

# Renewable and Nonrenewable Resources

## Teacher Facilitation Notes

### In General . . .

- Project the slide deck in edit mode—do not show it as a slideshow.
- Hide the speaker notes before projecting. (View/Show Speaker Notes)
- Hide the toolbar. (Click on the up arrow at the right end of the tool bar.)
- Call on students to read the various content shown on slides.
- For each investigation, assemble the needed materials for each group and place in a central location for ease of distribution.
- Duplicate copies of the data sheets for each student.

### Materials (per student)

Student Recording Sheets, optional

Pencils

Folded Graphic Organizer Template

Student Notebooks

Scissors

Tape or glue

### Engage: What Are Natural Resources

- Read through and discuss the slides describing renewable/nonrenewable resources and energy/material resources.
- Have students define terms and answer questions in their science notebooks as you go through the slides.
- Make sure that students understand that all natural resources can be classified as renewable or nonrenewable. Both renewable and nonrenewable resources can also be grouped into two categories: materials resources and energy resources.
- Discuss the tree diagram showing the classification of natural resources as desired.
- Drag and drop the descriptions and photos in the correct columns of the sorting table as students identify them.

# Renewable and Nonrenewable Resources

## Teacher Facilitation Notes, p. 2

### **Explore/Explain: Advantages and Disadvantages of Using Natural Resources**

- Read and discuss the opening slide.
- While classifying the statements as advantages or disadvantages, students can have the sheets in front of them to mark and keep as the class discusses each natural resource. Or, you can choose not to duplicate the statements and just have the students read from the slides. However, you do it, have students tell if it is an advantage or a disadvantage and give reasons for their answers.
- Discuss as desired.

### **Elaborate**

- Have the students follow the directions to complete the folded graphic organizer. Assist as necessary.
- Once they have completed listing advantages and disadvantages, have them glue or tape the organizer in their science notebooks.
- Discuss as desired.

### **Evaluate**

- Let students complete the quiz independently.
- Discuss evaluation as desired.

**Evaluation**

1. Which of the following would be correctly classified as a nonrenewable natural resource?

- A Wind
- B Natural gas
- C Apple tree
- D Sunlight

2. A group of students made up a table listing examples of renewable natural resources. The table is shown below.

Student	Renewable Resources
#1	Air, flowers, insects
#2	Cows, pigs, corn
#3	Water, rocks, trees
#4	Wind, grass, birds

Which student mistakenly included a resource that is not renewable in their list?

- F Student #1
- G Student #2
- H Student #3
- J Student #4

3. What is an advantage of using wind power to produce electricity? Mark all answers that apply.

- A Wind is a renewable energy resource.
- B Wind energy can only be used where it is found.
- C Birds can fly into the blades of a wind turbine and die.
- D Using wind energy does not pollute the environment.
- E The land around wind turbines can still be used for farming and ranching.
- F It is difficult for people to live near wind turbines because they make a lot of noise.

**Evaluation**

4. What is one disadvantage of burning coal to produce electricity?
- F** Power plants using coal can pollute the air.
  - G** Coal is mined by digging holes in the ground.
  - H** Coal formed from the remains of dead plants.
  - J** Power plants cannot produce electricity using coal.
5. Why are coal, oil, and natural gas classified as nonrenewable resource?
- A** They are found in many places all over the Earth.
  - B** They form from the remains of organisms.
  - C** They take millions of years to form.
  - D** They will never run out.
6. Which of these is NOT a disadvantage of using oil to make gasoline for transportation?
- F** People are using oil faster than nature can make it.
  - G** Burning oil in car engines can cause air pollution.
  - H** Oil leaks in the ocean can damage coral reefs.
  - J** Oil is relatively cheap to find and remove from the ground.
7. What is the main difference between renewable and nonrenewable natural resources?
- A** Where they are found on Earth's surface
  - B** How they are used by people on Earth
  - C** How quickly they are formed
  - D** How long they can be stored

# Renewable and Nonrenewable Resources

Name: \_\_\_\_\_

## Explore/Explain-Advantages and Disadvantages, Wind & Water

	Advantage	Disadvantage
<b>Wind</b>		
1. Wind energy is a renewable source of energy.		
2. Not every area has enough wind to make electricity.		
3. Wind energy is free and clean to use.		
4. Making electricity from wind is very cheap.		
5. Wind energy must be used where it is found.		
6. Wind turbines can be dangerous to wildlife like birds and bats.		
7. The land around wind turbines can still be used for farming or ranching.		
8. Cutting down trees to set up wind turbines can cause damage to the habitats of different organisms.		
<b>Water</b>		
1. Water is both an energy resource and a materials resource.		
2. Hydropower plants are very expensive to build.		
3. Building dams on rivers can flood land and disturb habitats.		
4. Water is a renewable natural resource.		
5. Hydropower plants do not pollute the air because no fuel is burned.		
6. Water is recycled by nature during the water cycle.		
7. There are not many good locations left in the United States to build dams and hydropower plants.		
8. Droughts (long periods of time with no rain) sometimes mean that less water is available to produce electricity.		

# Renewable and Nonrenewable Resources

Name: \_\_\_\_\_

## Explore/Explain-Advantages and Disadvantages, Sunlight & Organisms

	Advantage	Disadvantage
<b>Sunlight</b>		
1. Sunlight spreads out, making it hard to capture its energy.		
2. Solar energy must be used where it is found.		
3. Solar energy is only available when the sun is shining.		
4. Sunlight makes it possible for plants to produce their own food.		
5. Equipment to use sunlight to produce electricity is expensive to buy.		
6. Using sunlight to produce electricity does not pollute the Earth's air.		
7. Sunlight provides Vitamin D which keeps people healthy.		
8. Batteries do not need to be replaced in some devices because they run on solar energy.		
<b>Organisms-Plants and Animals</b>		
1. Plants are renewable natural resources.		
2. Organisms' natural habitats are easily affected by weather.		
3. Many medicines contain chemicals that come from plants.		
4. Trees can be used to produce thousands of products for humans to use.		
5. Cows release methane, a greenhouse gas that can lead to global warming.		
6. Plants and animals provide nutrients people need to live.		
7. Animal products must be stored in large refrigerators to keep them from spoiling.		
8. Cutting down large numbers of trees can lead to a great deal of erosion on bare land.		

# Renewable and Nonrenewable Resources

Name: \_\_\_\_\_

## Explore/Explain—Advantages and Disadvantages, Fossil Fuels & Minerals

	Advantage	Disadvantage
<b>Fossil Fuels (Oil, Coal, and Natural Gas)</b>		
1. Oil, coal, and natural gas are nonrenewable resources.		
2. Fossil fuels are relatively cheap and easy to find.		
3. Burning fossil fuels pollutes the air and releases greenhouse gases into the air.		
4. Fossil fuels are useful for making plastics.		
5. There is about a 98-year supply of natural gas in the U.S.		
6. Fossil fuels can be used for producing electricity, for heating our homes, and for transportation.		
7. Burning coal is a cheap way to produce electricity.		
8. Mining for coal or drilling for oil and natural gas can change the land and force organisms to move or die.		
<b>Rocks, Soil, and Minerals</b>		
1. It takes about 100 years for an inch of topsoil to form.		
2. Rocks are useful for building homes, bridges, and roads.		
3. Some minerals, like copper, are good conductors of electrical and thermal energy.		
4. Rocks, soil, and minerals are nonrenewable resources.		
5. Plants grow well in many types of soil.		
6. Rocks and minerals are mined by digging large holes in the Earth.		
7. Sand is useful for making glass.		
8. Minerals are used to make products, such as gold and diamonds, are very expensive to buy.		

Elaboration: Natural Resources Folded Graphic Organizer

**Renewable  
Natural  
Resources**

**Nonrenewable  
Natural  
Resources**



# Renewable and Nonrenewable Resources

Name: \_\_\_\_\_

## Evaluation

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  - Sunlight

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  - Student #4
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