Radioactive decay

International Baccalaureate · IB Diploma · Physics · SL · Vocabulary in context

Word	Example
isotope /'aɪsətəʊp/	Carbon-14 is an **isotope** of carbon. Carbon-14
strong nuclear force /strɒŋ 'nju:klɪə fɔ:s/	The **strong nuclear force** holds protons and neutrons together.
mass defect /mæs 'di:fekt/	The **mass defect** is the mass lost when a nucleus forms.
binding energy /'baɪndɪŋ 'enədʒi/	The **binding energy** holds the nucleus together.
unified atomic mass unit /'ju:nɪfaɪd ə'tɒmɪk mæs 'ju:nɪt/	A proton has a mass of about one **unified atomic mass unit**.
binding energy per nucleon /'baɪndɪŋ 'enədʒi pɜ: 'nju:klɪən/	Iron has the highest **binding energy per nucleon**.
fusion /'fju:ʒn/	**Fusion** powers the Sun.
fission /'fɪʃn/	**Fission** splits a uranium nucleus.
radioactive decay /ˌreɪdɪəʊ'æktɪv dɪ'keɪ/	**Radioactive decay** changes one element into another.
random /'rændəm/	Decay is **random**: we cannot say when one nucleus will decay.
spontaneous /spɒn'teɪnɪəs/	Decay is **spontaneous**: nothing outside starts it.
alpha particle /'ælfə 'pɑ:tɪkl/	An **alpha particle** is a helium nucleus.

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antineutrino /ˌæntɪnju:'tri:nəʊ/	Beta-minus decay also gives out an **antineutrino**. β
positron /'pɒzɪtrɒn/	A **positron** is like an electron with a positive charge.
neutrino /nju:'tri:nəʊ/	A **neutrino** has almost no mass.
gamma ray /'gæmə reɪ/	A **gamma ray** can pass through thick metal.
ionisation	Alpha particles cause a lot of **ionisation** in air.
activity /æk'tɪvɪti/	The **activity** is the number of decays each second.
becquerel /'bekwərəl/	One **becquerel** is one decay per second.
count rate /kaʊnt reɪt/	The **count rate** is 120 counts per minute. 120
half-life /hɑ:f laɪf/	After one **half-life**, half the nuclei have decayed.
background radiation /'bækgraʊnd ˌreɪdɪ'eɪʃn/	**Background radiation** is all around us.