

## Environmental Test Questions

Below are sample questions from the Third International Mathematics and Science Study (TIMSS) achievement tests in Science administered to twenty-six countries. TIMSS is a research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA). These questions may be used in the classroom, as a tool for evaluation, or to provide examples of test-question writing.



### Grades 3 and 4

1. Write down one example of how computers help people do their work.

Answer: Should refer to writing or editing text, for example: "With a computer you can write faster and neater."

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2. To find out whether seeds grow better in the light or dark, you could put some seeds on a piece of paper and

- A. keep them in a warm, dark place
- B. keep one group in a light place and another in a dark place
- C. keep them in a warm, light place
- D. put them in a light or dark place that is cool

Answer: B

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3. Four children can feel and smell an object inside a bag, but they cannot see it.

Which of the following is NOT an observation about the object?

- A. "It is flat at one end and round at the other."
- B. "It smells like a peppermint."
- C. "It has a bump on it."
- D. "I hope it is candy."

Answer: D

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4. Some children were trying to find out which of three lightbulbs was the brightest.

Which one of these gives the best START towards finding the answer?

- A. "One bulb looks bright to me, so I already know the answer."
- B. "All the bulbs look bright to me, so there cannot be an answer."
- C. "It would help if we had a way to measure the brightness of a lightbulb."

D. "We can take a vote and each person will vote for the bulb he or she thinks is the brightest."

Answer: C

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5. Write down two different things that people can do to help reduce air pollution.

Answer: Could include reduced use of airplanes, cars and motor boats or more walking, hiking, and public transportation.

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6. Write as completely as possible why oil spills in rivers and seas are harmful to the environment.

Answer: Could include oil kills living things, water gets polluted, air and/or beaches get polluted.

### **Grades 7 and 8**

1. Maria collected the gas given off by a glowing piece of charcoal. The gas was then bubbled through a small amount of colorless limewater. Part of Maria's report stated, "After the gas was put into the jar, the limewater gradually changed to a milky white color." This statement is

- A. an observation
- B. a conclusion
- C. a generalization
- D. an assumption of the investigation
- E. a hypothesis

Answer: A

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2. Juanita did several experiments to germinate corn. She summed up her results as follows:

- 1. Moist grains of corn germinate in the light.
- 2. Moist grains of corn germinate in the dark.

What can you conclude from her results?

Answer: Should include that light is not required for moist corn to germinate.

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3. Write down one example of how computers help people do their work.

Answer: Should refer to writing or editing text.

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4. A cupful of water and a similar cupful of gasoline were placed on a table near a window on a hot sunny day. A few hours later it was observed that both the cups had less liquid in them but that there was less gasoline left than water. What does this experiment show?

- A. All liquids evaporate
- B. Gasoline gets hotter than water
- C. Some liquids evaporate faster than others.
- D. Liquids will only evaporate in sunshine.
- E. Water gets hotter than gasoline.

Answer: C

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5. One of the principal causes of acid rain is
- A. waste acid from chemical factories being pumped into rivers
  - B. acid from chemical laboratories being pumped into rivers
  - C. gases from burning coal and oil dissolving in water in the atmosphere
  - D. gases from air conditioners and refrigerators escaping into the atmosphere

Answer: C

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6. Whenever scientists carefully measure any quantity many times, they expect that
- A. all of the measurements will be exactly the same
  - B. only two of the measurements will be exactly the same
  - C. all but one of the measurements will be exactly the same
  - D. most of the measurements will be close, but not exactly the same

Answer: D

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7. Since water is a renewable resource and so much of it falls each year, theoretically there should be enough water for everyone on Earth. Write down TWO reasons why not everyone has enough water.

Answer: Should mention the uneven distribution of rain or other sources of water.