# Radioactive decay knowledge organiser

***Education in Chemistry***

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| **α decay** | **β decay** | **γ decay** |
| alpha decay | beta decay | gamma decay |
| * He nucleus (containing 2 protons and 2 neutrons) is lost. | * A neutron turns into a proton and an electron. * The proton stays in the nucleus. * The electron is lost as a β particle. | * Electromagnetic waves emitted from the nucleus. * Often accompanies the other modes of decay. |
| * Atomic mass decreases by 4. * Atomic number decreases by 2.   A new element is formed. | * Atomic mass stays the same. * Atomic number increases by 1.   A new element is formed. | * No change of atomic mass or atomic number. * No new element formed. |
|  |  |  |
| The same rules apply when writing a decay equation as for other equations. The equations must be **balanced.**  The **mass numbers** on the left and right of the equations must be equal.  The **atomic numbers** on the left and right of the equations must be equal. | |