In this webquest, you will explore nuclear chemistry in real-world situations. Answer all questions in complete sentences turn in. Do not the write questions! Put your answers in a color other than black.

[Introduction to Atomic Physics](http://www.atomicarchive.com/Physics/Physics3.shtml)

1. Define isotopes: \_\_\_\_\_\_\_\_\_\_\_\_
2. Isotopes have the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ properties but very different \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ properties.
3. Most isotopes are stable but some are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. What is binding energy?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Einstein’s famous equation of relativity, E = mc2, explains the relationship between the binding energy and mass defect. It explains that a small amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can produce a large amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Define radioactivity.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Name the three scientists that discovered and researched radioactivity:
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. List the three most common types of radioactive decay:
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Define half-life.

[Nuclear Power](http://www.howstuffworks.com/nuclear-power.htm/printable)

1. Discuss the release of energy by fission.

[Hydrogen Bomb](http://www.atomicarchive.com/Fusion/Fusion1.shtml)

1. What nuclei are fused in the nuclear reaction of a hydrogen bomb?

[Nuclear Weapons](http://www.howstuffworks.com/nuclear-bomb.htm/printable)

1. Describe how an atom bomb works.
2. What are the health consequences of radioactive fallout particles?

Go to <http://www.atomicarchive.com/Effects/radeffects.shtml>

List at least 2 things that radiation can do to the human body.