Jan 13 Renewable Energy Stations 1-4

Station 1: Reading about Renewable Energy

Directions: Read the story below. Use the information to fill out the table and questions after.

What are renewable resources?

Renewable resources can be replaced in our lifetime by natural processes. Some renewable resources, such as plants and animals, provide food for humans. Other renewable resources, such as sunlight and wind, provide energy. What are some of our renewable resources?

- **Sunlight:** Sunlight is a renewable resource. The Sun will continue to shine for billions of years. We can use energy from the Sun in many important ways. Solar panels capture sunlight and turn it into electricity. Humans use this electricity to power homes and businesses.
- **Air:** Wind can be used to create electricity, too. Large windmills called turbines spin in fast-moving wind. The movement of the turbine's blades creates electricity.
- **Water:** Humans cannot survive without freshwater. The freshwater we use is replaced by the **water cycle**.

water cycle- the process by which water moves between Earth's surface and the air





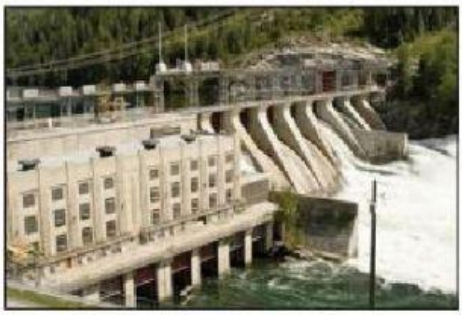
Wind blowing past these turbines (top) provides us with renewable energy. Carrots (bottom) are also an example of a renewable resource. Every year, new carrots grow. Humans use carrots as a source of food.

- Water is also a source of energy. Dams along rivers can use moving water to create electricity. The movement of water during tides can also provide energy.
- **Plants and animals:** Plants provide food, energy, and useful products for humans. For example, trees provide wood. Wood can be burned to heat a home. Wood can also be turned into paper or lumber. Plants such as corn, strawberries, and carrots provide food for many animals, including humans. Animals such as fish and cows also provide food.

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Look at the two photographs below. Are these examples of renewable or nonrenewable resources? Explain your answer.





Renewable resources also must be conserved. For example, trees can be used to make fuel, paper, and lumber. But what happens if you cut down all the trees in a forest? It will take many years for all of the trees to grow back. Humans should use some but not all of the renewable resources in an area. We should replace the resources we use as quickly as possible. For example, we should plant new trees to replace those that are cut down.



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Agree/Disagree?	Explanation
Renewable resources cannot be replaced in our lifetime. Agree Disagree	
Solar power, natural gas, and wood are all nonrenewable energy sources. Agree Disagree	
Both renewable and nonrenewable resources should be conserved. Agree Disagree	

Follow up question: Choose a renewable resource and explain how its uses affect the environment.

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Station 2: Renewable and Nonrenewable Resources

Directions: Complete the table below using the information you have gained in class.

Resources	R	NR
		
		
		
		
		

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Station 3: Renewable and Nonrenewable Energy Quiz

Directions: Answer the multiple choice questions below by clicking on the correct answer.

1 Which of the following is considered a nonrenewable resource?

A The energy of sunlight

B Water behind a dam

C Fossil fuels

D Wind energy

2 This table lists three types of fuel used by humans. The table also lists the source of each fuel, as well as what percentage of the energy used in the United States comes from each fuel.

Type of Fuel	Source	Energy Used in the USA (%)
Coal	Land plants	21
Natural gas	Tiny ocean organisms	25
Oil	Tiny ocean organisms	37

The information in the table provides evidence for which of the following statements?

A More oil is used in the United States than in any other country.

B The fuels we use for energy are found only in the ocean.

C All of these fuel types come from natural resources.

D Nonrenewable resources cause the most pollution.

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3 Coal is mined in two ways. Surface mines are not deep, but they cover a wide area. Longwall mines do not cover much of the surface of the land, but they are much deeper.

Data on the land use of both mine types is provided in the table.

Coal Mine Type	Acres of Land Surface Disturbed per Million Tons of Coal Produced
Surface	300
Longwall	80

Which of the following would disturb the greatest number of acres of land surface?

A Producing 6 million tons of coal from longwall mines

B Producing 2 million tons of coal from surface mines

C Producing 12 million tons of coal from longwall mines

D Producing 3 million tons of coal from surface mines

4 The uranium used as fuel for nuclear energy was formed billions of years ago, at the time of the origin of Earth. Given this information, we know that uranium is–

A a nonrenewable resource.

B a very dangerous poison.

C the most expensive fuel.

D more abundant than it once was.

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5 In an effort to reduce our reliance on natural resources, the federal government passed a law requiring the use of ethanol in our gas. Ethanol is a resource made from corn and other plant materials.

From this information, what can you conclude about these two resources?

A Ethanol is renewable, and gas is renewable.

B Ethanol is renewable, and gas is nonrenewable.

C Ethanol is nonrenewable, and gas is nonrenewable.

D Ethanol is nonrenewable, and gas is renewable.

Station 4: Review Human Impact Vocabulary

Directions: Draw a line matching vocabulary words to its definition

Biosphere	the removal of a species of fish from a body of water at a rate that the species cannot replenish
Extinction	A movement focused on protecting species from extinction, maintaining and restoring habitats, enhancing ecosystem services, and protecting biological diversity
Overfishing	the termination of a kind of species
Conservation	the worldwide sum of all ecosystems
Biodiversity	Proper disposal of used resources so they can be
Recycling	A source or supply that benefits organisms
Resource	The number of different species of plants and

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