

Nuclear Decay Organizer

Students know the three most common forms of radioactive decay (alpha, beta, and gamma) and know how the nucleus changes in each type of decay.

Students know alpha, beta, and gamma radiation produce different amounts and kinds of damage in matter and have different penetrations.

Students know 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	<ul style="list-style-type: none"> Decreases the mass number by 4 Decreases the atomic number by 2 	<ul style="list-style-type: none"> 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