

Assessment

Atoms: The Building Blocks of Matter**Section Quiz: The Structure of the Atom**

In the space provided, write the letter of the correct term or phrase that best completes each statement or best answers each question.

- _____ 1. Experiments with cathode rays being deflected by a magnetic field show that cathode rays are composed of particles that are
- magnetic.
 - negatively charged.
 - positively charged.
 - neutral in charge.
- _____ 2. Cathode rays are composed of particles that are now known as
- positrons.
 - neutrons.
 - protons.
 - electrons.
- _____ 3. In 1911, Ernest Rutherford conducted his now famous goldfoil experiment. During the experiment, alpha particles bombarded a thin piece of gold foil. The alpha particles were expected to pass easily through the gold foil. Every now and then, however, an alpha particle bounced back—an unexpected result. Rutherford concluded that these particles were striking
- a tiny region of positive charge.
 - a dense region of negative charge.
 - a dense region of neutrons.
 - a tiny region with a strong magnetic field.
- _____ 4. Rutherford called the region that deflected alpha particles
- an electron.
 - a positron.
 - a nucleus.
 - a quark.
- _____ 5. The total volume of the nucleus of an atom is
- very large compared with the rest of the atom.
 - very small compared with the rest of the atom.
 - about the same size as an electron.
 - smaller than a neutron.

Section Quiz, *continued*

- _____ 6. Except for in the simplest type of hydrogen atom, all nuclei consist of
- protons and electrons.
 - neutrons and positrons.
 - protons and neutrons.
 - electrons and positrons.
- _____ 7. Electrons can be found
- inside protons.
 - inside neutrons.
 - attached to the nucleus.
 - moving rapidly outside the nucleus.
- _____ 8. We know that objects with like electric charge repel one another. Which statement best explains why protons can remain close to one another in a nucleus?
- There is no electric charge in the nucleus of an atom.
 - A short-range force, called the strong nuclear force, binds protons together.
 - Protons are balanced electrically by electrons.
 - Neutrons cancel out the electric force.
- _____ 9. Most of an atom is
- dense.
 - fluid.
 - empty.
 - the nucleus.
- _____ 10. What is the charge of a neutron?
- positive
 - negative
 - neutral
 - None of the above