

*Important Concepts . . .*

# Preview Review



***Science***

***Grade 7***

***W3 - Lesson 4: Plate Tectonics and  
Related Events***

## Important Concepts of Grade 7 Science

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W1 - Lesson 2 .....	Nutrient Cycles, Energy Flows, and Changes in Ecosystems
W1 - Lesson 3A .....	Environmental Impacts of Human Activities
W1 - Lesson 3B .....	The Particle Model of Matter, Temperature, Heat, and Change of State
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## Materials Required.

Textbook:  
*Science in Action 7*

Science Grade 7  
Version 5  
Preview/Review W3 - Lesson 4

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# Preview/Review Concepts for Grade Seven Science



***W3 - Lesson 4:  
Plate Tectonics and Related  
Events***

# OBJECTIVES

By the end of this lesson, you should be able to

- identify and list the characteristics of the Earth's layers
- explain the Theory of Plate Tectonics
- explain how earthquakes occur and how we collect information about them
- describe the different types of volcanoes and the reasons they form
- explain how mountains form

## GLOSSARY

**earthquake** - sudden release of built up energy in the earth causing vibrations in the ground

**faulting** - the breaking of rock beds

**plate tectonics** - the movement of the plates of the Earth's crust

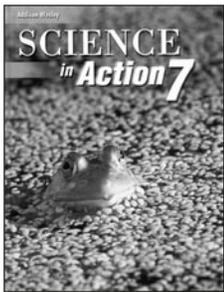
**volcano** - an opening in the Earth's crust that allows the release of molten rock, gases, etc.

## W3 - Lesson 4: Plate Tectonics and Related Events

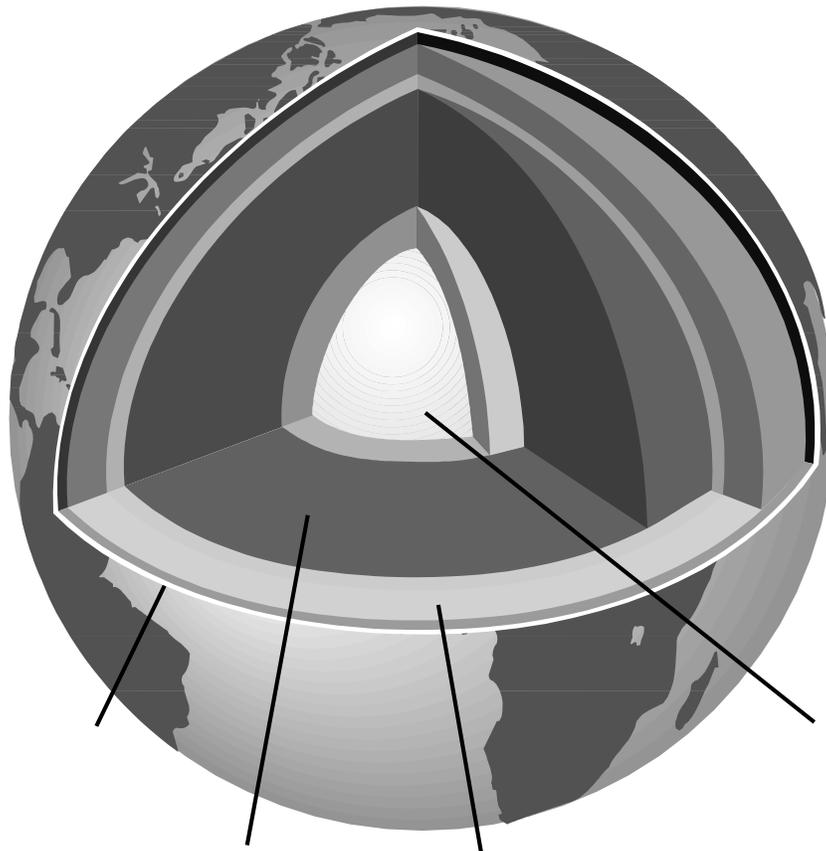


The Earth has a constantly changing surface. It moves, and in the process various well known events occur. These include mountain building, volcanic eruptions, and earthquakes.

To understand how and why these things happen, you must first understand something of the structure of the Earth. Read pages 355 and 356 *Science in Action 7*.



1. Label the layers of the following model of the Earth. Be sure to note the major characteristics of each layer.



## Plate Tectonics

Humans have known for some time that the Earth’s crustal sections move. Since that became accepted knowledge, our understanding of what is happening has changed. At first, it was thought that just the continents moved. This was called the theory of **Continental Drift**. Read page 394. We now feel that the theory of **Plate Tectonics** is a more accurate description of what happens. Read more about this theory on pages 395 to 400 of *Science in Action 7*.

2. Define the following terms.

a. plates \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

b. boundaries \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

3. What evidence led Wegener to develop the idea of continental drift?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Describe the theory of plate tectonics.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. What caused the Earth's plates to move?

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6. Give an example of a diverging boundary.

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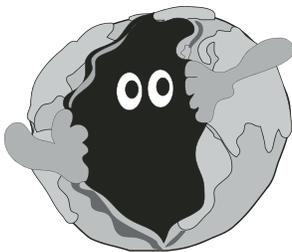
7. Give an example of a converging boundary.

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## Earthquakes

Sometimes when forces act on a plate of the Earth's crust, it can get "stuck" rather than move. Pressure keeps building because the forces are still being applied. At some point, the build-up of pressure will overcome whatever was keeping the plate from moving. Then the ground will move, and waves of energy will rush out from the center of the action (the focus). This movement and energy is called an earthquake. Earthquakes can cause various amounts of damage depending on a variety of factors. They include the amount of movement and energy released plus the condition of the Earth's surface they go through. In areas where people live, the materials and design of their buildings also determine how much damage is done. More information on earthquakes is found on pages 357 to 359 of the textbook.



8. What is an epicentre?

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9. What scale is used to communicate the strength of earthquakes?

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10. How much stronger is a magnitude 3 earthquake than a magnitude 1 earthquake?

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11. How are scientists able to determine an earthquake has occurred somewhere on Earth?

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### Volcanoes

Volcanic eruptions are among the more dramatic events in nature to watch. Images of hot lava flowing down slopes and through towns make a gripping news story.

When lava escapes the Earth’s crust, a volcano forms. There are three types of volcanoes.

- A **cinder cone** is made from “cinder”- bits of lava thrown from the volcano. It forms a relatively small, steep-sided cone. Paricutin in Mexico is a classic cinder cone volcano.
- **Shield cones** form large, gently sloping cones. The Hawaiian islands are made by this type of volcano.
- **Composite cones** have alternating layers of lava and cinder. Mt. Fuji in Japan is a composite cone.

More information on volcanoes can be found on pages 360-362, 397 and 399 of *Science in Action 7*.

12. What materials besides lava can be released through a volcano?

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13. If you were looking at a world map that showed the Earth's tectonic plates, where would you predict volcanoes will be found?

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14. Why would you expect to find volcanoes at those locations?

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15. How would part of the ocean crust become material that is eventually spewed from a volcano?

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16. How and where do volcanoes form new oceanic crust?

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17. What sorts of signs occur which indicate an eruption will happen soon?

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\_\_\_\_\_

\_\_\_\_\_

### Mountain Building



When volcanoes erupt, they form mountains. But that is not the only way mountains are made. Two other ways are the **collision of plates** and **faulting** of the crust. When two plates collide, the more dense plate slides under the less dense one. The top crust crumples from the pressure. The folds from this action become mountains. Rock beds can also fault or break. Then sections can be pushed up to become mountains. Read pages 402 to 408 of the textbook and answer the following questions.

18. Define the following terms.

a. fold \_\_\_\_\_

b. fault \_\_\_\_\_

19. What is the difference between an anticline and a syncline?

\_\_\_\_\_

\_\_\_\_\_

20. Where did the sediments of the rock in the Rocky Mountains come from?

\_\_\_\_\_

\_\_\_\_\_

21. How were the Rocky Mountains formed?

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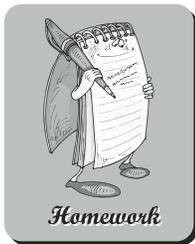
22. How can solid rock fold without breaking?

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If you have time, you may want to begin lesson 5 because you will be writing a quiz tomorrow on what you learned this week in our Preview/Review Science 7.

### Homework



23. Ask people you know if they have ever experienced an earthquake or seen a volcanic eruption. What were some of the things they remember about the experience? Did they feel in danger? How did they deal with the situation?

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