

Chemistry 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 7 and 8

1. The words *cloth*, *thread*, and *fiber* can be used in the following sentence: *cloth* consists of *threads* which are made of *fiber*. Use the words *molecules*, *atoms*, and *cells* to complete the following sentence:

_____ consists of _____ which are made of _____.

Answer: Cells-Molecules-Atoms.

2. Which is an example of a chemical reaction?

- A. The melting of ice
- B. The grinding of salt crystals to powder.
- C. The burning of wood.
- D. The evaporation of water from a puddle.

Answer: C

3. Animals are made up of many atoms. What happens to the atoms after an animal has died?

- A. The atoms stop moving.
- B. The atoms recycle back into the environment.
- C. The atoms split into simpler parts and then combine to form other atoms.
- D. The atoms no longer exist once the animal has decomposed.

Answer: B

4. Which gas could cause a glowing splint to burst into flame?

- A. Neon
- B. Oxygen

- C. Nitrogen
- D. Carbon dioxide

Answer: B

5. Which of the following is NOT a mixture?

- A. Air
- B. Blood
- C. Orange juice
- D. Salt

Answer: D

6. When oil is burning, the reaction will

- A. only release energy
- B. only absorb energy
- C. neither absorb nor release energy
- D. sometimes release and sometimes absorb energy depending on the oil

Answer: A

7. Which is a chemical change?

- A. Element 1 is hammered into a thin sheet.
- B. Element 2 is heated and turns to a liquid.
- C. Element 3 turns a greenish color as it sits in air.
- D. Element 4 is ground up into a fine, slippery powder.

Answer: C

8. If a neutral atom loses an electron, what is formed?

- A. A gas
- B. An ion
- C. An acid
- D. A molecule

Answer: B

9. A mixture of powdered iron and sulfur is heated. What will be formed?

- A. a single element
- B. two other elements
- C. a solution
- D. an alloy
- E. a compound

Answer: E

10. Which is NOT an example of a chemical change?

- A. Boiling water
- B. Rusting iron
- C. Burning wood
- D. Baking bread

Answer: A

11. Carbon dioxide is the active material in some fire extinguishers. How does carbon dioxide extinguish a fire?

Answer: Should include that carbon dioxide keeps oxygen away, response should include a specific reference to oxygen.

12. It takes 10 painters 2 years to paint a steel bridge from one end to the other. The paint that is used lasts about 2 years, so when the painters have finished painting at one end of the bridge, they go back to the other end and start painting again.

a. Why MUST steel bridges be painted?

b. A new paint that lasts 4 years has been developed and costs the same as the old paint. Describe 2 consequences of using the new paint.

Answer: a. Must include that the bridge should be painted to avoid corrosion.

Answer: b. Must include that the new paint will be cheaper for the community.