Power for a Town

Compare energy and air pollution in a model town.

E.4.10 "Students will demonstrate an understanding of the various sources of energy used for human needs along with their effectiveness and possible impacts. Organize simple data sets to compare energy and pollution output of various traditional..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB In the table, underline both numbers for one fuel that burns, circle both numbers for solar power, and number the sources from 1 for the least air pollution to 4 for the most.

A Town Chooses Power

1 At Harbor School, a class models how a town could get power for one hour. In the model, each energy source runs its own small power station. The table shows energy points made and air pollution points released while power is made. These are pretend points for comparing choices, not measurements from real power stations.

MODEL RESULTS FOR ONE HOUR

Source	Energy points	Air pollution points
Coal	10	9
Oil fuel	8	7
Wood	5	6
Solar	4	0

2 Coal and crude oil come from the ground and take millions of years to form. The oil fuel in the table is made from crude oil. Burning these fuels releases gases and tiny particles that pollute the air. Wood can grow again as trees, but burning wood also pollutes the air.

3 Solar panels turn sunlight into electricity without burning fuel while they work. In the model, solar power makes less energy than coal but releases no air pollution during power making. Solar panels cannot make electricity from sunlight at night, so a town needs another way to get power then. Making solar panels also uses materials and energy.

2 ANSWER WITH EVIDENCE

Use the passage

1. Compare coal and oil fuel. Which makes more energy points, and which releases more air pollution points?

2. List all four sources from least to most air pollution in the model.

3. Wood can grow again as trees. How do its energy and air pollution points compare with solar power's?

4. The town needs at least 5 energy points and wants the least air pollution possible. Which source should it choose? Use the table to explain.

3 YOUR TURN

Your own words

Make a day-and-night power plan for the town using two sources from the table. In 3 or 4 sentences, tell when you would use each source, include at least two table numbers, and explain one limit or impact from the passage.

ANSWER KEY

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GRADE 4 · E.4.10

PART 1 · READ AND MARK

In the table, underline both numbers for one fuel that burns, circle both numbers for solar power, and number the sources from 1 for the least air pollution to 4 for the most. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Compare coal and oil fuel. Which makes more energy points, and which releases more air pollution points?	**Coal makes more energy points, 10 compared with 8, and releases more air pollution points, 9 compared with 7.**
2	List all four sources from least to most air pollution in the model.	**Solar, wood, oil fuel, coal.**
3	Wood can grow again as trees. How do its energy and air pollution points compare with solar power's?	**Wood makes 5 energy points and 6 air pollution points. Solar makes 4 energy points and 0 air pollution points.**
4	The town needs at least 5 energy points and wants the least air pollution possible. Which source should it choose? Use the table to explain.	**Wood. It makes 5 energy points with 6 air pollution points, fewer than the other sources that make at least 5 energy points.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would use solar panels during the day because they make 4 energy points with 0 air pollution points while working. At night, I would use wood because the panels cannot get sunlight then. Wood makes 5 energy points but releases 6 air pollution points in the model. I would use less wood when the sun is out to limit that pollution.

For the power plan, accept any two table sources with a workable day-and-night explanation, at least two accurate numbers, and a limit or impact supported by the passage. The points are model values, not real-world measurements.