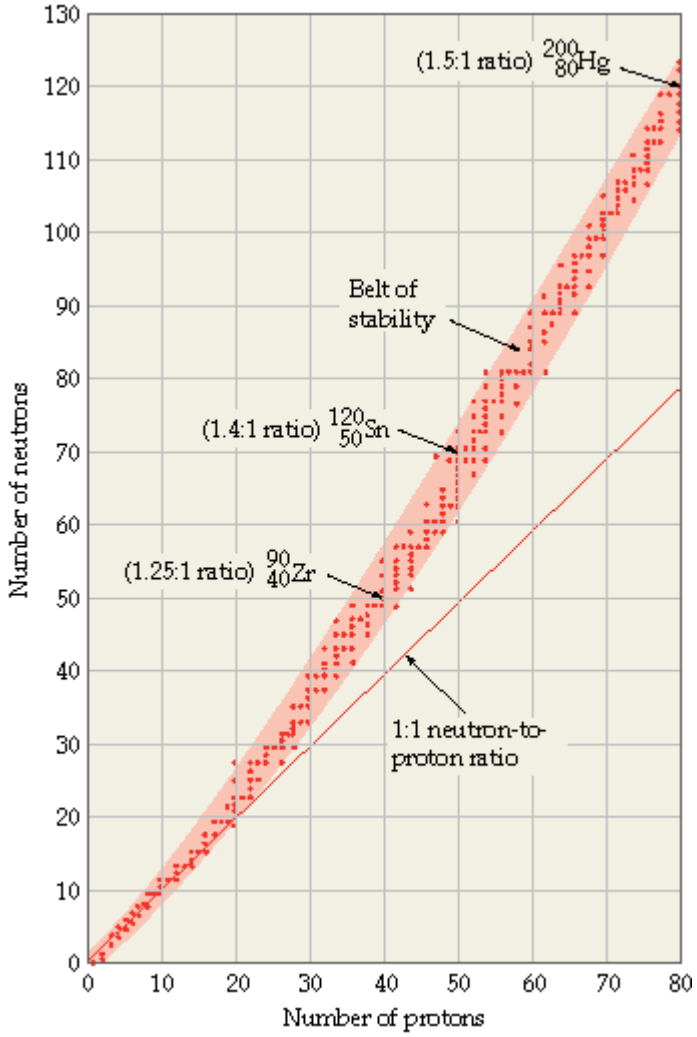
Practice General Chemistry Speaking Test (A. Trettel)

(Questions from Chapter 21 of the textbook)



1. Explain how one can determine if a given isotope is radioactive using this chart. (30 seconds)

2. Explain the relationship of this chart and the omition of an alpha particle ($^{4}_{2}$He). Explain the relationship of this chart and electron capture. (30 seconds)

3. A student in your class does not understand the point of neutrons in relation to nuclear chemistry. Convince the student of the neutron's importance in the stability of an atom. (60 seconds)

Now please look at the picture below, which shows a specific chemical reaction that relates to nuclear chemistry, called fission. Think about how the two diagrams relate, and then answer the questions.

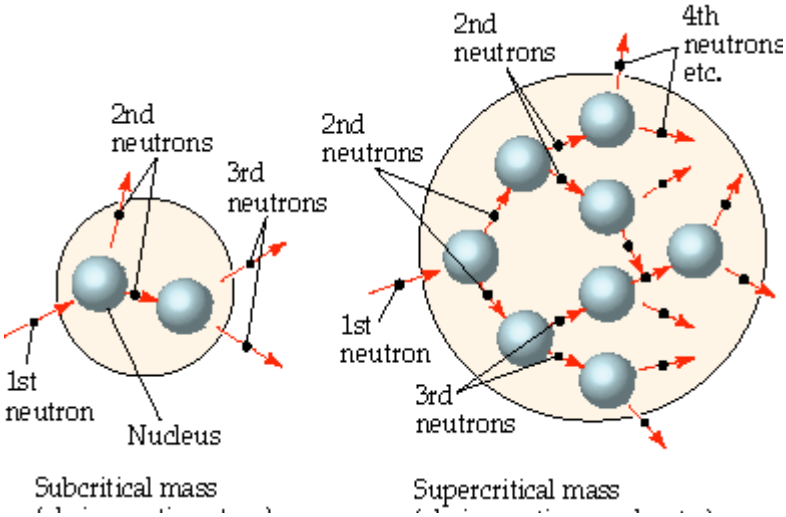


Figure 1 **Figure 2**

4. Explain what is happening in Figure 2. Your explanation should include each step, with the 1st neutron, 2nd neutrons, and so on. (60 seconds)

5. Explain the difference between the reactions in Figure 1 and Figure 2, as related to the subtitles underneath the figures. (30 seconds).

6. A student is confused about this topic and asks you if nuclear fission is the same as nuclear fusion. Explain to him what the difference between the two reactions is. (45 seconds)

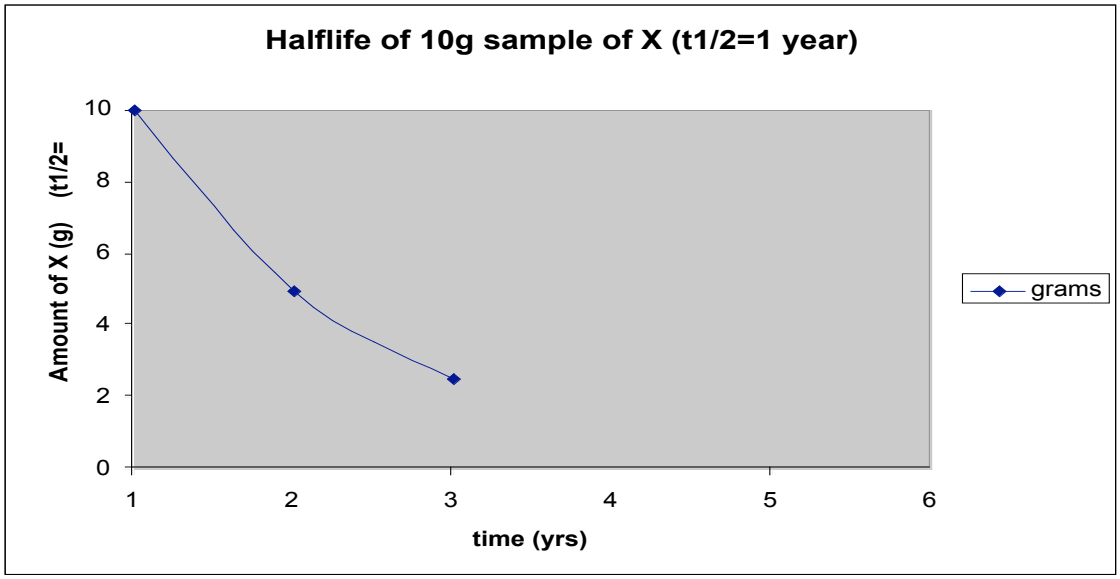
7. Explain which radioactive isotopes are most likely to go through nuclear fission: heavy or light. Explain why. (30 seconds)

Now I'd like to hear your ideas about several topics. Be sure to say as much as you can in responding to each question.

8. Many students know the difference between positrons and protons, but some do not know their relationship in nuclear chemistry. What would you say to the students to help them with this concept? (60 seconds)

9. Several students complain that nuclear chemistry is boring and dull. What could you say that would spark their interest in the topic and keep them engaged in the lecture? (60 seconds)

10. The graph below presents the halflife of a hypothetical radioactive atom as a function of time. Please explain the trends that you see. (60 seconds)



11. The atom in this sample was observed for five years. Based on what you know about this plot, and also about the principles of halflife, would you expect to still have 1 gram of the sample left at the end of the five-year study? Explain why. (45 seconds)

12. Now imagine that you are TA'ing an organic chemistry class. The following changes need to be made to the syllabus. Please announce these changes to your class. (90 seconds).

CHM 100: General Chemistry
Homework Schedule

All assignments are due at the ~~end~~ of class on the date that is specified

Beginning

Sept 5:	Chapter 1, problems #1, 2, 5, 21-28, 36, 43, 59
Sept 12:	Chapter 2, problems #3, 4, 5, 6, 17, 20-24, 35-39
Sept 17:	~~Chapter 2~~: problems #1-5, 10, 13-16, 34, 41-44
	Chapter 3
Sept 18:	Midterm #1: covering chapters 1-3
Sept 26:	Chapter 4, problems # 20-32, 39-42, 53
Oct 1:	Chapter 5, problems #1-10, and worksheet ~~distributed in class~~
	Available online
Oct 10:	Chapter 6, problems #5-9, 16, 18, 22, 25, 31, 34-40
Oct 14:	Midterm #2: covering chapters 4-6
Oct 22:	Chapter 7, problems #4, 11, 13, 21-25, 33, 38, 41, 45-48
Nov 1:	Chapter 8: problems 12-25, 30, 45
~~Nov 10:~~	Chapter 9: problems 1-15, 37, 42
Nov 8	
Nov 11:	Midterm #3: covering chapters 7-8
Nov 17:	Chapter 10: worksheet to be available online
Nov 23:	Chapter 11: problems #1, 4, 18, 29, *30-37*, 39, 40-44
	Omit problems #31, 34, 35
Dec 3:	Chapter 12: worksheet to be distributed in class
Dec 12:	(7:40 – 9:30 am) Final Exam: ~~covering chapters 10-12~~
	Accumulative