





Year 9: ASK Yourself!

Subject: Physics

Unit: 4 – Atomic Structure

	Launching 1-2	Developing 3-4	Progressing 5-6	Mastering 7-9
 S skills				
	<p>To be able to state that the number of protons in an element is the atomic number and the total number of protons and neutrons is the mass number.</p> <p>To be able to recognise the symbols used in a nuclear equation.</p> <p>To be able to define nuclear fission.</p>	<p>To be able to understand that atoms of an element all have the same number of protons but can have different numbers of neutrons, giving different isotopes.</p> <p>To be able to write nuclear equations involving alpha and beta decay.</p> <p>To be able to describe nuclear fission using a nuclear equation.</p>	<p>To be able to use nuclear notation to show subatomic particles in an isotope.</p> <p>To be able to write balanced nuclear equations for different types of nuclear reaction.</p> <p>To be able to describe, using a nuclear equation, how an uncontrolled nuclear fission chain reaction can result in a huge release of energy.</p>	<p>To be able to calculate the half-life of a radioisotope.</p> <p>To be able to solve for unknown particles or elements in nuclear equations.</p> <p>To be able to describe methods used in nuclear power plants to control nuclear fission.</p>
 K knowledge				
	<p>To be able to recognise that some isotopes called radioisotopes are unstable and decay.</p> <p>To be able to list the three types of ionising radiation resulting from nuclear activity.</p> <p>To be able to explain the meaning of background radiation.</p>	<p>To be able to list some uses of radioisotopes in medicine.</p> <p>To be able to describe the structure of each type of ionising radiation.</p> <p>To be able to list different sources of background radiation.</p> <p>To be able to list the hazards of radioactive contamination.</p>	<p>To be able to describe how specific radioisotopes are used in medicine.</p> <p>To be able to explain the properties of each type of radiation.</p> <p>To be able to explain why background radiation varies in different areas and in different times.</p> <p>To be able to compare and</p>	<p>To be able to explain the meaning of half-life of a radioisotope and selection based on half-life.</p> <p>To be able to choose between types of radiation for different applications.</p> <p>To be able to explain how radiation dose is measured and monitored.</p>

To be able to
define radioactive.

contrast
irradiation and
contamination.

To be able to
explain the
potential benefits
of nuclear fusion.