

Lesson 11:

Weathering and Erosion, Part 2



Close Reading of Earth's Powerful Forces of Change



Read the first paragraph on page 63 to yourself. *Swinging* means “shifting from one condition to another”. What is meant by the phrase, “widely swinging temperatures”?



Physical weathering breaks big rocks into smaller ones without changing the minerals they contain. Widely swinging temperatures cause physical weathering. For example, rocks in a desert bake during the day beneath the sun's scorching heat. As rocks get hot, they **expand**. At night, temperatures in the desert fall. As rocks cool down, they **contract**, or shrink slightly. Expand, contract, expand, contract—this endless cycle gradually causes the rocks' outer layer to crumble or flake off.



How do these “widely swinging temperatures” cause physical weathering?



Another gas in the air—oxygen—causes chemical weathering in rocks. With a little help from water, oxygen reacts with iron-containing minerals. The reaction changes the minerals, making the rocks brittle and crumbly, and turning them a rusty red color.

Some plants release rock-weathering substances. Take a peek under a patch of moss growing on a rock and you'll see little pits in the rock's surface. Acid from the moss plant caused the damage.

As a result of all weathering, rocks are broken down into smaller pieces and **ultimately** into sediments. Erosion is what gets those sediments moving.

What does the author mean by phrase *with a little help from water*?





Reread the third
paragraph on page
66!

Sediments on the Move

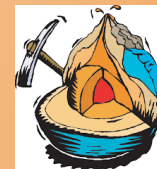
Geologists describe erosion as any process or force that moves sediments to new locations. Wind, flowing water, moving ice, and gravity all transport sediments from place to place. These forces are the primary causes of erosion.

Have you ever stood on a sandy beach on a windy day? Did you notice that gusts of wind sent sand flying past? When air moves quickly across the ground, it picks up sediments and carries them away. Powerful winds can carry sediments for hundreds, even thousands, of miles.

On the windy beach, did your skin sting as it was struck by blowing sand? Wind carrying sediments can act like a sandblasting machine to wear away rocks in its path. When wind-driven sand



What do you think a sandblasting
machine is?



Heading Downstream

Like wind, water also causes erosion. The tug of gravity pulls sediments out of wind and water. Flowing water picks up sediments and carries them downhill to new locations. A summer rain can wash fine sediments onto sidewalks and into gutters. A rushing mountain stream can sweep small stones into a valley. A flooded river can surge along with enough force to move large rocks many miles downstream.

As moving water slows, sediments sink to the bottom of the river or stream. The heaviest sediments are the first to be deposited. The finest sediments are the last. Layers of sediment accumulate at the mouths of rivers and on the bottoms of lakes. Vast layers of sediment are also deposited on the ocean floor over long periods of time. Like wind-deposited sediments, those laid down by water may someday be transformed into sedimentary rock.

Reread the first two paragraphs
on page 69 to yourself.

The text states, "The heaviest
sediments are the first to be
deposited. The finest
sediments are the last."

Why does that make sense?

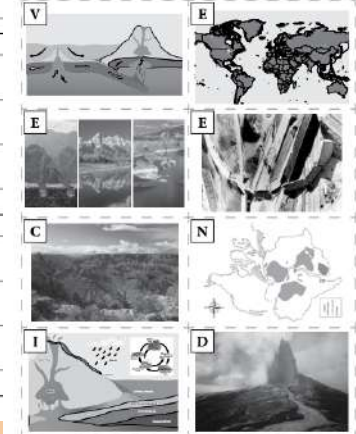


Time to complete
row 6 of the
Evidence
Collector's Chart.



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.		

Evidence of Changes on Earth



ADJECTIVES

Adjectives are words that describe nouns. Adjectives provide details about nouns, such as size, color, shape, or material.




a, an, the are special kinds of adjectives called articles.

Did you know that there is a “rule” for the order that adjectives should be used when more than one adjective is used?

a big red balloon or a red big balloon?

ADJECTIVES CHART						
Article	Adjective(s)					Noun
	General → Specific					
	Opinion/ Observation	Physical Description (size, shape, age, color)	Material	Origin	Purpose	





Put these words in order to make a sentence!

read old I a Russian folktale scary

TRY THIS

1. What is the subject?
2. What is the verb?
3. Which words are adjectives?
4. What would they be describing and what order should they be used?

I read a scary, old, Russian folktale.





4. old the erupted Hawaiian tall volcano

Write a sentence using at least two adjectives and an article. Be sure to order the words appropriately and to use proper capitalization and punctuation.

NAME: _____
DATE: _____

11.1

TAKE-HOME

Sequencing Multiple Adjectives

Article	Adjective(s)					Noun
	General → Specific					
	Opinion/ Observation	Physical Description (size, shape, age, color)	Material	Origin	Purpose	

Rearrange the words in the sentence so they are ordered correctly. Be sure to use proper capitalization and punctuation.

Example: wears she new green dress

HOMEWORK

1. the water round data little vessel collects

2. big red a round apple fell

3. we farm old visited a small

Turn to Activity Page 11.1
(workbook page 105).

We will look at the
directions and an
example. Then we will
do the first one together.

The rest will be
homework!



ROOTS AND SUFFIXES

suffix **—ly** meaning “in a _____ way” where the blank is the word that the suffix is added to (i.e. quickly means “in a quick way”)

suffix **—y** meaning “full of” (i.e. tasty means “full of taste”)

root **graph** meaning “write”

root **rupt** meaning “to break or burst”



ROOTS AND SUFFIXES

Root	Meaning	Affixed Word	Meaning
kind	(adj) doing good for others	kindly	(adv) in a kind way
mess	(noun) a state of disorder	messy	(adj) full of disorder
graph	write (Greek root)	autograph	(noun) written signature
rupt	to break or burst (Latin)	interrupt	(v) to stop by breaking through





9. The bookshelf at the library was so _____ and disorganized that I couldn't find the book I wanted to check out.
10. Her dinner was very _____, so she ate it all and even asked for more.

For each word remain

1. _____

2. _____

NAME: _____

DATE: _____

11.2

TAKE-HOME

Review Suffixes *-ly* and *-y* and Roots *graph* and *rapt*

Write the correct word to complete each sentence. Words will not be used more than once.

messy	taste	interrupt	mess
kindly	biography	tasty	busily
abruptly	busy	kind	photograph

1. It was _____ of the manager to drop the money I dropped and return it to me.
2. Scientists received warning of a tsunami wave far out in the ocean, so they were _____ working to warn people before it reached land.
3. She didn't want to _____ the discussion but it was time for her to leave, so she said they would talk again later.
4. Someone wanted to write a(n) _____ about the geologist, but he declined because he was writing his own life story in an autobiography.
5. My dad and my sister do not like the _____ of tomatoes but my mom and I love it.
6. They had to leave the soccer game _____ and seek shelter when an announcement was made of an approaching storm.
7. She _____ agreed to take care of our dog while we went on vacation.
8. My favorite _____ from the slideshow was the one that showed the Grand Canyon.

HOMEWORK