

CHAPTER 21 STUDY SUGGESTIONS

THINGS TO KNOW

- Mass defect and how it relates to bond energy
- What $E = mc^2$ means and who discovered it
- Define and describe the factors that influence nuclear stability – bond energy and neutron to proton ratio, band of stability
- Know the people in the chapter and what they did the roles of the Becquerel, Curies, the Joliot-Curies, Leo Szilard, and Enrico Fermi
- Know the 5 properties of radioactive nuclides.
- Memorize the nuclear symbols for ALL the particles involved in radioactive decay: alpha particle, beta particle, positron, proton, neutron
- Distinguish between alpha particles, beta particles, and gamma radiation
- Know the units for measuring the different aspects of radiation
- Describe uses of radioactive isotopes
- Know the parts of a nuclear reactor and their uses: shielding, control rods, nuclear fuel, moderators, and coolants
- Define nuclear fission, chain reaction, and nuclear fusion and distinguish between them.

THINGS TO KNOW HOW TO DO

- Calculate neutron to proton ratio and determine if a nuclide is stable or not
- Write nuclear equations for alpha decay, beta decay, electron capture, positron emission, etc.
- Work half-life problems – calculate the amount of an isotope remaining, the amount of time that has passed, and the time for one half-life

IDEAS ON HOW TO STUDY

- Make sure you especially memorize your notes for this test! There is a ton of info in your notes that's not in the book. Get a couple of different colors of highlighters and turn your notes into a practice test.
- Give yourself plenty of time to study.** Do not try to complete all of these suggestions in one night. It is too much for you to keep straight. I would suggest a **minimum** of 3 hours of study time (not all at once).
- Read the *Chapter Summary* out loud. Write down the definitions of all the VOCABULARY. Practice memorizing them with the Interactive Review Games in the Student Premium section of the online textbook. Or, write down the definitions on flashcards and (term on front, definition on back) and have someone call them out to you until when they begin the definition, you can finish it and give them the term.
- Review the illustrations in your textbook and understand the legends/ explanations that go with each one.
- Go through the chapter and re-work the Sample Problems and Practice Problems.
- Review the answers to the REVIEWING CONCEPTS, PROBLEMS, and CRITICAL THINKING questions from your homework.
- Go back and watch vodcasts of the topics that you are unsure about or that you missed.
- Practice with the Interactive Review Games in the Student Premium section of the online textbook. Practice the online quizzes at <http://www.sciencegeek.net/Chemistry/taters/directory.shtml>