**Earth’s Resources**

**Description:**

Humans are dependent upon Earth for many different resources for survival. Earth science includes the

discovery, extraction, and use of these resources.

**Space and Time** Resources can be roughly divided into renewable and nonrenewable categories. Renewable resources, such as water, food, and solar energy, are replenished over short time scales. Nonrenewable resources, such as coal, oil, and metals, have limited supplies that cannot be replenished.

**Forces and Motion** Mineral and metal resources become concentrated through a variety of geological

processes that include igneous activity, precipitation from hydrothermal solutions, and erosionally-formed

placer deposits.

**Matter and Energy** Humans are dependent upon clean water and air, and therefore the hydrologic cycle

and atmospheric processes are vitally important. Human pollution can easily reduce these resources. Humans also rely upon and need to carefully manage land resources such as topsoil and trees. Our society relies heavily upon nonrenewable fossil fuels such as coal, petroleum, natural gas, and uranium (for nuclear power), and is beginning to use tar sands and oil shale. However, there is an increasing trend toward using renewable energy sources such as solar (both active and passive), wind, hydroelectric, geothermal, and tidal power.

**Earth as a System** Earth’s resources will last longer if they are carefully managed, a process called

conservation. There is a growing awareness of the need for conservation, including efforts to reduce consumption and to reuse and recycle resources where possible.

**Textbook Chapters:**

**4. Earth’s Resources**

**Section 1: Energy and Mineral Resources**

**Section 2: Alternative Energy Sources**

**Section 3: Water, Land, and Air Resources**

**Section 4: Protecting Resources**

**State Standards:**

E.S. 1.18 Demonstrate the possible effects of atmospheric changes brought on by things such as acid rain, smoke, volcanic dust, greenhouse gases, and ozone depletion.

E.S. 1.22 Compare the properties of rocks and minerals and their uses.

E.S. 1.26 Differentiate among the processes of weathering, erosion, transportation of materials, deposition, and soil formation.

**Objectives:**

4.1 Energy and Mineral Resources, pp. 94–101.

4.1 Distinguish between renewable and nonrenewable resources.

4.2 Identify which energy resources are fossil fuels.

4.3 Predict which energy resources might replace dwindling petroleum supplies in the future.

4.4 Describe the processes that concentrate minerals into large deposits as they form.

4.5 Recognize how nonmetallic mineral resources are used.

4.2 Alternate Energy Sources, pp. 102–107

4.6 Evaluate the advantages of solar energy.

4.7 Explain how nuclear power plants use nuclear fission to produce energy.

4.8 Evaluate wind power's potential for providing energy in the future.

4.9 Relate how hydroelectric power, geothermal energy, and tidal power contribute to our energy resources.

4.3 Water, Air, and Land Resources, pp. 108–112

4.10 Explain why fresh water is a vital resource.

4.11 Recognize why the chemical composition of the atmosphere is important.

4.12 Identify Earth's important land resources.

4.4 Protecting Resources, pp. 113–116

4.13 Identify the first laws passed to deal with water pollution.

4.14 Name the most important law passed to deal with air pollution.

4.15 Explain what is involved in protecting land resources.

**Learning Activities:**

1. Discussion/Lecture on Natural Resources and Renewable and Non-Renewable

2. Discussion/Lecture on Alternative Energy Sources

3. Alternative Energy Project and Presentation

4. Chapter 4 Review

5. Al Gore’s Push Pop Press Book, “Our Choice.”