

# ATOMIC STRUCTURE

## RUTHERFORD'S MODEL

- Discovered that an atom is mostly made up of empty space
- Center of the atom is a small dense positively charged nucleus
- This nucleus holds the negatively charged particles in the atom

## BOHR'S MODEL

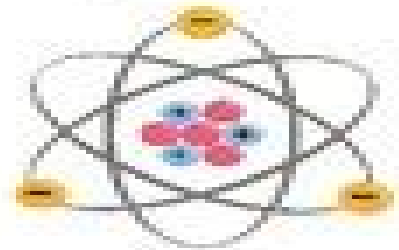
- There are 2 main pieces of an atom:
- Nucleus
- Electrons

## THE OLD MODEL OF THE ATOM



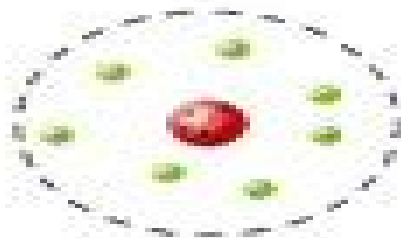
## WAVE-MECHANICAL MODEL

- Electrons are moving so fast that they look like a cloud. Orbitals are regions of most likely electron location



## WHAT IS TRUE TODAY...

- The nucleus is composed of 2 things:
  - PROTONS - positively charged particles
  - NEUTRONS - neutral charged particles
- Electrons are in a cloud - they are in orbitals
  - Electrons DO move around the nucleus in different patterns



Subatomic Particle	Location in the Atom	Charge	Weight
proton	center (in the nucleus)	positive	1 amu
neutron	center (in the nucleus)	neutral (no charge)	1 amu
electron	around the nucleus in clouds or orbitals	negative	Almost equal to 1/1836

### IONS

- If an atom gains or loses an electron, it is called an ion
- This gives the atom a charge:
  - Lose an electron, the atom becomes positive
  - Gain an electron, the atom becomes negative

### ISOTOPES

- An isotope is when an atom is physically the same, but different
- An isotope is still the same element, it is just a little different from every other atom of the same element
  - slightly different mass

# Study Guide Structure Atom Answer Key

**Sylvia S. Mader**



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