

PRACTICE

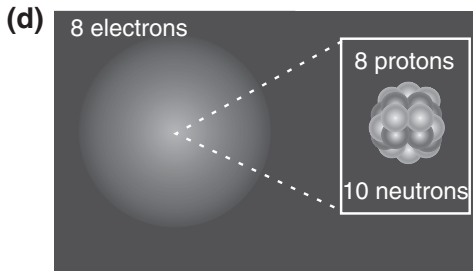
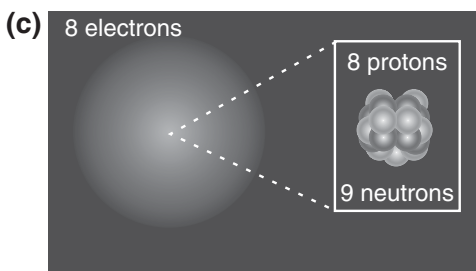
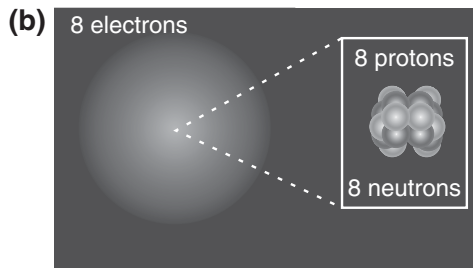
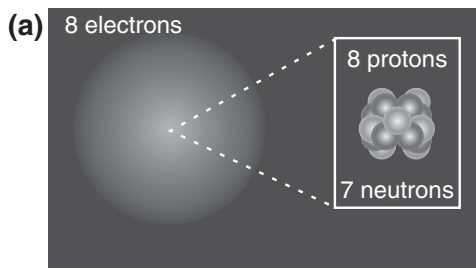
Activity 12: Isotopes and Radioactivity

Name _____

Date _____

Class _____

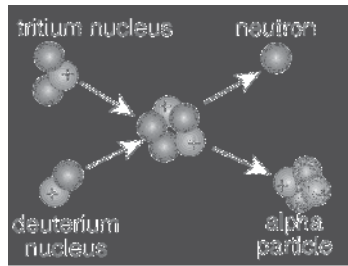
(Questions 1-2) The element oxygen has many isotopes. Four isotopes of oxygen are shown below in diagrams (a), (b), (c), and (d). Refer to these diagrams when answering the questions.



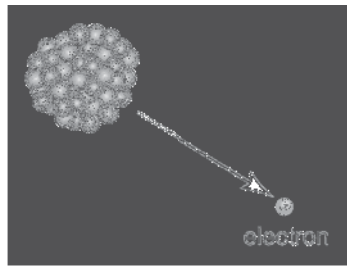
1. Which diagram above shows the oxygen-18 isotope? Explain your reasoning.

2. Which diagram above shows the oxygen-16 isotope? Explain your reasoning.

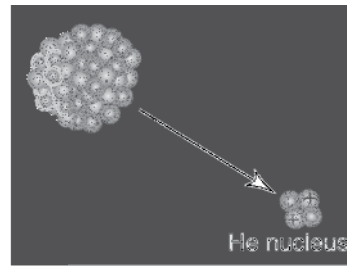
(Questions 3–4) Use the diagrams below to answer the following questions.



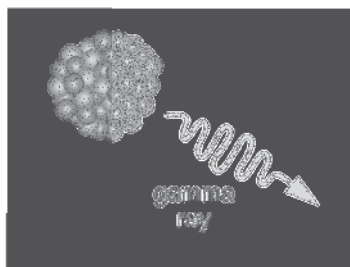
(a)



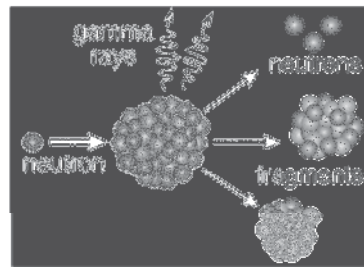
(b)



(c)



(d)



(e)

3. Which diagram above shows *beta decay*? Justify your answer.

4. Which diagram above shows *fission*? Justify your answer.

5. Which of these is a form of radiation from a nuclear interaction?
- a) alpha particles
 - b) beta particles (electrons)
 - c) gamma rays
 - d) neutrons from fission or fusion
 - e) all of the above
6. When the nucleus of an unstable isotope decays into a helium nucleus and the nucleus of a different atom, this is called
- a) alpha decay.
 - b) beta decay.
 - c) gamma decay.
 - d) fission.
 - e) fusion.
8. The nuclear radiation that can only be stopped by a thick wall of water is
- a) alpha particles.
 - b) beta particles.
 - c) gamma rays.
 - d) neutrons.