Answer these questions in a group

1. **Bohr's "planetary model" states that electrons are in specific energy levels or "orbits" around the nucleus. Explain how this is not possible using Heisenberg's uncertainty principle.**

2. **Explain what might have been Thomson's thought process when he discovered the electron and used his discovery to come up with his 'chocolate chip cookie' model of the atom.**

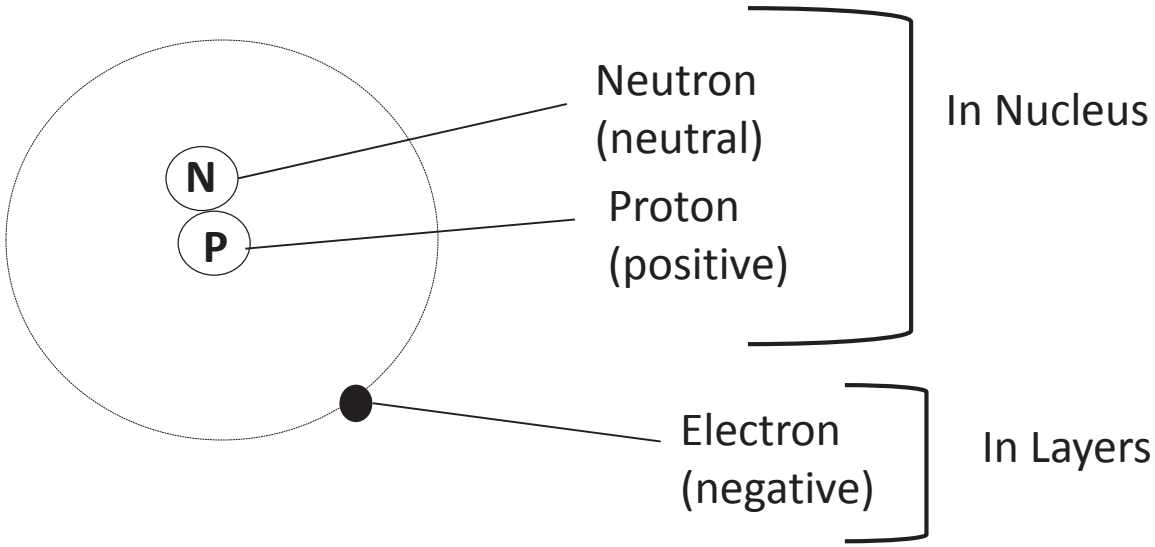
3. **Compare and contrast Dalton's model, Thomson's model, Rutherford's model, and Bohr's model of the atom.**

What makes up an Atom?

- An atom is the smallest part of an element.
- An atom is made up of subatomic particles.
- http://ed.ted.com/lessons/the-uncertain-location-of-electrons-george-zaidan-and-charles-morton
- http://ed.ted.com/lessons/just-how-small-is-an-atom

Standard model of the Atom

- Matter is composed of **atoms**
- Atoms are made of three basic particles:
  1. Protons – **Positive** particles in the **Nucleus.**
  2. Neutrons – **Neutral** particles in the **Nucleus.**
  3. Electrons – **Negative** particles in region **around** nucleus.



Atoms

- Notice:
- Atoms can be **neutral** with equal protons and electrons.
- When atoms **lose** electrons the matter becomes charged **+**
- When atoms **gain** electrons the matter becomes charged **–**
- ***Important:****
- ****Only the **electrons** are able to move **to** or **from** an atom…*****

Atomic and Mass Number

- Atoms of the same element have the same number of protons.
  - This is also called the atomic number
- Atoms of different elements have different numbers of protons
- The mass number is the number of protons and neutrons
- Mass number = # of neutrons + # of protons