Power for Riverbend

Trace how energy choices affect the environment.

4.14 "Gather information to describe how the use of energy derived from renewable and nonrenewable resources affects the environment."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline coal, sunlight, and wind, then circle one environmental effect of using each and write matching numbers by each source and effect.

Where Riverbend Gets Its Power

1. In Riverbend, families use electricity for lights and fans. Some of it comes from a plant that burns coal. Coal is a nonrenewable resource because it forms so slowly that people cannot replace what they use. Digging coal out of the ground can remove plants and disturb animal homes. Burning coal releases gases and tiny bits of pollution into the air.

2. Riverbend's school has another choice: solar panels on its roof. Sunlight is a renewable resource because it returns each day. The panels make electricity without burning fuel, so they do not release air pollution while making power. Putting panels on a roof also uses space that is already built. However, the panels make less electricity on cloudy days and none at night.

3. A nearby farm uses wind turbines to make electricity when the wind blows. Wind is renewable, and the turning turbines do not burn fuel or send pollution into the air while making power. Still, a turbine placed in a bird's flight path can hurt birds. The town must consider where to place turbines and how to get electricity when the wind is calm.

2 ANSWER WITH EVIDENCE

Use the passage

1. If Riverbend used more rooftop solar power and less coal power, how could that affect the air? Explain why.

2. How could getting coal from the ground affect living things near a mine?

3. What is one environmental benefit and one possible harm of putting wind turbines in a bird's flight path?

4. Why might putting solar panels on a roof protect land where plants and animals live?

3 YOUR TURN

Your own words

A new library needs electricity day and night. In 3 to 4 sentences, propose a plan that uses a renewable source and provides power when that source cannot make enough electricity. Explain one environmental benefit and one environmental cost of your plan.

ANSWER KEY

Power for Riverbend

GRADE 4 · 4.14

PART 1 · READ AND MARK

Underline coal, sunlight, and wind, then circle one environmental effect of using each and write matching numbers by each source and effect. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	If Riverbend used more rooftop solar power and less coal power, how could that affect the air? Explain why.	**The air could have less pollution because solar panels do not release air pollution while making power, but burning coal does.**
2	How could getting coal from the ground affect living things near a mine?	**Digging for coal can remove plants and disturb animal homes.**
3	What is one environmental benefit and one possible harm of putting wind turbines in a bird's flight path?	**The turbines make electricity without sending pollution into the air, but they could hurt birds.**
4	Why might putting solar panels on a roof protect land where plants and animals live?	**A roof is space that is already built, so the panels would not need a new area of land.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would put solar panels on the library roof to make electricity in sunlight. The library could use electricity from the coal plant when the panels cannot make enough, such as at night. The panels would make power without releasing air pollution and would use space that is already built. Burning coal for backup power would put pollution into the air.

Accept other plans supported by the passage, such as wind power with coal power when the wind is calm. Responses should connect each environmental effect to the source that causes it.