

Chemistry Chapter 4

1. **Alpha Particles:** A particle with two protons and two neutrons, with a 2+ charge; is equivalent to a helium-4 nucleus, can be represented as α , and is emitted during radio active decay.
2. **Alpha Radiation:** radiation that is made up of alpha particles; is deflected toward a negatively charged plate when radiation from radioactive source is directed between two electrically charged plates.
3. **Atom:** the smallest particle of an element that retains all the properties of that element; is electrically neutral, spherically shaped, and composed of electrons, protons, and neutrons.
4. **Atomic Mass:** The weighted average mass of the isotopes of that element.
5. **Atomic Mass Unit (AMU):** one-twelfth the mass of a carbon-12 atom.
6. **Atomic Number:** The number of protons in an atom.
7. **Beta Particle:** A high-speed electron with a 1- charge that is emitted during radio active decay.
8. **Beta Radiation:** radiation that is made up of beta particles; is deflected toward a positively charged plate when radiation from radioactive source is directed between two electrically charged plates.
9. **Cathode Ray:** a ray of radiation that originates from the cathode and travels to the anode of a cathode ray tube.
10. **Dalton's Atomic Theory:** A theory purposed by John Dalton in 1808, based on numerous scientific experiments that marked the beginning of the development of modern atomic theory.
11. **Electron:** a negatively charged, fast-moving particle with an extremely small mass that is found in all forms of matter and moves through the empty space surrounding an atoms nucleus.
12. **Gamma Ray:** high-energy radiation that has no electrical charge and no mass, is not deflected by electric or magnetic fields, usually accompanies alpha and beta radiation, and accounts for most of the energy lost during radio active decay.
13. **Isotope:** atoms of the same element with the same number of protons but different number of neutrons.
14. **Mass Number:** The number after an element's name, representing the sum of its protons and neutrons.
15. **Neutron:** A neutral subatomic particle in an atom's nucleus that has a mass nearly equal to that of a proton.
16. **Nuclear Equation:** A type of equation that shows the atomic number and mass number of the particle involved.
17. **Nuclear Reaction:** a reaction that involves a change in the nucleus of the atom.
18. **Nucleus:** the extremely small, positively charged, dense center of an atom that contains positively charged protons, neutral neutrons, and is surrounded by empty space through which one or more negatively charged electrons move.
19. **Proton:** a subatomic particle in an atom's nucleus that has a positively charge of 1+.
20. **Radiation:** the rays and particles – alpha and beta particles and gamma rays – that are emitted by radioactive materials.

- 21. Radioactive Decay:** a spontaneous process in which unstable nuclei lose energy by emitting radiation.
- 22. Radio Activity:** the process in which some substances spontaneously emit radiation.