Although the mid-twentieth century is often referred to as the Atomic Age, the idea of atoms as the smallest autonomous particle appeared long before then. Twenty-five hundred years ago, the Greek philosophers Democritus and Leucippus proposed that matter could be divided only to a certain point before reaching the miniscule building blocks that formed all things.

This theory—that all matter was comprised of infinitesimally small atoms—was finally proved in the early nineteenth century by British chemist and physicist John Dalton. His experiments demonstrated that each element has a unique atomic structure varying in weight and density.

By the dawn of the twentieth century, however, physicists found that atoms are not, in fact, the smallest thing. Atoms contain protons, neutrons, and electrons that give each element its unique weight and density. Ninety-one elements occur naturally on Earth. Each of them contains a different number of protons that is matched by an equal number of electrons.

Recent experiments in physics indicate that the smallest indivisible units of matter may be in the process of being discovered right now. These units are the objects that form protons and neutrons. Physicists have dubbed these newest subatomic particles quarks and gluons.

1. Which of these is part of an atom?
   - **a** A molecule
   - **b** A neutron
   - **c** A compound
   - **d** Both **a** and **b**

2. The atomic structure of each element has
   - **a** the same number of protons.
   - **b** an equal number of electrons.
   - **c** protons or neutrons but not both.
   - **d** a unique weight and density.

3. John Dalton's experiments helped prove the existence of
   - **a** quarks.
   - **b** molecules.
   - **c** atoms.
   - **d** electrons.

4. Today physicists believe that the smallest indivisible particles are
   - **a** quarks.
   - **b** gluons.
   - **c** atoms.
   - **d** Both **a** and **b**

5. The best title for this selection is
   - **a** Before the Atom.
   - **b** Introduction to Elemental Physics.
   - **c** The Smallest Structures.
   - **d** Greek Philosophy and Its Influence on Science.

6. Quarks and gluons form
   - **a** neutrons.
   - **b** electrons.
   - **c** atoms.
   - **d** All of the above

7. Which century is considered to be the Atomic Age?
   - **a** The eighteenth century
   - **b** The nineteenth century
   - **c** The twentieth century
   - **d** The twenty-first century

8. How many elements occur naturally on Earth?
   - **a** 19
   - **b** 91
   - **c** 119
   - **d** 191

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**1** b

**2** d

**3** c

**4** d

**5** c

**6** d

**7** c

**8** b