APES Guided Notes NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chapter 8 – Earth Systems

Standard 4

**Module 24 – Mineral Resources and Geology**

1. Read the Case Study: Are Hybrid Electric Vehicles as Environmentally Friendly as We Think?
2. What are the environmental issues associated with HEV’s?
3. Conclusion – traditional cars or HEV…which is better and why?
4. Deep History of Life on Earth – Click and learn. Link on website
5. Earths Layers and their composition
6. Core-
7. Mantle-
8. Asthenosphere-
9. Lithosphere-
10. What is the theory of plate tectonics?
11. What evidence is there to support the theory?
12. Using figure 24.5 to determine where the formation of the following occur:
13. Formation of oceanic crust-
14. Volcanic activity-
15. Formation of mountain ranges-
16. Increased seismic activity-
17. Describe each type of boundary and give a likely outcome result from the type if plate contact.

Continental Crust meets oceanic crust-

Divergent Boundaries-

Oceanic crust meets oceanic crust-

Convergent Boundaries-

Zones of plate Contact

Continental Crust meets continental crust-

Transform Fault Boundaries-

1. The Ring of Fire --- Not just a Johnny Cash Song
2. Describe a subduction zone and how this leads to volcanic activity
3. Describe primary succession and soil formation from volcanic rock
4. Explain how tsunamis form as a result of plate movement
5. Describe transform boundaries as an earthquake occurs and after the earthquake has occurred
6. Describe an ecological, an environmental, as social, and an economic impact associated with plate movement.
7. Summarize the rock cycle.
8. Complete the following table on the subject of the rock formation

|  |  |  |  |
| --- | --- | --- | --- |
|  | Igneous | Sedimentary | Metamorphic |
| Formation |  |  |  |
| Types |  |  |  |
| Unique Characteristics |  |  |  |

1. Answer the module 24 review questions:
2. Answer the Module 25 review questions:
3. \_\_\_\_\_\_
4. \_\_\_\_\_\_
5. \_\_\_\_\_\_
6. \_\_\_\_\_\_
7. \_\_\_\_\_\_
8. \_\_\_\_\_\_

**Module 25 – Weathering and Soil Science**

1. Distinguish between chemical and physical weathering. Give examples of each type of weathering.
2. Physical –
3. Chemical-
4. What are environmental benefits of weathering?
5. Describe each factor and how it contributes to soil properties:

|  |  |
| --- | --- |
| Parent Material |  |
| Climate |  |
| Topography |  |
| Organisms |  |
| Time |  |



1. How do nutrient values change with time (refer to figure 25.5)?
2. How have humans contributed to soil degradation?
3. What is humus and where is it found in the soil profile?
4. Describe the properties of soil below.
5. Physical Properties
* Texture
* Permeability
1. Chemical Properties
* Cation exchange
* Base saturation
1. Biological Properties
* microorganisms
* detritivores
1. Which type of soil is best for
* Agriculture
* Contaminant of pollution
* Supporting high productivity in a soil
1. Using table 25.1 on page 283 predict some potential economic consequences the USA might face because of unequal distribution of metal reserves?
2. Complete the mining table below.

|  |  |  |
| --- | --- | --- |
| Type of mining operations | Description | Effects on air, water, soil, biodiversity and humans |
| Strip Mining |  |  |
| Open-pit Mining |  |  |
| Mountaintop Removal |  |  |
| Placer Mining |  |  |
| Subsurface Mining |  |  |

1. Describe the following pieces of legislation (what it entailed, what led to the legislation, and what the outcomes were):
	1. Mining act of 1872
	2. Soil Conservation Act of 1935
	3. Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA or Superfund)
2. Answer the Module 25 review questions:
3. \_\_\_\_\_\_
4. \_\_\_\_\_\_
5. \_\_\_\_\_\_
6. \_\_\_\_\_\_
7. \_\_\_\_\_\_
8. \_\_\_\_\_\_