Powering Maple School

Read how energy choices affect the environment.

4.ESS3.1 "Obtain and combine information to describe that energy and fuels are derived from renewable and non-renewable resources and how their uses affect the environment."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each energy source and what it is used for, circle whether it is renewable or nonrenewable, and write a number beside one environmental effect linked to each source.

Where Does the Power Come From?

1. On a sunny day, the roof of Maple School can make electricity with solar panels. The panels change sunlight into electricity without making smoke while they work. Sunlight is a renewable resource because the sun keeps sending energy to Earth. A nearby wind turbine also makes electricity as moving air turns its blades. Wind is renewable too, but turbines can sometimes harm flying birds.

2. The school's bus uses diesel fuel made from oil pumped out of the ground. Burning diesel moves the bus, but it sends gases into the air that can warm Earth. Coal is dug from the ground and burned to make electricity. Mining coal can disturb land, and burning it also releases gases that warm Earth. Oil and coal are nonrenewable because they form far more slowly than people use them.

3. Maple School needs energy for lights and travel, but every choice has effects. Solar panels need sunlight to make electricity, and wind turbines need moving air. Both make electricity without burning fuel while they work. Coal power can supply electricity when the sun is down, but burning coal pollutes the air. Turning off empty classroom lights means the school needs less electricity, no matter which source makes it.

2 ANSWER WITH EVIDENCE

Use the passage

1. How are sunlight and coal different as energy sources, and what happens to the air when each makes electricity?

2. Where does the bus's fuel come from, and how can using it affect the environment?

3. Why could a wind turbine help the school use less coal, and what environmental problem might the turbine cause?

4. How can turning off unused lights change the use of a nonrenewable resource and its effect on the environment?

3 YOUR TURN

Your own words

A town is planning a daytime reading room. Choose one renewable and one nonrenewable source from the passage. Write four sentences that tell where each gets its energy or fuel, give one environmental effect of each, and explain which you would choose for the room.

ANSWER KEY

Powering Maple School

GRADE 4 · 4.ESS3.1

PART 1 · READ AND MARK

Underline each energy source and what it is used for, circle whether it is renewable or nonrenewable, and write a number beside one environmental effect linked to each source. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How are sunlight and coal different as energy sources, and what happens to the air when each makes electricity?	**Sunlight is renewable, and solar panels make electricity without smoke while they work. Coal is nonrenewable, and burning it releases gases that warm Earth.**
2	Where does the bus's fuel come from, and how can using it affect the environment?	**Diesel is made from oil pumped from the ground. Burning it releases gases that can warm Earth.**
3	Why could a wind turbine help the school use less coal, and what environmental problem might the turbine cause?	**A wind turbine makes electricity without burning fuel, so it could replace some coal power. Turbines can sometimes harm flying birds.**
4	How can turning off unused lights change the use of a nonrenewable resource and its effect on the environment?	**Using less electricity could mean burning less coal, a nonrenewable resource. That would release fewer gases that warm Earth.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Solar panels get energy from sunlight, and they make electricity without smoke while they work. Coal comes from the ground, and burning it releases gases that warm Earth. I would choose solar panels for the daytime reading room. Daylight could help the panels make electricity without burning coal.

Accept any passage-supported pairing of a renewable and a nonrenewable source in Part 3. The student's choice should be supported by an environmental effect and fit a daytime reading room.