Chapter 5: Plate Tectonics
Study Guide

Name: _____ Period: _____ Date: _____

Review key terms and concepts from each section, assignments, notes, and quizzes

Section 1 - Earth's Interior

Key Terms:		**Key Concepts:**
• Seismic waves • Pressure • Crust • Basalt • Granite	• Mantle • Lithosphere • Asthenosphere • Outer core • Inner core	• How have geologists learned about Earth's inner structure? • What are the characteristics of Earth's crust, mantle, and core?

1. What are the two main types of evidence that geologists have used to learn about Earth's interior? Describe the evidence and how they are obtained.
2. What have geologists learned from the seismic waves?
3. What are the three main layers, in order starting from the surface?
4. Describe each layer of the Earth. What are the layers composed of?
5. The Earth's magnetic field results from which layer?
6. Where do scientists believe the convection currents flow?

Section 2 - Convection and the Mantle

Key Terms:	**Key Concepts:**
• Radiation • Conduction • Convection • Density • Convection current	• How is heat transferred? • What causes convection currents? • What causes convection currents in Earth's mantle?

1. What are the three types of heat transfer?
2. Describe each type of heat transfer and know examples from the text book.
3. What causes convection currents?
    a. Heating and cooling of the fluid, changes in the fluid's density and the force of gravity combine to set convection currents in motion.
4. What causes convection currents in Earth's mantle?
    a. Heat from the core and the mantle itself causes convection currents.
5. What will happen to convection currents in the fluid when the heat source is removed?

Section 3 - Drifting Continents

Key Terms:	**Key Concepts:**
• Continental drift • Pangaea • Fossil	• What was Alfred Wegener's hypothesis about the continents? • What evidence supported Wegener's hypothesis? • Why was Wegener's hypothesis rejected by most scientists of his day?

1. What was Alfred Wegener's hypothesis about continental drift?
2. What is Pangaea?
3. What was the evidence used by Wegener to support his continental drift hypothesis?
4. Why was Wegener's hypothesis of continental drift rejected by most geologists?
5. What is a fossil?

Section 4 - Sea Floor Spreading

Key Terms:	Key Concepts:
• Mid-ocean ridge • Sonar • Sea-floor spreading • Deep-ocean trench • Subduction	• Process of sea-floor spreading? • Evidence for sea-floor spreading? • What happens at deep ocean trenches?

1. What technology did scientists use in the mid-1900s to map the mid-ocean ridge?
2. Where are mid-ocean ridges found?
3. What are the three types of evidence for sea-floor spreading?
    a. Molten Material
    b. Magnetic Stripes
    c. Drilling Samples
4. What occurs in sea-floor spreading and where does this occur?
5. What did the scientists in a submersible see when they observed the mid-ocean ridge?
6. How did drilling samples show that sea-floor spreading really has taken place?
7. What is subduction?
8. Why is old oceanic crust denser than new oceanic crust?
9. What process in Earth's interior causes subduction and sea-floor spreading?

Section 5 - The Theory of Plate Tectonics

Key Terms:		Key Concepts:
• J. Wilson Tuzo • Plate • Scientific theory • Plate tectonics • Fault	• Divergent boundary • Rift valley • Convergent boundary • Transform boundary	• Theory of plate tectonics? • Three types of plate boundaries?

1. Who is J. Tuzo Wilson and what was his contribution to what we know about plate tectonics?
2. What do geologists think causes the movement of Earth's plates?
3. What is the theory of plate tectonics?
4. Describe each of the three types of plate movement.
    a. Where doe they take place?
    b. What do they form?
    c. Crust involved in the formation (example: oceanic-continental)
5. What is a fault?
6. Where does a rift valley form?
7. What does a collision between two pieces of continental crust at a converging boundary produce?