YEAR 9 SCIENCE

# Atomic Structure

Describe protons, neutrons and electrons and calculate particle numbers

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**Name:** _____ **Date:** _____ **Score:** _____ / 14

**Match each particle to its properties.**

1. Proton • • **a)** no charge, in the nucleus
2. Neutron • • **b)** negative charge, orbits the nucleus
3. Electron • • **c)** positive charge, in the nucleus

**Complete the table for each atom.**

4. Carbon: atomic number 6, mass number 12. Protons, neutrons, electrons?

5. Sodium: atomic number 11, mass number 23.

6. Chlorine: atomic number 17, mass number 35.

7. Oxygen: atomic number 8, mass number 16. Write the electron configuration.

8. Magnesium: atomic number 12. Write the electron configuration.

**Choose the best answer.**

9. The atomic number tells you the number of...
   (a) protons + neutrons (b) protons (c) neutrons
10. Isotopes of an element have different numbers of...
    (a) neutrons (b) protons (c) electrons
11. Who discovered the nucleus with the gold foil experiment?
    (a) Darwin (b) Rutherford (c) Newton
12. A radioactive isotope used to date ancient objects is...
    (a) sodium-23 (b) carbon-14 (c) oxygen-16

**True or false?**

13. Almost all of an atom's mass is in the nucleus. True False
14. Electrons are heavier than protons. True False


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**Match each particle to its properties.**

1. c) positive charge, in the nucleus
2. a) no charge, in the nucleus
3. b) negative charge, orbits the nucleus

**Complete the table for each atom.**

4. 6 protons, 6 neutrons, 6 electrons
5. 11 protons, 12 neutrons, 11 electrons
6. 17 protons, 18 neutrons, 17 electrons
7. 2, 6
8. 2, 8, 2

**Choose the best answer.**

9. b) protons
10. a) neutrons
11. b) Rutherford
12. b) carbon-14

**True or false?**

13. True
14. False



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