

## Chapter 8 pre-assessment

1. How old is the Earth?

4.6 Billion

2. List Earth's layers and what they are composed of:

Core - ~~Iron~~ Nickel & Iron

Mantle - Molten Rock

Crust - Brittle outermost layer

3. What is the theory of plate tectonics? (List different plate boundary interactions)

Earth's lithosphere is divided into plates - most of which are in constant motion

- Convergent - Moving together - 3 types - continental - continental  
continental - oceanic  
oceanic - oceanic
- Divergent - Moving apart
- transform -

4. What are some environmental consequences of the tectonic cycle?

- Climates shifted relative to land
- Species evolved or went extinct
- Earthquakes, Volcanoes

5. What is the rock cycle? List the 3 basic rock types and how they are formed.

The constant formation & destruction of rock

Metamorphic - Heat & pressure

Igneous - Form from magma

Sedimentary - layers of mud, sand, gravel become compressed & cemented together  
typically form layers.

6. What is the difference between weathering and erosion? Why are both processes important?

Weathering  
is the ~~breakdown~~  
breakdown  
of rocks

Physical weathering - mechanical breakdown

Chemical weathering - Chemical rxns break down rock

Erosion - physical removal of rock fragments from a landscape or ecosystem

7. What are the factors that affect soil formation? (Hint: there are 5)

Parent material

Climate

Topography

Organisms

Time

8. What are the roles of soil in an ecosystem?

- Medium for plant growth
- Filters water
- Contains organisms that breakdown organic matter
- Filters chemical compounds

- Provides habitat for organisms.  
↳ Bacteria, fungi, insects, others

9. What are some of the physical properties of soil?

- Particle size
- Texture
- Porosity - (Pore space)
- Permeability - how well liquids flow through it

10. What are some of the chemical properties of soil?

CEC - cation exchange capacity - nutrient holding capacity

Base saturation - proportion of soil bases to soil acids

11. How do physical and chemical properties of soil affect plant growth?

Physical - certain mixtures of particle sizes have different types of vegetation grow in them

Chemical - High CEC + High base saturation - support high productivity

12. Why are economically valuable mineral resources distributed unequally around the planet?

Different ores form from different processes

Some form in high concentrations, others in low concentrations

13. Explain each of these surface mining techniques.

- Strip mining - removal of strips of soil + rock to expose ore
- Open pit mining - creation of large pit or hole (ex. copper mines)
- Mountaintop removal - Removal of top of mountain with explosives
- Placer mining - looking for metals or precious stones in river sediments

14. What are the consequences of surface mining vs. subsurface mining?

surface - soil erosion, damage to waterways, habitat fragmentation

subsurface - acid mine drainage - accidental burial, explosions + fires

15. What are these two laws?

- The Mining Law of 1872 - Regulate mining of silver copper and gold on federal lands
- The Surface Mining Control and Reclamation Act - regulates surface mining of coal and effects of subsurface coal mining.
  - minimal disruption
  - ~~mine~~ mine reclaimed after