

1. Classify each statement using **D = Dalton**, **T = Thomson**, **R = Rutherford**, **B = Bohr**, **C = Cloud**, or **M = Modern**.

D Stated that elements are made of atoms that cannot be divided and atoms of one element could not be changed into atoms of another element (Billiard ball)

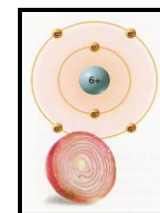
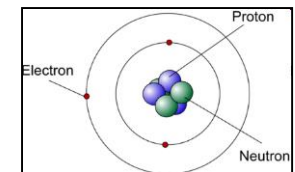
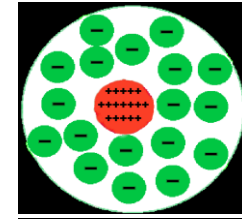
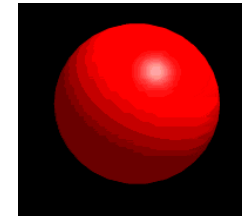
R Used gold foil to show that the positive charges (protons) in an atom must be in a tiny region in its center; determined that nearly all an atom's mass is located in the nucleus

T Found that atoms contain positively and negatively charged particles and suggested that atoms had negatively charged electrons embedded in a positive sphere, such as raisins in a muffin or plum pudding

C Determined that electrons are found in energy levels around the nucleus with lower levels found near the nucleus and higher levels further away

M Atoms contain a neutral particle called a neutron

B Showed that electrons had only specific amounts of energy which allowed them to move in certain orbits and developed a model that resembled planets orbiting the sun or layers of an onion



3. Explain how to determine the number of protons, neutrons, and electrons in an atom of Potassium using the information shown in a periodic table. Use the terms atomic number, atomic mass, protons, neutrons, and electrons in your answer.



An element's ATOMIC NUMBER tells us the number of PROTONS or ELECTRONS in an atom. The ATOMIC MASS tells us the number of PROTONS and NEUTRONS in the nucleus.

In the example of Potassium, the atomic number is 19, which means it has 19 protons and 19 electrons. It's atomic mass is 39 (rounded). Subtract the atomic number (19) from the mass to determine that it has 20 neutrons.

4. Complete the chart using your knowledge of atomic number and atomic mass.

Element	Atomic Number	Atomic Mass	Protons	Neutrons	Electrons
Li	3	7	3	4	3
Al	13	27	13	14	13
Br	35	80	35	45	35
Hg	80	201	80	121	80
Pa	91	231	91	140	91

5. Use your colored periodic table to identify whether each element is a metal (M), nonmetal (NM), or metalloid (MD).

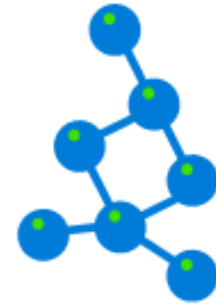
Nb M Kr NM As MD Pa M Li M Al M P NM

6. Use your colored periodic table to identify the family to which each element belongs.

Sodium (Na) - Alkali Metal Tin (Sn) - Carbon Family
Antimony (Sb) - Nitrogen Family Aluminum (Al) - Boron Family
Xenon (Xe) - Noble Gases Iodine (I) - Halogens (Halides)

7. Use your colored periodic table to identify these mystery elements using a periodic table.

- 1) Ge I am a metalloid in the Carbon family with a total of 4 energy levels.
- 2) Xe I am a Noble gas with five energy levels.
- 3) Os I am a transition metal with a total of 190 protons & neutrons in my nucleus.
- 4) H I am a gas with only 1 energy level and only 1 electron in it.
- 5) Mo I am a transition metal with 54 neutrons.
- 6) I I am a Halide (Halogen) with a mass number of 127 (rounded).
- 7) Ni I am in the 4th period and have 28 electrons.



Calculate Your Grade

$$\# \text{ Correct} = \underline{\hspace{2cm}} \div 50 \times 100 = \underline{\hspace{2cm}} \%$$