CHEMISTRY CHAPTER 4 (ATOMIC STRUCTURE) NOTEPACKET

4.1 STUDYING ATOMS

Ancient Greek Models of Atoms

1. Democritus
2. Aristotle

Dalton’s Atomic Theory

1. Evidence for Atoms
2. Dalton’s Theory
3.
4.
5.
6.
7.

Thomson’s Model of the Atom

1. Thomson’s Experiments



1. Evidence for Subatomic Particles
2. Thomson’s Model



Rutherford’s Atomic Theory

1. Rutherford’s Hypothesis
2. The Gold Foil Experiment



1. Discovery of the Nucleus



4.2 THE STRUCTURE OF THE ATOM

Properties of Subatomic Particles

1. Protons
2. Electrons
3. Neutrons

Comparing Subatomic Particles

|  |  |  |  |
| --- | --- | --- | --- |
| Particle | Symbol | Charge | Mass |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Atomic Number and Mass Number

1. Atomic Number
2. Mass Number
3. Isotopes

Symbols used to represent isotopes of atoms

AZX

A=

Z=

X=

Determining the number and type of subatomic particles found in an atom

12C

Fluorine-19

Ag-108

Self Check: Give the number of protons, electrons, and neutrons for

1. Bromine-79
2. Calcium-40
3. 64Cu

4.3 MODERN ATOMIC THEORY

Bohr’s Model of the Atom

1. Energy Levels
2. Evidence for Energy Levels

Electron Cloud Model

Atomic Orbitals

Electron Configurations

1. Principle Energy Levels
2. Sublevels
3. Writing Electron Configurations and their Importance

1. Ground State and the Excited State