

P3 Topic 3 Revision tracker

PHYSICS

Learning objectives I can:	I can do this very well	I can do this quite well	I need to do more work on this
3.2 Describe the properties of beta and positron radiation			
3.3 Recall the relative masses and relative electric charges of protons, neutrons, electrons and positrons			
3.4 Recall that in an atom the number of protons equals the number of electrons			
3.5 Describe the process of β^- decay (a neutron becomes a proton plus an electron)			
H 3.6 Describe the process of β^+ decay (a proton becomes a neutron plus a positron)			
3.7 Explain the effects on the atomic (proton) number and mass (nucleon) number of radioactive decay (β decay)			
HSW 3 Describe how phenomena are explained using scientific models			
3.2 Describe the properties of alpha, gamma and neutron radiation			
3.7 Explain the effects on the atomic (proton) number and mass (nucleon) number of radioactive decays (α and γ decay)			
H 3.8 Use given data to balance nuclear equations			
3.19 Recall that nuclei that have undergone radioactive decay often undergo nuclear rearrangement with a loss of energy as gamma radiation			
H 3.9 Describe the features of the N - Z curve for stable isotopes			
H 3.10 Identify isotopes as radioactive from their position relative to the stability curve			
H 3.11 Recall that nuclei with high values of Z (above 82) usually undergo alpha decay			
H 3.12 Recall that an isotope above the curve has too many neutrons to be stable and will undergo β^- decay			
H 3.13 Recall that an isotope below the curve has too many protons to be stable and will undergo β^+ decay			
HSW 2 Describe how data is used to provide evidence that increases our scientific understanding			
H 3.14 Recall that the proton and neutron each contain three particles called quarks			
H 3.15 Describe the arrangement of up and down quarks in protons and neutrons			
H 3.16 Use given data to explain the arrangement of up and down quarks in protons and neutrons in terms of charge and mass			
H 3.17 Explain β^- decay as a process that involves a down quark changing into an up quark (a neutron becomes a proton and an electron)			
H 3.18 Explain β^+ decay as a process that involves one up quark changing into a down quark (a proton becomes a neutron and a positron)			
3.20 Describe the dangers of ionising radiation in terms of tissue damage and possible mutations			
3.21 Explain the precautions taken to ensure the safety of people exposed to radiation, including limiting the			

P3 Topic 3 Revision tracker

dose for patients and the risks to medical personnel			
HSW 12 Describe the benefits, drawbacks and risks of using new scientific and technological developments			
3.1 Evaluate the social and ethical issues relating to the use of radioactive techniques in medical physics			
3.22 Compare and contrast the treatment of tumours using radiation applied internally or externally			
3.23 Describe palliative care including the use of radiation in some instances			
3.24 Explain some of the uses of radioactive substances in diagnosis of medical conditions, including PET scanners and tracers			
3.25 Explain why isotopes used in PET scanners have to be produced nearby			
HSW 13 Explain how and why decisions that raise ethical issues about uses of science and technology are made			