

**Table 1.1** The properties of alpha, beta and gamma radiations

Property	$\alpha$ particle	$\beta$ particle	$\gamma$ ray
Mass	heavy	light	none
Charge	+2	-1	none
Typical energy	~5 MeV	~1 MeV	~0.1 MeV
Range in air	a few cm	1 or 2 m	many metres
Penetration in matter	~ $10^{-2}$ mm	a few mm	high
Ionising ability	high	reasonable	poor