

Chapter 3: The Dynamic Earth
Section 1: The Geosphere
Environmental Science

Introduction: The Earth as a System

What are the four parts that make up the earth?

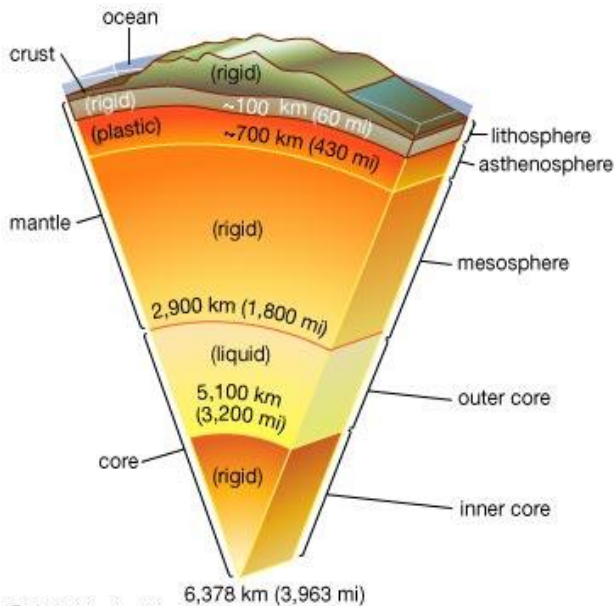
1. _____
2. _____
3. _____
4. _____

The Geosphere – the solid part of the earth that consists of all _____ and the _____ and _____ on the earth’s surface

Three basic layers:

More detailed layers of the earth:

1. _____ - thin outer layer of the earth
2. _____ – crust plus rigid upper mantle divided into huge pieces called _____
3. _____ – solid, plastic layer of the mantle between the lithosphere and the mesosphere; made up of rock that flows very slowly; this layer is what moves the tectonic plates
4. _____ – lower layer of the mantle between the asthenosphere and the core
5. _____ – outer shell of earth’s core made of liquid nickel and iron
6. _____ – sphere of solid nickel and iron at the center of the earth



© 2006 Merriam-Webster, Inc.

Layer	Physical state	Temperature (°C)	Common elements
Crust			
Mantle			
Outer core			
Inner core			

How many tectonic plates do you have to learn? _____ What page are they on in your textbook? _____

On what are the continents located? _____
Who proposed the theory of continental drift? _____ When? _____ When was it accepted? _____

Milky Way Bar model:
Chocolate on top =
Caramel =
Nougat =

Write an explanation of why the tectonic plates move (after viewing the short video)

Three types of tectonic plate boundaries - move in three different ways:

- 1.
- 2.
- 3.

The supercontinent from which our modern-day continents came is called _____

Three things that can occur where tectonic plates come together:

- 1. _____ - occur where plates push together
- 2. _____ - occur along fault lines

What is a fault? _____
What is the difference between the epicenter and the focus of an earthquake?

List the two types of waves that earthquakes produce: _____
Which wave type is fastest and is felt first? _____
What does the Richter scale measure? _____

List four environmental effects of earthquakes:

What fault runs through the middle of the U.S.? _____

3. _____ - form when _____ comes out of cracks in the earth, especially near tectonic plate boundaries

The "ring of fire" is located around the _____ plate.

Local effects of volcanoes:
Global effects of volcanoes:

Mt. St. Helen's is in _____ and had a major eruption in the year _____.

What is erosion? _____

Name two famous places in the U.S. formed by erosion: _____

Soil is a thin covering over most land that is a complex mixture of eroded _____, mineral nutrients, decaying _____, water, air, and billions of living organisms, most of them microscopic _____.

3 reasons soil is important:

- 1.
- 2.
- 3.

Components of soil

- 1. _____
- 2. _____
- 3. _____
- 4. _____

Formation of soil depends on

- 1. _____
- 2. _____
- 3. _____
- 4. _____
- 5. _____

_____ = the base geologic material of soil
_____ = the continuous mass of solid rock comprising the Earth's crust

Definition of weathering:

Types of weathering: 1. _____ 2. _____ 3. _____

Decomposition is _____

Organic molecules are based on the element _____

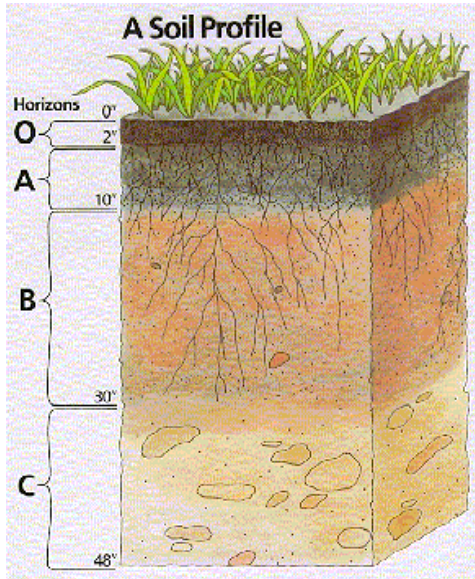
Organisms that carry out decomposition:

Macroscopic:

Microscopic:

Through decomposition, organisms obtain _____ and release _____

Color the soil profile and write a description next to each. Label the bedrock layer (R).



Definition of leaching:

Draw and label three soil particles showing relative size:

_____ is the rate at which water and air move from upper to lower soil layers

What is loam (the best type of soil for most plants)?

List three nutrients found in soil needed by plants:

What is another characteristic of soil that is important to plants? _____

Think and review: What does weathering contribute to soil?

What does decomposition contribute to soil?

Define sediment: _____

In Env. Science, we usually refer to sediment as particles that are moved by _____;

sediment settles out when the flow of water _____

Layers of sediment can settle out from water in layers to form _____

which can later be exposed to air and water, and undergo _____

to become _____ in rivers again.

Think and review:

How does the geosphere affect the biosphere?

How does the biosphere affect the geosphere?