**Graphical user interface

Description automatically generated with medium confidenceAtomic Structure and Radioactivity** (Comb.)

RAG your understanding.

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|  | **Start of Topic** | **End of Topic** | **Revised** |
| P.4.1.1.a. - I can describe the basic structure of an atom as a positively charged nucleus surrounded by negatively charged electrons at different distances from the nucleus, which vary with the absorption or emission of electromagnetic radiation |  |  |  |
| P.4.1.2.a. - I can state that the radius of a nucleus is less than 1/10000 of the radius of an atom. |  |  |  |
| P.4.1.2.b. - I can relate differences between isotopes to differences in conventional representations of their identities, charges and masses |  |  |  |
| P.4.1.3.a. - I can describe why the evidence from Rutherford’s scattering experiment led to a change in the atomic model, describing differences between the plum pudding model of the atom and the nuclear model of the atom |  |  |  |
| P.4.2.1.a. - I can describe and apply the idea that the activity of a radioactive source is the rate at which its unstable nuclei decay, measured in becquerel (Bq), or counts per second, by a Geiger-Muller tube |  |  |  |
| P.4.2.1.b. - I can describe the penetration through materials, the range in air and the ionising power for alpha particles, beta particles and gamma rays |  |  |  |
| P.4.2.1.c. - I can apply knowledge of the uses of radiation to evaluate the best sources of radiation to use in a given situation |  |  |  |
| P.4.2.2.a. - I can use the names and symbols of common nuclei and particles to complete balanced nuclear equations, by balancing the atomic numbers and mass numbers |  |  |  |
| P.4.2.3.b (HT) - I can determine the half-life of a radioactive isotope from given information and calculate the net decline, expressed as a ratio, in a radioactive emission after a given number of half-lives |  |  |  |
| P.4.2.4.a. - I can compare the hazards associated with contamination and irradiation, and outline suitable precautions taken to protect against any hazard the radioactive sources may present |  |  |  |
| P.4.2.4.b. - I can discuss the importance of publishing the findings of studies into the effects of radiation on humans, and sharing findings with other scientists so that they can be checked by peer review |  |  |  |