

| Prior Learning |                    | Atomic structure – atoms contain protons, neutrons and electrons.<br>Isotopes<br>Conservation of mass in a reaction.<br>Chemical equations and what happens in a chemical reaction. |  |   |
|----------------|--------------------|---|--|---|
| Lesson Number  | AQA Spec           | Title   | Content  | Assessment  |
| 1              | 4.4.2.1<br>4.4.3.1 | Background radiation  | Recall sources of background radiation.<br>Describe how different types of radiation have different ionising power.  |   |
| 2              | 4.4.2.1            | Radioactive decay   | Describe radioactive decay.<br>Describe the types of nuclear radiation.<br>Understand the processes of alpha decay and beta decay.   |   |
| 3              | 4.4.2.2            | Nuclear equations   | Understand nuclear equations.<br>Write balanced nuclear equations.   | <b>Assessment 1:</b><br>Multiple choice<br>Quiz 25 Marks<br><br>Feedback:<br>Auto/Self-assessed |
| 4              | 4.4.2.4            | Irradiation   | Explain what is meant by irradiation.<br>Understand the distinction between contamination and irradiation.<br>Appreciate the importance of communication between scientists. |   |

|   |         |                               |  |  |
|---|---------|-------------------------------|--|--|
| 5   | 4.4.2.3 | Radioactive half-life         | Explain what is meant by radioactive half-life.<br>Calculate half-life.<br>Choose the best radioisotope for a task.  | <b>Assessment 2:</b><br>Written assessment<br>15 Marks<br><br>Feedback:<br>Teacher |
|   | 4.4.2.1 |                               |  |  |
|   | 4.4.3.2 |                               |  |  |
| 6   | 4.4.2.4 | Hazards and uses of radiation | Trilogy students do not need to know the content in the last section: Using medical tracers.<br>Describe radioactive contamination.<br>Give examples of how radioactive tracers can be used. |  |
| 7<br>TRIPLE ONLY                            | 4.4.3.3 | Uses of radiation in medicine | Compare gamma rays and X-rays.<br>Describe some uses of nuclear radiation for medical diagnosis and therapy.   |  |
| 8<br>TRIPLE ONLY                            | 4.4.3.3 | Using nuclear radiation       | Explore the risks and benefits of using nuclear radiation.<br>Describe how internal organs can be explored.<br>Understand how nuclear radiation can control or destroy unwanted tissue.      |  |
| 9<br>TRIPLE ONLY                            | 4.4.4.1 | Nuclear fission               | Describe nuclear fission.<br>Explain how a chain reaction occurs.<br>Explain how fission is used.  |  |
| 10<br>TRIPLE ONLY                           | 4.4.4.2 | Nuclear fusion                | Explain nuclear fusion.<br>Describe the conditions needed for fusion.<br>Describe how nuclear fusion may be an attractive energy source.   |  |
| <b>End of Unit test Assessment: Teacher</b> |         |                               |  |  |
| <b>Where we will use these ideas again</b>  |         | P6 – Gamma radiation          |  |  |