Atoms and Molecules

A. From the list at the bottom of this table, select the word that best fits the definition given. Then write the correct word in the box next to the definition.

1	_____atom_____	the smallest unit of a chemical element that has all the chemical properties of that element
2	_____nucleus_____	the bundle consisting of protons and neutrons, which is found in the center of an atom
3	_____isotopes_____	atoms of an element containing the same number of protons, but different numbers of neutrons
4	_____proton_____	a part of an atom with a positive charge
5	_____electron_____	a part of an atom with a negative charge
6	_____nuclide_____	a nucleus described in terms of its total number of protons plus neutrons

isotopes nucleus nuclide atomic weight
atom proton electron

B. Indicate whether each statement is true (T) or false (F) by circling the correct letter. If the statement is false, correct it to make it true.

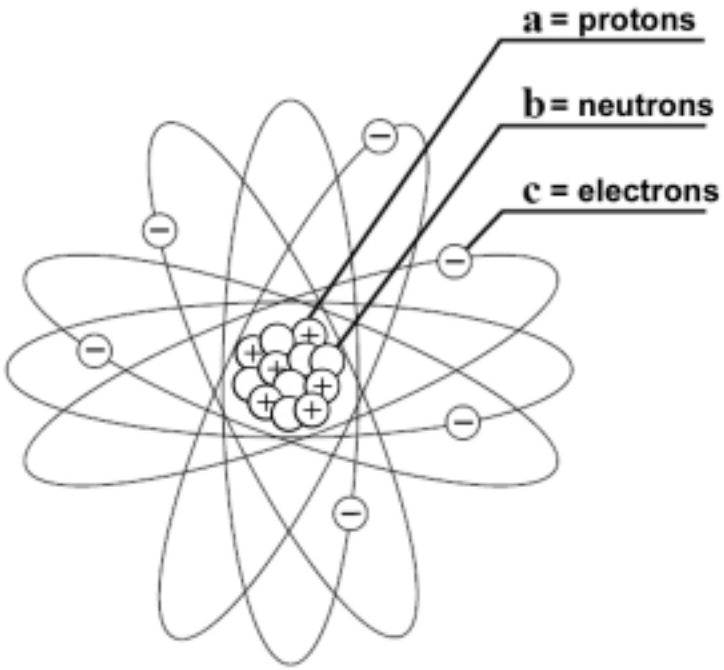
1. Unstable atoms can change from one form to another by emitting particles and rays. **T**
2. An element is identified by the number of protons in its nucleus. **T**
3. Protons and electrons together make up the nucleus of an atom. **F** ***(protons and neutrons..)***
4. Atoms are so small that humans cannot see them. **T**
5. Atoms combine to form molecules. **T**

C. Using the **Periodic Table** and the alphabetical list **Chemical Elements and Their Symbols**, write the names of each element that makes up the molecules of the following substances.

1	H_2SO_4	hydrogen	sulfur	oxygen
2	$C_6H_{12}O_6$	carbon	hydrogen	oxygen
3	KOH	potassium	oxygen	hydrogen
4	$AgNO_3$	gold	nitrogen	oxygen
5	$ZnCl_2$	zinc	chlorine	

D. Models

1. Label a, b, and c on the model of the carbon atom shown. All carbon atoms have 6 protons and 6 electrons. The most common carbon isotope has 6 neutrons, as well. Remember that protons have a positive (+) charge, electrons have a negative (-) charge, and neutrons have no electrical charge.



2. Draw a model of a helium atom. An atom of helium has 2 protons, 2 electrons, and 2 neutrons. Show protons as (+), electrons as (-), and neutrons as ( ).

(Students should draw a figure with 2 protons (+) connected to 2 neutrons (no charge) as the nucleus, with 2 neutrons (-) in separate orbits around the nucleus.)