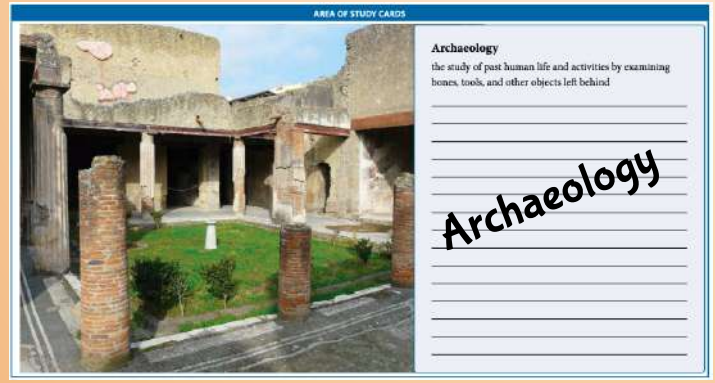
What are you most interested in learning about? Write it on a post it and put it on the poster on the cabinets.

There are many ways to study and learn about the earth. Take a look at these areas of study!

the study of the characteristics of earth 's surface



the study of relationships between living things and their environment



the study of past human life and activities by examining bones, tools, and other objects left behind

NAME: _____ **1.1** ACTIVITY PAGE

DATE: _____

Areas of Study about the Earth

Read the questions related to areas of study about the earth. Discuss the questions with your group and identify those that relate to the area of study on your group's card. Write the related questions on the card.

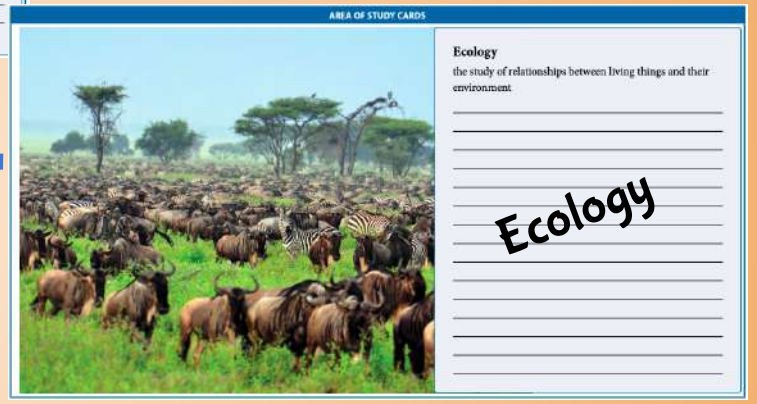
- What are Earth's seven continents?
- What clues do the ruins of ancient buildings provide about the ancient Roman civilization?
- What is the name for the place where an animal or plant normally lives and grows?
- What can cause changes in an ecosystem?
- What was the city of London like in the Middle Ages?
- What are the names of the oceans of the world?
- How would you describe the tropical rainforest of the Amazon River?
- What features were common characteristics of ancient Islamic mosques?
- What are the four main directions on a map?
- What features make up the environment?
- What are the names of important rivers of the world?
- What do the pictures embroidered on the Bayeux Tapestry illustrate?

Each question on Activity page 1.1 relates to one of the areas of study. Which question matches with each area of study? Let's try a couple, and then you will do some with a partner or small group.

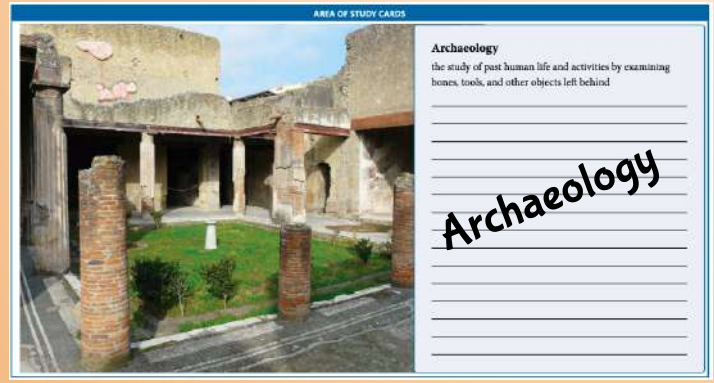
I am going to put up the definitions again to help you! You have 5 minutes and then we will share out our conclusions!

Let ’s go back to this slide as a tool to help you do Activity page 1.1.

the study of the characteristics of earth ’s surface



the study of relationships between living things and their environment



the study of past human life and activities by examining bones, tools, and other objects left behind

AREA OF STUDY CARDS

Geology

the study of the earth's characteristics, what it is made of, and the forces and processes that shape and change it

There is one more area of study about the earth: geology!

We are going to look at 4 images related to geology and come up with some questions that geologists might ask about these pictures.

Image 1

What are some questions people studying geology may have about what they see in this picture?

Image 2

What questions might geologists ask?

Image 3

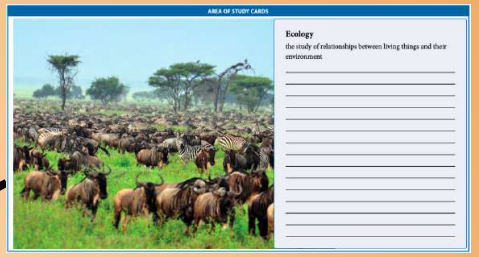
What questions might geologists ask?

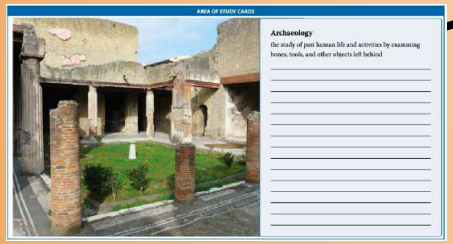
Image 4

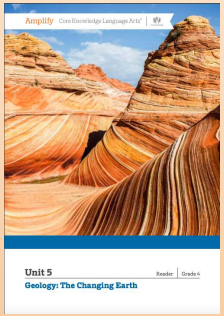
What questions might geologists ask?

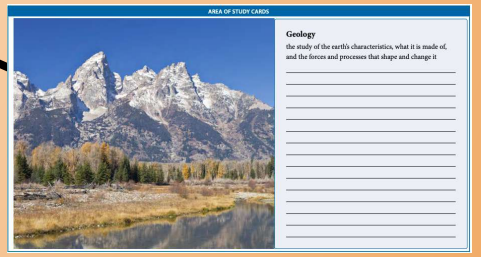
Let's choose 4 questions to record on our geology card so that we can finish our web!

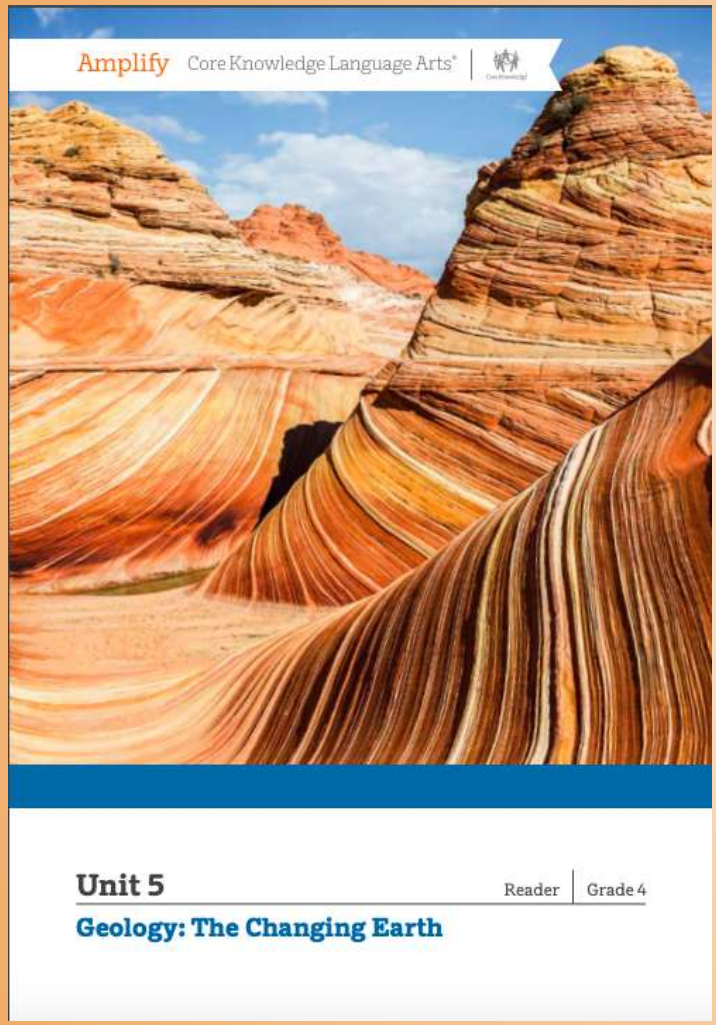
Now let's get to our reader to see if we can find the answers to any of our questions!











Genre Review

This reader is a nonfiction, informational book. What does that mean?

Before we start reading, let's go over some vocabulary...Turn to Activity page 1.2 (workbook page 3)

Vocabulary for "Earth's Changing Surface"

1. **catastrophe**, ***n.*** a terrible, sudden event (**catastrophes**) (2)

2. **erupt**, ***v.*** to send out rock, lava, and ash in a sudden explosion (**erupted**, ***n.*** **eruption**) (2)

3. **observation**, ***n.*** **1.** the act of paying careful attention to gather information; **2.** a statement based on paying careful attention to something (**observations**) (4)

4. **evidence**, ***n.*** proof; information and facts that are helpful in forming a conclusion or supporting an idea (4)

5. **fossil**, ***n.*** the preserved remains of things that lived long ago (**fossils**) (4)

6. **geologist**, ***n.*** a scientist who studies the makeup of the earth and the forces and processes that shape and change it (**geologists**) (6)

7. **climate**, ***n.*** the average weather conditions of a particular area (7)

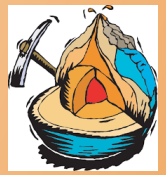
8. **conclude**, ***v.*** to decide something or form an opinion based on information you have (**concluded**, ***n.*** **conclusion**) (7)

9. **dense**, ***adj.*** thick or heavy (**denser**) (8)

10. **hypothesis**, ***n.*** an idea that has been suggested and may be true but has not yet been proven (9)

11. **continental drift**, ***n.*** a process in which continents slowly move over time on the surface of the earth (9)

Let's echo read the words and then we will discuss a few unfamiliar words!



Chapter 1

Earth's Changing Surface

THE BIG QUESTION
How did people's understanding of what was happening on Earth's surface change over time?

1570 CE world map

If you had lived in Europe during the Middle Ages, the idea that the earth changes would have seemed crazy. At that time, people believed that mountains, valleys, and other landscape features had always been there. True, rare natural **catastrophes** sometimes occurred. Earthquakes, for example, shook the ground and triggered landslides. In some places, volcanoes **erupted** and sent up fountains of lava, or red-hot melted rock. However, people viewed these catastrophes as punishments from God, not as the earth changing.

2

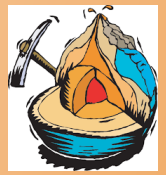
THE BIG QUESTION
How did people's understanding of what was happening on Earth's surface change over time?

Turn to page 2 in your reader and follow along as we listen to the chapter read aloud.

During the 1700s and 1800s, what observations were made from evidence gathered over long periods that indicated Earth's surface features do change?

How did evidence of change on the earth's surface over time help Wegener develop his continental drift hypothesis?

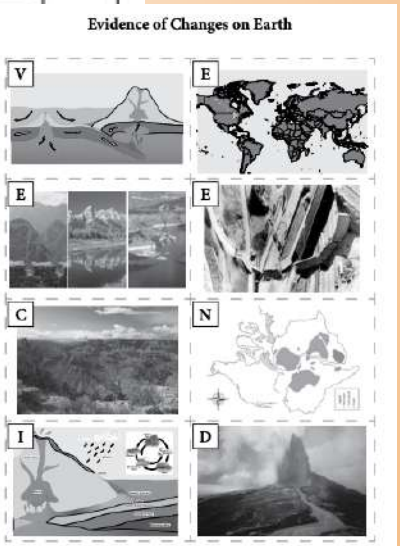
Now let's turn to Activity Page 1.3 (workbook page 5) to look at the Evidence Collector's Chart

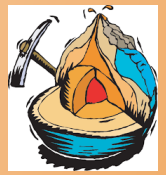


Evidence Collector's Chart

Chapter #	What is the cause?	What evidence is there?	Letter
	At some point, Pangaea broke apart and the pieces slowly moved apart over a long period of time.		
	Tectonic plates move very slowly due to the heat and pressure in Earth's mantle.		
	Material in the mantle moves beneath stuck rocks at a fault, causing pressure to build over time and then suddenly release as the rocks break and slip past each other, shaking the ground.		

We will be filling out 1 row of the Evidence Collector's Chart for every chapter. We will choose an evidence image from Activity page 1.4 for each row and give an explanation. Let's do row 1!





Word Work: dense

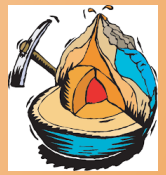
Text Example:
"Basalt is a heavy, dense rock formed from cooled, hardened lava."

Meaning:
thick or heavy

Part of speech:
adjective

My Example:
"The dense fog blocked our view of the mountaintop."

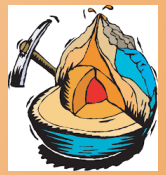
Do you have any examples of the word dense?



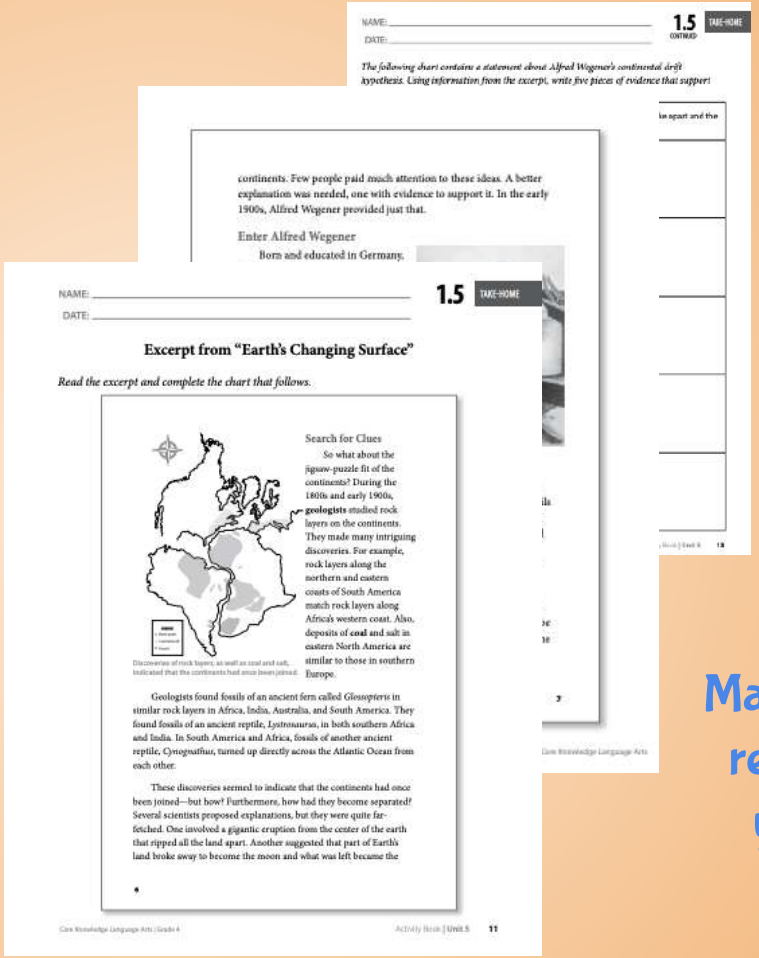
dense

not dense

OR



HOMEWORK



NAME: _____ DATE: _____ 1.5 CONTINUED TAKE-HOME

The following chart contains a statement about Alfred Wegener's continental drift hypothesis. Using information from the excerpt, write five pieces of evidence that support

continents. Few people paid much attention to these ideas. A better explanation was needed, one with evidence to support it. In the early 1900s, Alfred Wegener provided just that.

Enter Alfred Wegener

Born and educated in Germany,

NAME: _____ DATE: _____ 1.5 TAKE-HOME

Excerpt from "Earth's Changing Surface"

Read the excerpt and complete the chart that follows.

Discoveries of rock layers, as well as coal and salt, indicated that the continents had once been joined.

Search for Clues

So what about the jigsaw-puzzle fit of the continents? During the 1800s and early 1900s, **geologists** studied rock layers on the continents. They made many intriguing discoveries. For example, rock layers along the northern and eastern coasts of South America match rock layers along Africa's western coast. Also, deposits of **coal** and salt in eastern North America are similar to those in southern Europe.

Geologists found fossils of an ancient fern called *Glossopteris* in similar rock layers in Africa, India, Australia, and South America. They found fossils of an ancient reptile, *Lystrosaurus*, in both southern Africa and India. In South America and Africa, fossils of another ancient reptile, *Cynognathus*, turned up directly across the Atlantic Ocean from each other.

These discoveries seemed to indicate that the continents had once been joined—but how? Furthermore, how had they become separated? Several scientists proposed explanations, but they were quite far-fetched. One involved a gigantic eruption from the center of the earth that ripped all the land apart. Another suggested that part of Earth's land broke away to become the moon and what was left became the

Core Knowledge Language Arts | Grade 4 Activity Book | Unit 5 11

Activity 1.5

Read and complete chart.

Make sure you are ready to discuss your answers tomorrow!