



Lesson: Our Natural Resources

Grade: 4-5

Subject: Science, Social Science

Objectives:

Students will:

- recognize that the earth is the source of everything we make, use, and throw away
- differentiate between natural resources and human-made items and their associated life cycles

Teaching Time: 45 minutes

Materials:

transparencies, Bicycle Materials, Wastes, and By-Products, Glass Manufacturing, Paper Production; worksheet: What Kind of Waste Am I?

(Optional:) rescued items from the trash (such as aluminum can, glass bottle, paper, plastic bag, fruit peel, etc.) video: Lifecycle of Paper and Glass (see Resource section for availability)

Vocabulary:

renewable

nonrenewable

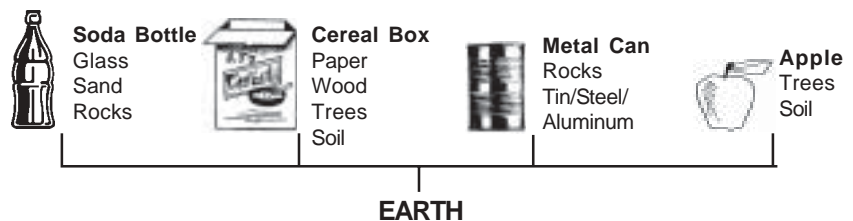
manufacture

production

REDUCE
REUSE
RECYCLE

Background:

This activity illustrates that the earth is the source of everything we make, use, and throw away. Natural resources are the raw materials supplied by nature. People cannot create natural resources. Even though we use natural resources in our daily life, we often do not think of them as being resources. Through the use of classifying skills, the different properties of natural and human-made objects will be reviewed. And by identifying the ways manufacturing and disposing of products alter the environment, students can better appreciate their personal role in conserving natural resources. For the discussion of the manufacturing and production transparencies in this lesson, teachers may want to review “The Recycling Process After Collection” in the resources section for more background information on specific materials.



Procedures:

- Show class an object from the trash. **What material is this made out of? Can you trace this material back to its source?** For example, a glass bottle is made from sand mixed with soda ash and lime, and melted down to form a liquid, which is then molded into glass.
- As you display and discuss more objects, copy the table above on the board. See if the children can trace the objects back to their origins.
- **Can you think of anything that you use that is not provided by the earth?** Students may name some things, but on close examination, students will realize that these things also come from the earth. (Use items from the trash as examples, if desired).
- Use the transparency/handout, “Bicycle Materials, Wastes, and By-Product” as another way to reinforce this concept.
- Using the manufacturing and production transparencies, discuss the process and resources used for making glass and paper.
- Identify where recycled materials can be substituted for raw materials thus saving natural resources.
- **Instead of a straight line to the landfill, how can the path be made into a continuous loop? By recycling (substituting used materials for raw materials).**
- **How else could fewer natural resources and less energy be used in manufacturing? By reducing use of products and by reusing old products.**

Reflection/Response:

- Relate the manufacturing, production and recycling of materials to natural cycles like seed-tree-decomposition-soil fertility-new tree. Help students understand that human cycles are not usually “complete” and are sometimes harmful to the environment. Ask students to name other examples of natural cycles and diagram them on the board.
- Assign the handout, “What Kind of Waste Am I?” Remind students of the difference between renewable and nonrenewable resources. (Nonrenewable resources cannot be replaced and are gone forever when used up and come from petroleum or natural gas originally.)

Extensions:

- Make a bulletin board display of natural resources and their origins in your class or school (see example page in the Resource section).
- Research the lifecycle of something. Ask students to draw or explain in writing or a flow chart, the lifecycle of an object that they use in their home. (This might be a type of food, or product or toy, etc.) Remind students to include transportation from the origin to the manufacturer to the store--and how they receive the item, etc. Encourage them to be as thorough as possible because each step uses energy, time, money and creates pollution along the way!
- Research the areas of the world where natural resources are mined and the how many reserves are known to exist. (Include minerals needed to make glass and metals like limestone, sand, feldspar, bauxite, iron, copper, nickel.)
- Assign the Activity: Environmental Fortune Teller in the Resource section.

Oregon Common Curriculum Goal:

Science: Earth and Space Science, Unifying Concepts and Processes

- Understand the properties and limited availability of the materials which make up the Earth.
- Apply explanatory concepts of model, system, theory, probability, and replication

Social Science: Social Science Analysis

- Explain various perspectives on an event or issue and the reasoning behind them.

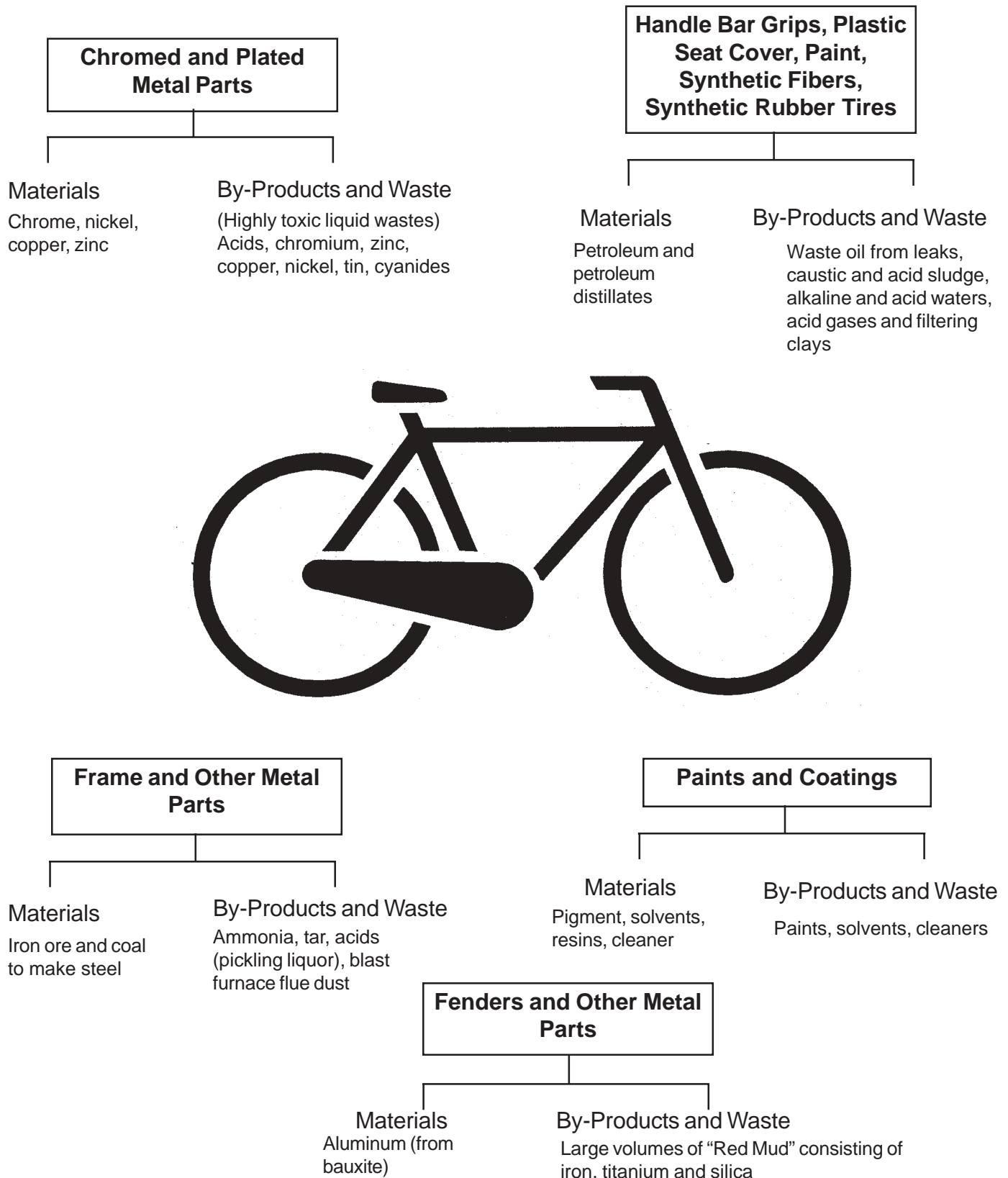
Grade 5 Benchmark:

Students will:

- Recognize that Earth materials have different physical and chemical properties that can be used in different ways such as for building materials, as sources of fuel, or as an environment for growing plants.
- Use models to explain how objects, events, and/or processes work in the real world.
- Identify and study two or more points of view on an event, issue, or problem.



Overhead: Bicycle Materials, Wastes, and By-Products



Source: Washington Dept. of Ecology: *A-Way With Waste* (1990)



Overhead: Glass Manufacturing

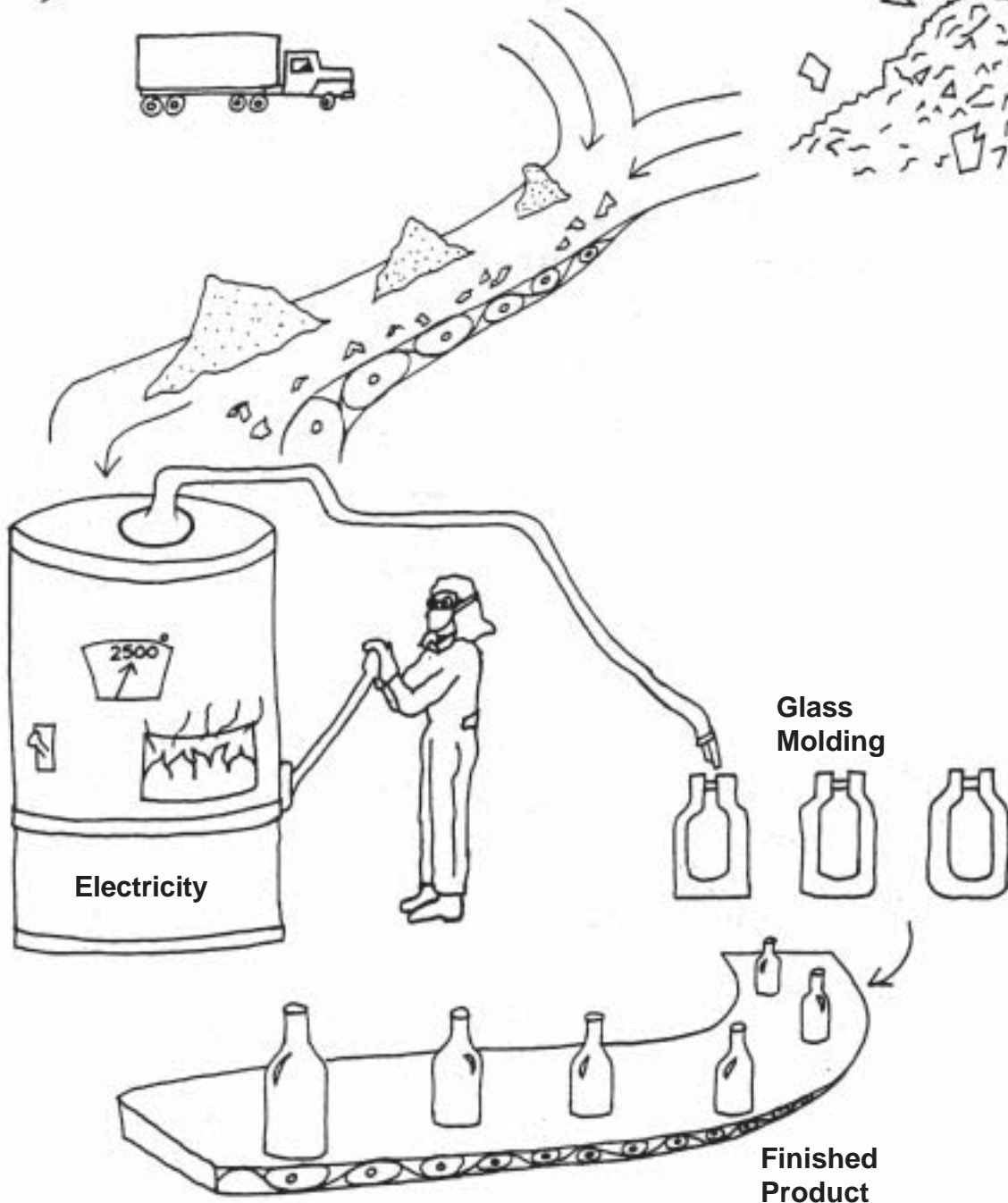
Natural Resource Mining



Limestone Sand Feldspar

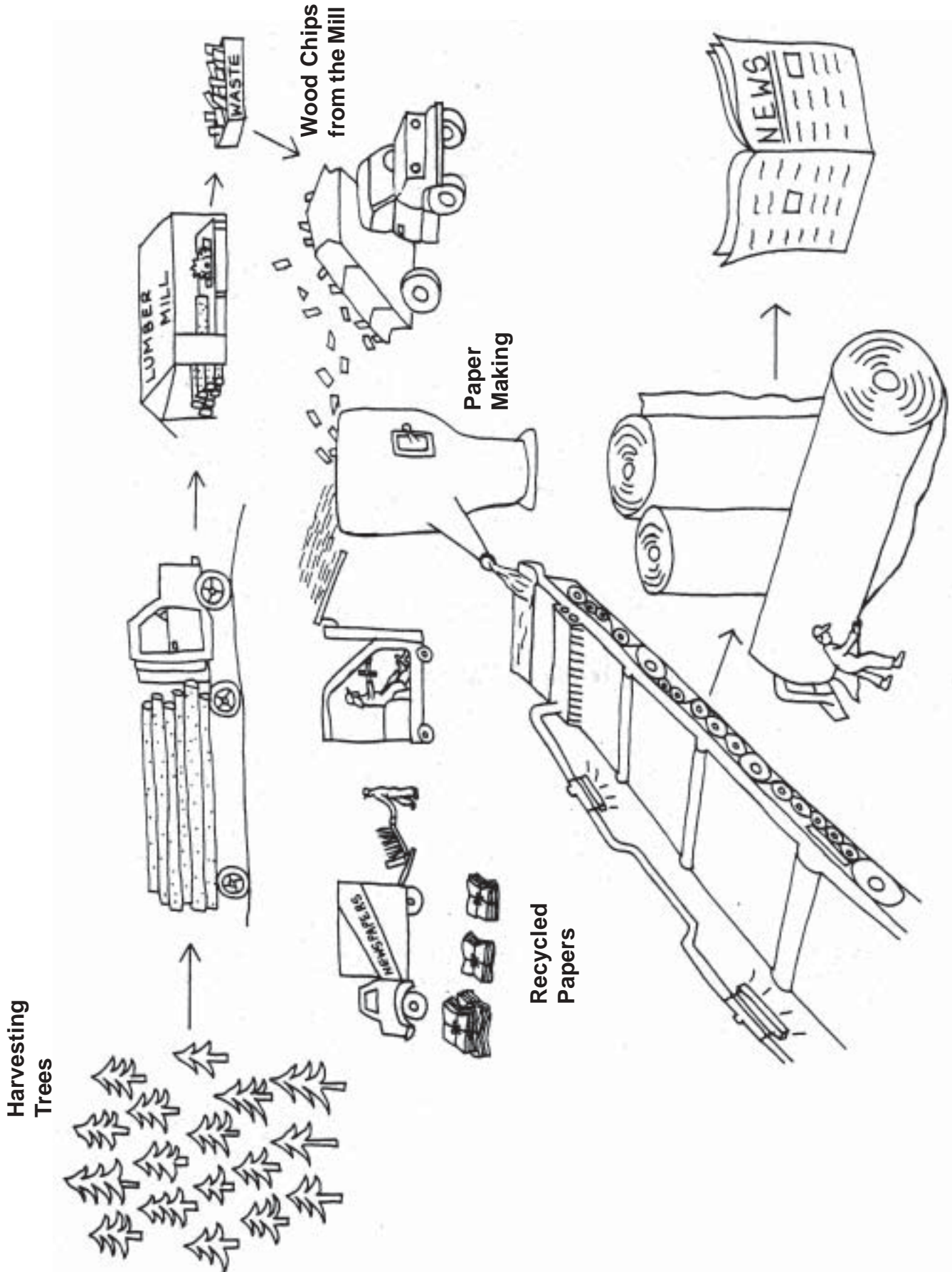


Recycled Bottles (Glass Cullet)





Overhead: Paper Manufacturing





Worksheet: What Kind of Waste Am I?

Student Name: _____

Match each object with the type of material that it originates from, note some may have more than one match. Also decide whether each object comes from a renewable or nonrenewable resource.



A. Tree/Plants

B. Rocks and Minerals

C. Animals

D. Oil or Natural Gas

E. Nonrenewable

F. Renewable