

Atomic Structure

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1. The 3 particles of the atom are
 - (a)
 - (b)
 - (c)Their respective charges are
 - (a)
 - (b)
 - (c)
2. The number of protons in one atom of an element determines the atom's ..., and the number of electrons determines ... of an ion/atom.
3. The atomic number tells you the number of ... in one atom of an element. It also tells you the number of ... in a neutral atom of that element. The atomic number gives the 'identity' of an element as well as its location on the Periodic Table. No two different elements will have the ... atomic number.
4. The ... of an element is the average mass of an element's naturally occurring atom, or isotopes, taking into account the ... of each isotope.
5. The ... of an element is the total number of protons and neutrons in the ... of the atom.
6. The mass number is used to calculate the number of ... in one atom of an element. In order to calculate the number of neutrons you must subtract the ... from the
7. Give the symbol and number of protons in one atom of
 - (a) Lithium
 - (b) Bromine
 - (c) Oxygen
 - (d) Iron
 - (e) Copper
 - (f) Helium
 - (g) Mercury
 - (h) Krypton
8. Give the symbol and number of electrons in a neutral atom of
 - (a) Uranium
 - (b) Chlorine

- (c) Boron
 - (d) Iodine
 - (e) Antimony
 - (f) Xenon
9. Give the symbol and number of neutrons in one atom of
(*To get mass number, you must round the 'atomic mass' to the nearest whole number*) Show your calculations.
- (a) Barium
 - (b) Bismuth
 - (c) Carbon
 - (d) Hydrogen
 - (e) Fluorine
 - (f) Magnesium
10. Name the element which has the following numbers of particles
- (a) 26 electrons, 29 neutrons, 26 protons
 - (b) 53 protons, 74 neutrons
 - (c) 2 electrons (neutral atoms)
 - (d) 20 protons
 - (e) 86 electrons, 125 neutrons, 82 protons (charged atom)
 - (f) 0 neutrons
11. If you know only the following information can you always determine what the element is? (Yes/No).
- (a) number of protons
 - (b) number of neutrons
 - (c) number of electrons in a neutral atom
 - (d) number of electrons
12. How many protons, neutrons and electrons are in...
- (a) a carbon-12 atom
 - (b) a carbon-14 atom
 - (c) a plutonium-244 atom
 - (d) a uranium-241 atom
 - (e) a hydrogen nucleus
 - (f) a sodium nucleus
 - (g) a deuterium atom
13. (a) What is an isotope?
- (b) A stable atom contains 34 nucleons. Give a possible number of protons, neutrons and electrons in the atom.
 - (c) Repeat part b, but for a different isotope of the element.
 - (d) The most common isotope of Actinium has 227 nucleons. Give a possible number of protons, neutrons and electrons for a different isotope.
14. Write down the nuclear notation (A_ZX) for
- (a) carbon-13
 - (b) nitrogen-14
 - (c) neon-22
 - (d) tin-118
 - (e) iron-54