

Earth's Structure & Processes Unit

Earth's Layers & Plate Tectonics

1. Describe the layers of the Earth in the chart below:

Layer	Density	Relative Position	Composition
Crust			
		Middle Layer, thickest layer, top portion called asthenosphere	
	Heaviest material, most dense layer		

2. Which layer of Earth do lithospheric plates float on?

3. What 3 things does the motion of the plates change of Earth's continents and oceans?

4. Complete the chart about the 3 types of boundaries below:

Boundary	Movement	Crust	Formation
Convergent		Some crust is destroyed	
	Two plates slide past each other		Earthquakes
Divergent			Mid-ocean ridges

5. How much do plates move every year?

6. What is the large landmass called from the time when all the continents were joined together?

7. How are folded mountains formed?

8. How are fault-block mountains formed?

9. In the chart below explain mountain-building forces:

Tension	
	Forces that cause rocks on either side of faults to push in opposite directions
Compression	

Earthquakes & Volcanoes

1. Explain what a seismograph is.
2. What is a seismogram?
3. Why do scientists study and record seismic data? What does this evidence prove?
4. Where are strong earthquakes more common?
5. What is an example of an active plate boundary? What does it mean to be active?
6. Where do volcanoes occur?
7. How do volcanoes form?
8. What is the Pacific Ring of Fire?
9. Describe a Hotspot.
10. How does magma form?
11. What causes the movement of lithospheric plates?
12. Where do earthquakes occur?
13. How do scientists use plate boundary maps?
14. What is spreading center volcanism, subduction zone volcanism, and intraplate volcanism?
15. What are some problems associated with earthquakes? How can we prepare for them?
16. What are some problems associated with volcanoes? How can we prepare for them?
17. What is the epicenter of an earthquake?
18. What are the vibrations called that spread out from the epicenter?
19. What is the focus of an earthquake?
20. Why are some volcanoes considered constructive?
21. Why are some volcanoes considered destructive?
22. Explain the difference between lava and magma.
23. What is a vent?

Rock Cycle & Processes

1. How does igneous rock form? What are some examples?
2. What are the two types of igneous rocks?
3. What is the difference between the formations of both types of igneous rocks?
4. How does metamorphic rock form? What are some examples?
5. What are two key words in the formation of metamorphic rock?
6. How does sedimentary rock form? What are some examples?
7. What are sediments?
8. How are sediments formed?
9. Define Weathering, Erosion, and Deposition. Give some examples.
10. What is the difference between chemical and physical weathering?
11. What do these processes effect? What do they cause?

Minerals, Ores & Fossil Fuels

1. Hardness, luster, color, texture, and density are all physical properties of _____.
2. What are physical properties? What are some examples?
3. What are chemical properties? What are some examples?
4. How is a mineral defined?
5. What is an ore?
6. What are fossil fuels?
7. What do fossil fuels give off when they are burned?

Earth's Geologic History Unit

Geologic Time Scale

1. List the units of time for the geologic time scale from biggest to smallest:
2. What are eras divided into?
3. What are periods divided into?
4. What are eons divided into?
5. What is the name of the first period?
6. What are the three major eras in Earth's history?
7. Which Eon do we live in?
8. Which era do we live in?
9. Which period do we live in?
10. Which epoch do we live in?
11. Answer each of the following with either Paleozoic, Mesozoic, or Cenozoic
 - a. Included simple mosses, ferns, cone-bearing plants
 - b. Small mammals and birds appeared
 - c. A mass extinction caused marine invertebrates to disappear
 - d. Flowering plants became common
 - e. The diversity of life forms increased
 - f. Reptiles were the dominant animals
 - g. Human are part of this era
 - h. Began with early invertebrates such as trilobites and brachiopods

Catastrophic Events

1. What are the three major catastrophic events?
2. Fill in the chart below about the events and how they affected each era

Catastrophic Event	Paleozoic Era	Mesozoic Era	Cenozoic Era

Index Fossils & Fossils

1. Complete the chart on fossils below:

Mold Fossil	
	Forms when a mold is filled with sand or mud that hardens into the shape of the organism
Petrified (permineralized) fossil	
Preserved fossil	
	Forms when organisms or parts, like leaves, stems, flowers, fish, are pressed between layers of soft mud or clay that hardens squeezing almost all the decaying organism away leaving the carbon imprint on the rock
Trace fossil	

2. Fossils give _____ to the _____ of living things over the history of Earth, give clues to past _____ and surface _____ on Earth, and give clues to _____ that have occurred with organisms over time.

3. What is the fossil record and why do we need it?

4. What is the law called that states that each rock layer is older than the one above it?

5. What is the difference between relative dating and absolute dating?

6. What is an index fossil?

7. Fill in the blanks:

To be an index fossil:

- a. An organism must have lived only during a _____ part of Earth's history
- b. _____ fossils of the organism must be found in rock layers
- c. The fossil must be found over a _____ of Earth
- d. The organism must be _____

8. What organism is a key example of an index fossil that has a hard shell, three sectioned body, lived in shallow seas and became extinct about 245 million years ago?

Adaptations & Variations

1. Define the following terms:
 - a. Variation
 - b. Adaptation
 - c. Natural selection
2. Circle which is non-life threatening (Variation or adaptation)
3. What are two types of adaptations?
4. Classify the following as *behavioral* or *structural*:

A hawk's sharp beak	
Wolves traveling in packs	
A monarch butterfly migrating	
A giraffe's long neck	
An elephant's long trunk	

Extinction

1. What are two types of factors that can lead to extinction?
2. Classify the factor as either man-made or natural:

Volcanic eruptions	
Pollution	
Oil spill	
Asteroid strike	
Changes in oxygen levels in sea water De-forestation	
Over-harvesting	
Global cooling during ice ages	