# Radioactive decay knowledge organiser

***Education in Chemistry***

March 2018[rsc.li/EiC218-thehuntison](http://rsc.li/EiC218-thehuntison)

**This worksheet accompanies the above article ‘The hunt is on’.**

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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. |