**Chapter 8 Reading Guide**

**Vocabulary**

**Module 24**

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| 1. Core | 2. Mantle | 3. Magma | 4. Asthenosphere |
| 5. Lithosphere | 6. Crust | 8. Hot Spot | 9. Plate Tectonics |
| 10. Tectonic Cycle | 11. Subduction | 12. Volcano | 13. Divergent Plate Boundary |
| 14. Seafloor Spreading | 15. Convergent Plate boundary | 16. Transform fault boundary | 17. Fault |
| 18. Seismic Activity | 19. Fault Zone | 20. Earthquake | 21. Epicenter |
| 22. Richter Scale | 23. Rock Cycle | 24. Igneous Rock | 25. Intrusive Igneous Rock |
| 26. Extrusive Igneous Rock | 27. Fracture | 28. Sedimentary Rock | 29. Metamorphic Rock |

**Module 25**

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| 1. Physical Weathering | 2. Chemical Weathering | 3. Acid Precipitation | 4. Erosion |
| 5. Parent Material | 6. Soil Degradation | 7. Horizons | 8. O horizon |
| 9. A horizon | 10. E horizon | 11. B horizon | 12. C horizon |
| 13. Cation exchange capacity (CEC) | 14. Base Saturation | 15. Crustal Abundance | 16. Ore |
| 17. Metal | 18. Reserve | 19. Strip Mining | 20. Mining Spoils |
| 21. Open Pit Mining | 22. Mountaintop Removal | 23. Placer Mining | 24. Subsurface Mining |

**Opening Story**

1. *Opening Story -* Even though electric and hybrid vehicles reduce fossil fuel consumption, they still have a significant environmental impact. Explain why, and describe some of these impacts.

**Module 24**

1. Where did all the elements that make up our planet originally come from, and how can we explain the origin of Earth's vertical zonation into layers?
2. What causes tectonic plates to move, and what evidence do we have that they have done so? (*hint: Alfred Wegner*)
3. How do the properties of oceanic crust and continental crust rock differ? What happens when they converge?
4. What processes can lead to the formation of volcanic islands in the ocean?
5. How much stronger is a 5.0 earthquake than a 2.0? Why do you think 2.0 earthquakes are abundant but 5.0+ are rare?
6. Why are seismic activity and volcanic activity often found in the same locations?
7. What is the relationship between elements, minerals, and rocks?
8. Does the rock cycle proceed in any particular order, or are there many paths a rock takes through its transformations?

**Module 24 Review**

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**Module 25**

1. How does soil link the rock cycle and biosphere?
2. Why are weathering and erosion important to the cycling of chemical elements on Earth?
3. How and why do soil horizons form? Can the presence and thickness of horizons vary across soils? Explain.
4. What role do organisms play in soil development?
5. What soil texture is considered ideal for agriculture? Why do you think this mix of sand, silt and clay is best?
6. Can soils have both a high CEC and high permeability? Explain why or why not.
7. Which two elements make up 74% of Earth's crust? Why are valuable ores typically surrounded by less valuable rock?
8. Which types of mining techniques have the highest impacts on the environment, and what are those impacts?
9. How has the US government attempted to influence the ways in which mining is done? What regulations exist?
10. *Working Towards Sustainability - What factors led to Trapper Mine reclamation success, and what can we learn from it?*

**Module 25**

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**Chapter 8 AP Environmental Science Practice Exam**

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