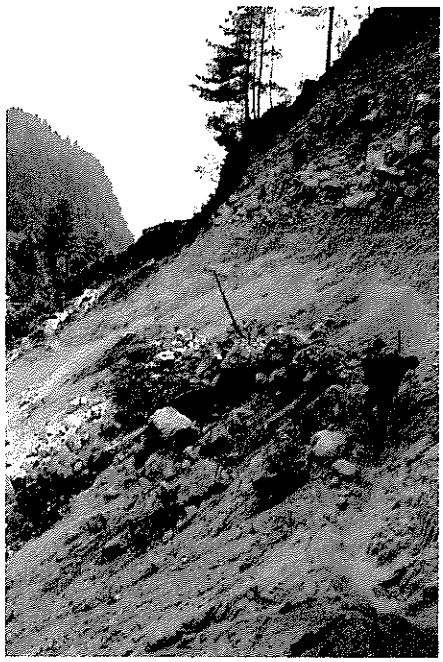
Name: Date:

Changes to Earth's Surface: Fast and Slow, Local and Global

Earth's surface is always changing.[1]



Most of the time you can't see it, but Earth's surface is always changing. Some of the changes are slow or gradual, and some are rapid or fast. Some changes happen over large areas, and some are local. The landslide in the image to the right is a sudden movement of soil. This type of change is usually local, occurring in a small area.

Earth is also undergoing gradual changes that are global in scale. Global changes are taking place over the Earth. Slowly, very slowly, new mountain chains are built. Some oceans are getting wider, while others are slowly disappearing. Some continents are breaking apart, while others will, someday, join together. In the past, giant, moving sheets of ice called glaciers have also caused changes to huge areas of Earth's surface.

Local changes include earthquakes, landslides, erosion, and volcanic eruptions.

Wind, water, or ice can caused erosion. Erosion is the movement of soil or sediment (broken pieces of rock) from one area to another. Landslides are a sudden movement of the side of a hill or mountain due to gravity. Landslides and erosion both occur more often on hilly, sloping, or mountainous areas. They are also more common after forest fires, rainfall, and in areas where trees have been lost or cut down.

Landslides happen very rapidly. Erosion can be slow or fast. After a rainstorm, you can often see the results of erosion in your own area. A road may be covered with soil and small rocks

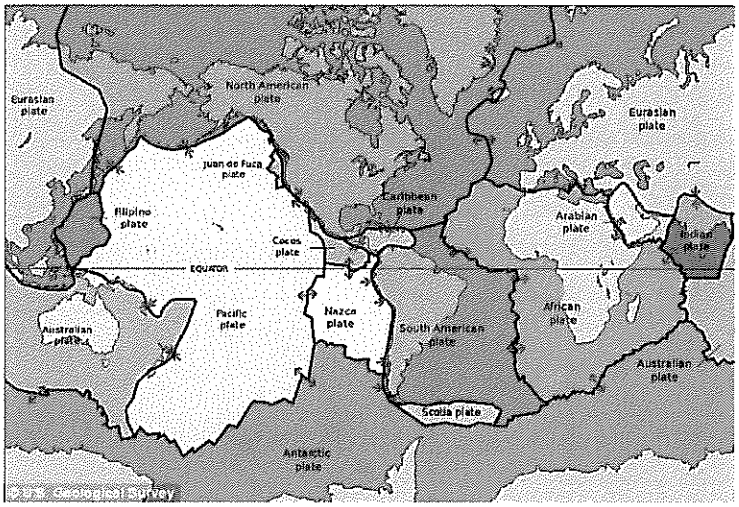
---

[1] Landslide image author: Niklassletteland, Creative Commons Attribution-Share Alike 3.0 Unported license.

washed away from high areas. Erosion can also be a slow change. The tallest mountains will one day be worn down by erosion into flat land by erosion. This change happens very slowly, over millions or hundreds of millions of years.

Earthquakes and volcanic eruptions are natural disasters that cause sudden changes to Earth's surface. These natural disasters affect a local or sometimes a regional area. A volcanic eruption may change the shape of a mountain and blanket an area with ash. An earthquake may cause cracks in the Earth and bring down mountainsides.

Global changes happen very slowly and are caused by the movement of Earth's plates.



Earth's surface is broken into giant pieces called plates that are always moving. These plates may move toward each other, away from each other, or side by side. The plate that the continent of Europe rides on is moving away from the North American plate at a rate of about an inch per year. At the same time, the Pacific Ocean is shrinking. The Pacific Plate is being drawn under the plates that ring the Pacific Ocean. Part of Africa is moving away from the rest of it as the Red Sea in northeast Africa grows wider. These changes will take hundreds of millions of years, but they will affect large areas of our planet.

The Earth has undergone several of what are called "Ice Ages" in the past. These are times when changes in Earth's orbit and rotation caused the entire planet to get colder. During these times. ice sheets slowly form over the parts of the continents that are near the poles.

So while you may think of Earth as steady and unchanging, the rock under your feet, it isn't at all! Earth is always changing, whether you see it or not!

What to do:

Show what you have learned by making a T-chart with two columns. The heading for one of the columns should be "Local or Regional Changes." The heading for the other column should be "Global Changes." Under each heading, write notes about what you have earned about each type of change.

POSSIBLE ANSWERS:

LOCAL OR REGIONAL CHANGES	GLOBAL CHANGES
earthquakes	"ice ages"
landslides	oceans get wider
erosion	continents break apart or join together
volcanic eruptions	