

Nuclear Decay Organizer

<i>Students know</i> the three most common forms of radioactive decay (alpha, beta, and gamma) and know how the nucleus changes in each type of decay.
<i>Students know</i> alpha, beta, and gamma radiation produce different amounts and kinds of damage in matter and have different penetrations.
<i>Students know</i> some naturally occurring isotopes of elements are radioactive, as are isotopes formed in nuclear reactions.

	Alpha Particle Emission	Beta Particle Emission	Gamma Ray Emission
Symbol	${}^4_2\text{He}^{2+}$ or ${}^4_2\alpha^{2+}$	${}^0_{-1}e$ or ${}^0_{-1}\beta$	${}^0_0\gamma$
Mass	Heavy	Light	No Mass
How it changes the nucleus	- Decreases the mass number by 4 - Decreases the atomic number by 2	- Converts a neutron into a proton - Increases atomic number by 1	No change to the nucleus
Penetration	Low	Medium	High
Protection provided by...	Skin	Paper, clothing	Lead
Danger	Low	Medium	High