Science Fables

The Secret Inside an Atom

Story Quiz

This quiz checks what you learned about the structure of an atom — protons, neutrons, electrons, and the scientists who discovered them.

1. Which three subatomic particles make up an atom?

A. Protons, molecules, and electrons
B. Protons, neutrons, and electrons
C. Neutrons, atoms, and molecules
D. Electrons, ions, and molecules

2. What did J. J. Thomson discover through his cathode ray experiments?

A. Atoms contain a small, dense nucleus.
B. Atoms are mostly empty space.
C. Cathode rays contain negatively charged particles called electrons.
D. Neutrons have no electric charge.

3. What did Eugen Goldstein observe in his experiments?

A. Negatively charged cathode rays
B. Positively charged canal rays or anode rays
C. Neutrons inside the nucleus
D. Electrons orbiting the nucleus

4. What did Ernest Rutherford discover through his gold foil experiment and later research?

A. Atoms are solid spheres without empty space.
B. Electrons are embedded in a positively charged sphere.
C. Neutrons are found inside the nucleus.
D. Atoms are mostly empty space with a small, dense, positively charged nucleus, and he later identified the proton.

5. What makes an atom electrically neutral?

A. It has equal numbers of protons and electrons.
B. It has equal numbers of neutrons and electrons.
C. It contains more electrons than protons.
D. It contains only particles without electric charge.

Answer Key

1. B — Protons, neutrons, and electrons

An atom is made of protons, neutrons, and electrons.

2. C — Cathode rays contain negatively charged particles called electrons.

Thomson showed that cathode rays contain negatively charged particles called electrons.

3. B — Positively charged canal rays or anode rays

Goldstein observed positively charged canal rays, also called anode rays.

4. D — Atoms are mostly empty space with a small, dense, positively charged nucleus, and he later identified the proton.

Rutherford showed that atoms are mostly empty space with a small, dense, positively charged nucleus, and he later identified the proton.

5. A — It has equal numbers of protons and electrons.

An atom is electrically neutral when it has equal numbers of protons and electrons.