GreatHearts Irving

Remote Learning Packet

Please submit scans of written work in Google Classroom at the end of the week.

Week 8: May 18-22, 2020

Course: 10 Chemistry

Teacher(s): Ms. Oostindie megan.oostindie@greatheartsirving.org

Weekly Plan:

Monday, May 18
☐ Read 11.11
☐ Take notes and complete the venn diagram of fission vs. fusion

Tuesday, May 19
☐ Complete and self-grade book questions 11.1-11.4

Wednesday, May 20
☐ Complete and self-grade book questions 11.46, 11.48, 11.52
☐ Watch "Alpha and Beta Decay Practice Problem" video for help with question 11.52

Thursday, May 21
☐ Review notes and assignments
☐ Chapter 11 Quiz

Friday, May 22
☐ Attend office hours
☐ Catch-up or review the week's work

Statement of Academic Honesty

I affirm that the work completed from the packet is mine and that I completed it independently.

I affirm that, to the best of my knowledge, my child completed this work independently

_____
Student Signature

_____
Parent Signature

Monday, May 18

Read section 11.11 (pp. 352-355) in your textbook. Take notes on bolded vocabulary and example nuclear reactions for fission and fusion. Complete the venn diagram that compares fission and fusion. You may use the provided worksheet or you may create the diagram in your notes.
*No material will be turned in from this day.

Tuesday, May 19

Complete questions 11.1-11.4 found in your textbook on pp. 337-339. Self-grade in a different color pen using the partial key attached. You must write a balanced nuclear equation for each question.
*Book questions will be turned in.

Wednesday, May 20

Complete questions 11.46, 11.48, 11.52 found in your textbook on p. 358. Self-grade in a different color pen using the partial key attached. You must write a balanced nuclear equation for each question. For question 11.52, see the video "Alpha and Beta Decay Practice Problem" on Google Classroom for an explanation of how to complete the question.
*Book questions will be turned in.

Thursday, May 21

Review your notes and assignments from chapter 11. Be sure to focus on how to complete nuclear equations, the differences between the three types of nuclear decay, and the characteristics of fission and fusion. If you have questions that you would like to be answered during office hours, you may wait to take your quiz until after office hours on Friday.

Complete the attached chapter 11 quiz. You will need a periodic table. The quiz is open note but use this as an opportunity to test your knowledge by first attempting without use of your notes and then go back and reference where you need help before finishing the quiz.
*Quiz will be turned in.

Friday, May 22

Use this day to attend office hours, catch up on work from this week, scan your documents, and enjoy the start of your weekend! *You do not need to include notes in your packet submission*, only the documents listed: book questions 11.1-11.4; 11.46, 11.48, 11.52; chapter 11 quiz.

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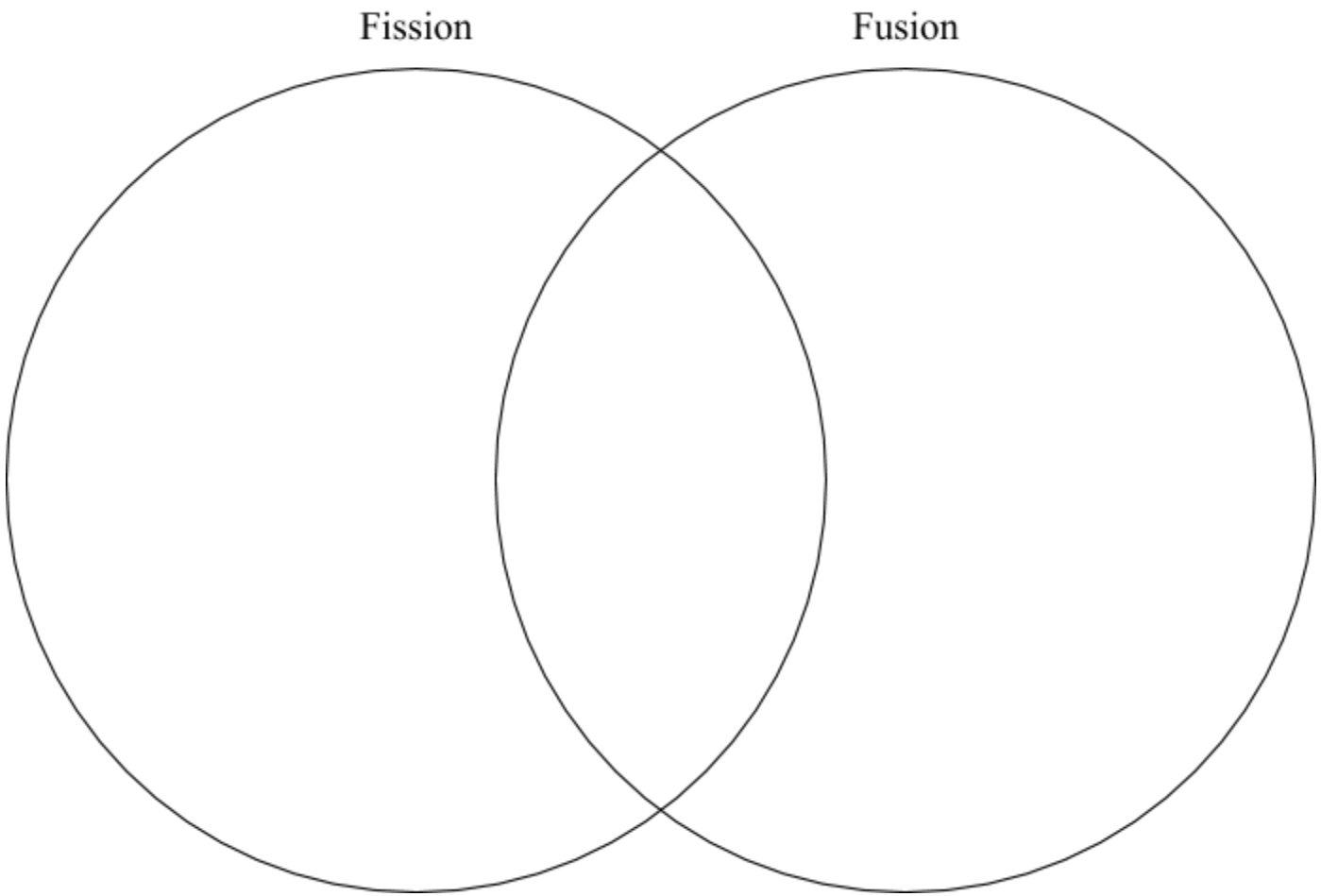
Comparing Fission and Fusion

Directions: Fill in the venn diagram using bullet points. You must include at least two differences and one similarity.



11.1 - 11.4 Key

11.1 High levels of radioactive radon ($^{222}_{86}Rn$) have been found in many homes built on radium-containing rock, leading to the possibility of health hazards. What product results from α emission by radon-222?

$^{222}_{86}Rn \rightarrow {}^{4}_{2}He + \boxed{^{218}_{84}Po}$

222 − 4 = 218

86 − 2 = 84

Po is number 84.

11.2 this question will be teacher-graded

11.3 Carbon-14, a β emitter, is a rare isotope used in dating archaeological artifacts. Write a nuclear equation for the decay of carbon-14.

$^{14}_{6}C \rightarrow {}^{14}_{7}N + {}^{0}_{-1}e$

1 neutron decays into an electron.

11.4 this question will be teacher-graded

11.46, 11.48, 11.52 KEY

11.46 Identify the starting radioisotopes needed to balance each of these nuclear reactions.

a) $\boxed{{}^{109}_{47}Ag} + {}^{4}_{2}He \rightarrow {}^{113}_{49}In$

113 − 4 = 109
49 − 2 = 47
Ag is number 47.

b) this question will be teacher-graded

11.48 Balance the following equations for the nuclear fission of ${}^{235}_{92}U$.

a) this question will be teacher-graded

b) ${}^{235}_{92}U + {}^{1}_{0}n \rightarrow {}^{87}_{35}Br + \boxed{{}^{146}_{57}La} + 3{}^{1}_{0}n$

235 + 1 = 236

92

87 + x + (3·1) = 236
90 + x = 236
x = 146

35 + x + 0 = 92
35 + x = 92
x = 57

11.52 Bismuth-212 is formed after the parent isotope undergoes a decay series consisting of four α decays and one β decay. What is the parent isotope for this series *see video for complete work

$\boxed{{}^{228}_{90}Th}$

_____
_____
_____
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Quiz - Chapter 11

Directions: Fill in the missing portions of the balanced nuclear equations. On the line, write whether the equation is an example of alpha or beta emission.

1. $^{149}_{64}Gd \rightarrow \quad + \; ^{4}_{2}He$ _____
2. $^{90}_{38}Sr \rightarrow \; ^{90}_{39}Y \; +$ _____
3. $\rightarrow \; ^{0}_{-1}e \; + \; ^{99}_{44}Ru$ _____
4. $\rightarrow \; ^{171}_{76}Os \; + \; ^{4}_{2}He$ _____

Directions: Answer the following questions in complete sentences.

5. How do you distinguish alpha emission from beta emission? Describe in *at least 3 sentences*.

6. Compare and contrast the characteristics of fission and fusion. Describe in *at least 3 sentences*.