

**State Language:**

The student models earth's cycles, constructive and destructive processes and weather systems.

- Distinguish between constructive processes (e.g., any type of deposition, mountain building) and destructive processes (e.g., weathering and erosion, mass movement of material from high to low elevations).
- Distinguish between specific examples of fast and slow processes that shape Earth's surface. (The relative time frame may need to be stated to determine speed of process.)
- Describe the processes and causes of weathering, erosion, and deposition.
- Understand that Earth's climate has undergone dramatic global changes in climate in the past and cite evidence (e.g., fossils, landforms, glacial action, rock layers, and ancient ocean beds). (See also S.7.4.2.1. for causes of global climate changes.)
- Understand the effects of global ocean and wind currents.
- Understand the effects of landforms and bodies of water on weather systems.
- Explain how temperature and pressure differences cause wind patterns.

**Student Friendly Language:**

I will be able to describe weathering, erosion, and deposition. I will be able to distinguish between constructive processes and destructive processes. I will understand the effects of global ocean and wind currents and the effects landforms and bodies of water have on weather systems.

**Concept (Students will know):**

What affects weather systems?  
 What shapes our planet's surface?

**Skills (Students will do):**

Model  
 Distinguish  
 Describe  
 Explain

**DOK Level:**

**2**

**Big Ideas:**

The Earth's resources are recycled.  
 Weather is...

**Essential Questions:**

What affects the weather?  
 What processes shape our Earth's surface?

**Core Materials**

Earth's Changing Surface  
 Chapter 2 Section 1-4  
 Chapter 3 Section 1-3

**Supplemental Materials:**

**Teaching Strategies:**

**Mastery Check items:**

1. Ocean currents and global wind patterns, which are caused by convection currents, most strongly affect a region's...
  - A. Climate
  - B. Population size
  - C. Latitude
  - D. Day length
  
2. Water is cooler near the poles and warmer near the equator. Movement of cooler and warmer water from these regions moderates the global climate. Which of the following describes the movement of water between the poles and the equator?
  - A. Gravity
  - B. Ocean Currents
  - C. Tides
  - D. Evaporation
  
3. At the seashore late in the afternoon on a hot, sunny day, a person often feels a strong breeze coming in from the ocean. Which of the following is the reason for the breeze?
  - A. The pounding waves generate air currents.
  - B. The warm air over the ocean rushes in to replace the cool air that rises over the land.
  - C. The dense, cool air over the ocean rushes to replace the warm air that rises over the land.
  - D. There are no clouds to block the wind coming in from the ocean.
  
4. The theory of continental drift suggests
  - A. that the configuration of the continents today will be the same in 200 million years.
  - B. that there was once a supercontinent and the huge land mass was broken into continents that drifted apart.
  - C. that continents are fixed in position and considered to be permanent features on the Earth's surface.
  - D. that all the continents drift, at the same rate and in the same direction.
  
5. Which of the following provided evidence at first for the hypothesis of continental drift and later for the theory of plate tectonics?
  - A. indicators of climate change
  - B. matching fossil remains
  - C. matching rock types
  - D. all of these

6.

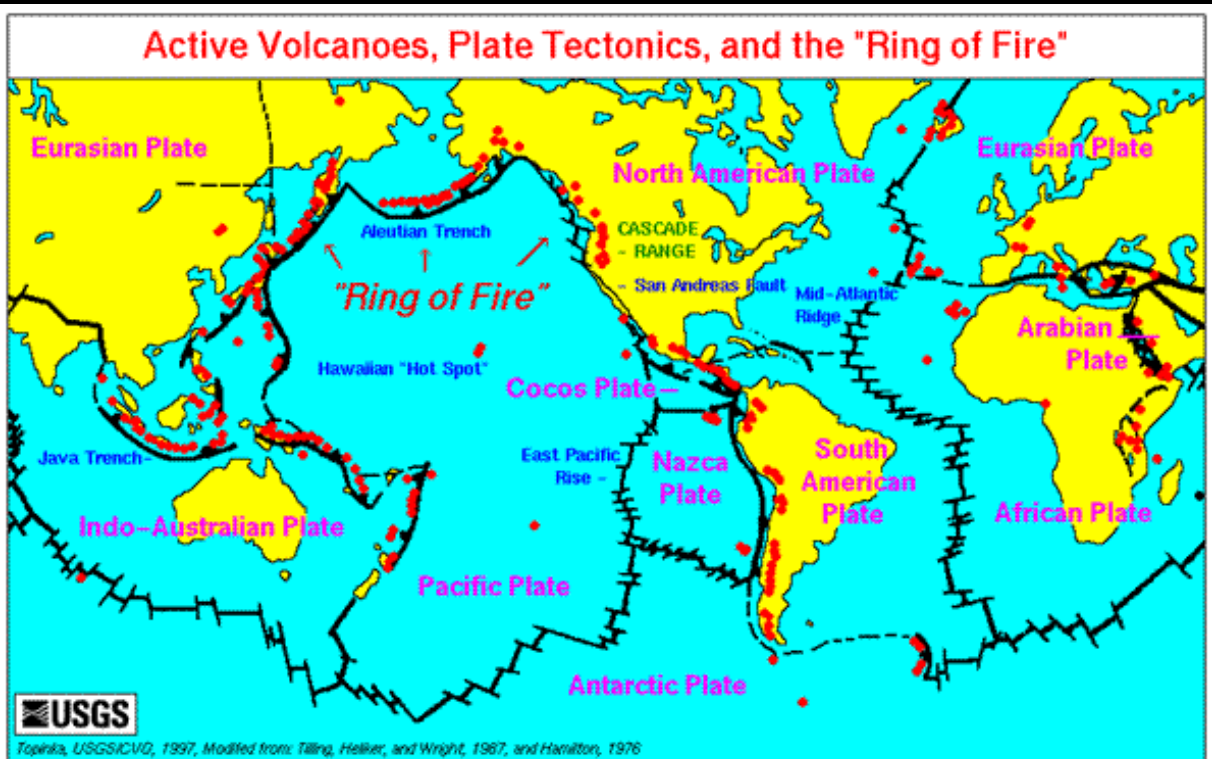


Image from

[http://vulcan.wr.usgs.gov/Glossary/PlateTectonics/Maps/map\\_plate\\_tectonics\\_world.html](http://vulcan.wr.usgs.gov/Glossary/PlateTectonics/Maps/map_plate_tectonics_world.html)

The world map above shows the locations of tectonic plate boundaries (black lines) and active volcanoes (red dots). Based on this map, volcanoes most commonly form

- A. In Earth's polar regions.
  - B. near tectonic plate boundaries.
  - C. along Earth's equator
  - D. in the middle of tectonic plates
7. Different types of crust react in different ways when they collide with another piece of Earth's crust. Which of the following plate collisions would most likely result in the formation of the most extensive mountain range?
- A. a piece of continental crust and a piece of oceanic crust meeting at a convergent boundary
  - B. a piece of continental crust and a piece of oceanic crust meeting at a divergent boundary
  - C. two pieces of oceanic crust meeting at a transform boundary
  - D. two pieces of continental crust meeting at a convergent boundary
8. A subduction zone is an area where one tectonic plate sinks underneath another one. Volcanoes often form as a result. Which of the following plate collisions would most likely result in a subduction zone?
- A. a piece of continental crust and a piece of oceanic crust meeting at a divergent

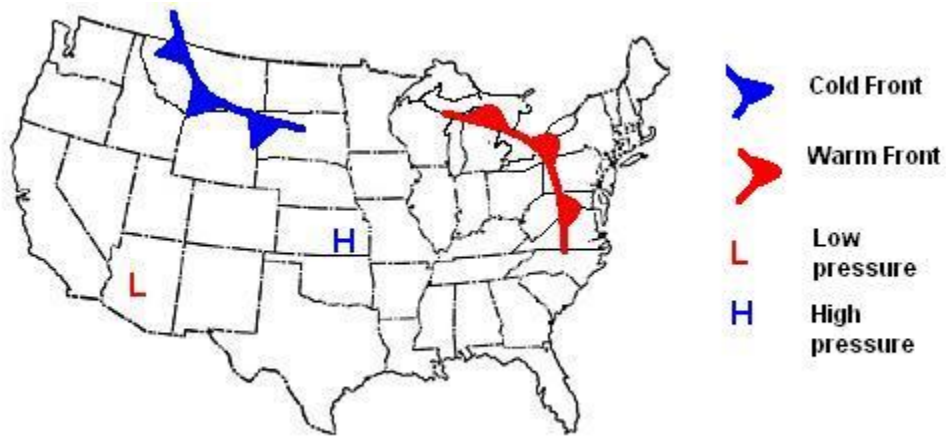
boundary

- B. two pieces of continental crust meeting at a divergent boundary
  - C. a piece of continental crust and a piece of oceanic crust meeting at a convergent boundary
  - D. two pieces of oceanic crust meeting at a convergent boundary
9. Shorelines change rapidly. Erosion and deposition are two processes with opposite effects that shape shoreline features. Which of the following shoreline processes is an example of deposition?
- A. wave removal of sand from beaches
  - B. accumulation of mud in bays
  - C. carving of sea cliffs by waves
  - D. breakdown of gravel into sand
10. Acidic water can react with limestone to break the rock down and form caves in the Earth's surface. This is an example of \_\_\_\_\_, which happens \_\_\_\_\_ over time.
- A. chemical weathering, quickly
  - B. chemical weathering, slowly
  - C. physical weathering, quickly
  - D. physical weathering, slowly
11. Which cause of weathering would be able to crack a large boulder in half?
- A. Acid rain
  - B. Sand Storms
  - C. Water flowing in streams
  - D. Thawing and freezing of water
12. Which of the following can be destructive to Earth's surface?
- A. Hurricane
  - B. Volcano
  - C. Rainstorm
  - D. All of the above
13. A cold front drops in from Canada and encounters warmer air, as shown on the map. Which prediction best shows the changes that may happen at point X?



- A. Warm air and cold air will mix, resulting in no change.
- B. Warm air and cold air will mix, resulting in a clear day.
- C. Cold air will rise over the warmer air, forming clouds and precipitation.
- D. Warm air will rise over the colder air, forming clouds and precipitation.

14.

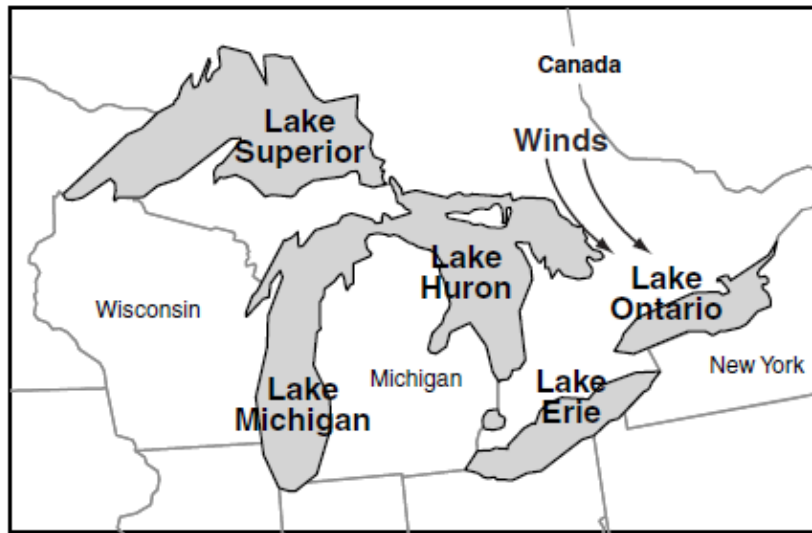


Look at the map above. What type of weather is the northwest having?

- A. foggy weather
- B. snowy weather
- C. cold weather
- D. warm weather

15.

Shannon lives in an area of New York that frequently has air temperatures below freezing in winter. Windy conditions also occur and are caused by air that originates in Canada and blows across the Great Lakes.



**Great Lakes**

Which of the following will occur with low winter temperatures as the air mass moves from Canada to New York?

- A. The northern air mass will mix with water vapor to form rain.
- B. The air mass will collide with water vapor, decreasing humidity.
- C. Water vapor will be removed from the air as it passes over the lake.
- D. Moisture collected from the lake may be released as snow over the cold land.

[Answer Key](#)