

Blue Pathway								
Purple Pathway								
Orange Pathway								
	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	Step 11	Step 12
AO1 Remember	Define "radioactive"	Describe radioactive decay	Define ions	Describe the structure of each ionising radiation	Describe how atomic model changed due to scattering experiment	Use appropriate scientific language when recalling scientific detail	Explain introduction of new atomic model	Explain the relationships between scientific advances, their ethical implications and the benefits and risks associated with them.
	Describe contamination and irradiation	Describe different models of the atom	Recall some uses of radioisotopes	Describe different uses of radioisotopes	Relate properties of nuclear radiation to their uses	Explain the implications of background radiation	Recall all key areas of Science through accurate scientific explanations.	
	Recall units of activity and give the definition of half-life	Define fission and fusion		Describe fission and fusion and a chain reaction	Use correct nuclear notation	Explain potential benefits of fusion		Explain, using energy uses of chain reactions
AO2 Application	Apply knowledge effectively in a range of contexts.	Interpret a half-life graph	Interpret data and use it to support evidence.	Write nuclear equations	Write balanced nuclear equations	Use standard form	Suggest how ideas about irradiation and contamination influence applications	Carry out complex analyses of problems linked with half life
	Sometimes use data to support evidence.	Use theories to make simple explanations of events.	Rearrange equations in calculations	List hazards and precautions of contamination and irradiation	Calculate net decline after a given number of half-lives			
					Use a nuclear equation to describe fission	Relate ideas of mass and energy to fission and fusion	Use theories to make detailed explanations of events.	Apply the concepts of fission and fusion
AO3 Analyse and Evaluate	Evaluate basic information to develop simple arguments and explanations.	Consistently draw conclusions consistent with the available evidence.	Compare isotopes	Evaluate data with reference to potential sources error.	Suggest further questions that may arise from results of investigations and data analysis and evaluation.	Relate differences between isotopes	Compare and contrast properties and application of isotopes	Compare/contrast nuclear equations & uses of nuclear radiation
			Explain peer review and its importance	Explain background radiation and why it varies.		Compare and contrast contamination and irradiation	Evaluate perceived risk of radiations	Evaluate possible benefits of fission and fusion
AO3 Experimental Procedures	Identify variables in an investigation	Describe safety precautions when using a radioactive source	Correctly use an appropriate number of decimal places Select and apply appropriate experimental techniques	Describe practical steps taken to measure radiation levels from a source	Make more complex and quantitative predictions using scientific knowledge and understanding	Plan valid and reliable experimental methods to test a hypothesis.	Explain accuracy, precision, resolution and reliability	Use all the correct scientific language throughout.