Power Choices Underground

Compare resource choices and the rock spaces that store fuels.

4.11 "Earth and space. The student understands how natural resources are important and can be managed. The student is expected to: identify and explain advantages and disadvantages of using Earth's renewable and nonrenewable natural resources..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Circle each renewable resource, underline each nonrenewable resource, and put a star beside each action that can reduce harm to land or water.

Energy for a Growing Town

1. Every morning, energy helps Maya's town wake up. Electricity runs lights, refrigerators, school computers, and water pumps. Some electricity comes from wind turbines, moving water, or sunlight. Wind, water, sunlight, plants, and animals are renewable resources because nature can replace them in a fairly short time. They can provide energy again and again when people manage them carefully.

2. Coal, oil, and natural gas are nonrenewable resources. They formed from ancient living things over millions of years, so people use them much faster than Earth makes more. These fuels can produce dependable energy and are easy to transport. However, burning them releases pollution and gases that warm Earth's climate. Their limited supply is another disadvantage.

3. Energy choices also affect land and water. Using less electricity, reusing materials, and recycling paper, metal, and plastic can reduce mining, drilling, trash, and pollution. Rocks can store resources too. Some sandstone has tiny connected spaces between grains. Oil and natural gas can collect in those spaces when a tight layer of rock above stops them from moving upward. This rock property makes sandstone useful underground.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why are wind, water, sunlight, plants, and animals called renewable resources?

2. Name one advantage and two disadvantages of using coal, oil, or natural gas.

3. How can using less electricity, reusing materials, and recycling affect the environment?

4. What two rock features help oil and natural gas stay stored underground in sandstone?

3 YOUR TURN

Your own words

Make a two-row resource plan for a town. Use one renewable resource and one nonrenewable resource, then give one benefit and one environmental concern or management action for each.

RESOURCE AND TYPE	ONE BENEFIT	ENVIRONMENTAL CONCERN OR MANAGEMENT ACTION

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PART 1 · READ AND MARK

Circle each renewable resource, underline each nonrenewable resource, and put a star beside each action that can reduce harm to land or water. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why are wind, water, sunlight, plants, and animals called renewable resources?	**Nature can replace them in a fairly short time, so they can provide energy again and again when managed carefully.**
2	Name one advantage and two disadvantages of using coal, oil, or natural gas.	**An advantage is that these fuels provide dependable energy or are easy to transport. Disadvantages are that they are limited and burning them releases pollution and gases that warm Earth's climate.**
3	How can using less electricity, reusing materials, and recycling affect the environment?	**These actions can reduce mining, drilling, trash, and pollution, which can reduce harm to land and water.**
4	What two rock features help oil and natural gas stay stored underground in sandstone?	**Sandstone has tiny connected spaces between grains where the oil and natural gas can collect. A tight layer of rock above stops them from moving upward.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

RESOURCE AND TYPE	ONE BENEFIT	ENVIRONMENTAL CONCERN OR MANAGEMENT ACTION
Wind, renewable	It can provide energy again and again.	Place turbines where they avoid bird nesting areas.
Natural gas, nonrenewable	It can produce dependable energy.	Use less of it to reduce pollution and save a limited resource.

Accept any accurate renewable and nonrenewable examples, benefits, and environmental concerns or management actions. For the rock question, students should identify connected pore spaces and a tight rock layer that traps the resources.