

## SCH 3UI Independent Study - Nuclear Chemistry

### Textbook Reference: Section 1.3 (p. 29 – 35) and Section 5.3 (p. 216-222)

Read both sections and prepare the following notes. Answer the questions indicated.

A **30 mark test** will be given to assess your completion and understanding of this topic.

1. **List of Terms:** Prepare a list of the terms and their meanings from these sections. Include the terms “fission”, “binding energy” and “mass defect” from another source.
2. Summarize the common particles found in nuclear equations: names and their symbols.
3. Prepare a table with the following headings: *radiation type, brief description, symbol, charge, mass, approx. speed of travel, penetration of air, penetrating ability / effective barrier*. (Use Table 1, p. 29 in addition to 5.3)
4. a) Describe how one household device containing a radioactive isotope works.  
b) What is a “badge dosimeter”? Who would use one of these?  
c) What is a “cyclotron” or particle accelerator? What is this device used for?
5. Write the 2 rules that you must follow when balancing a nuclear equation (p. 217). Study and write solutions for Sample Problem 1 and 2 (p. 218, p. 219) to show how you would apply these rules.
6. **Answer: p. 219, Q. 1-6**
7. Study and record Sample Problem 3 (p. 220). **Answer: p. 220, Q. 8-10**
8. Study and record Sample Problem 4 and 5 (p. 221, p. 222). **Answer: p. 222: Q. 12-14**
9. **Additional Questions:** **p. 32 and 35 practice questions**  
**p. 222, Q. 3-7**