

Isotopia

Stable and Radioactive Isotopes

Name _____

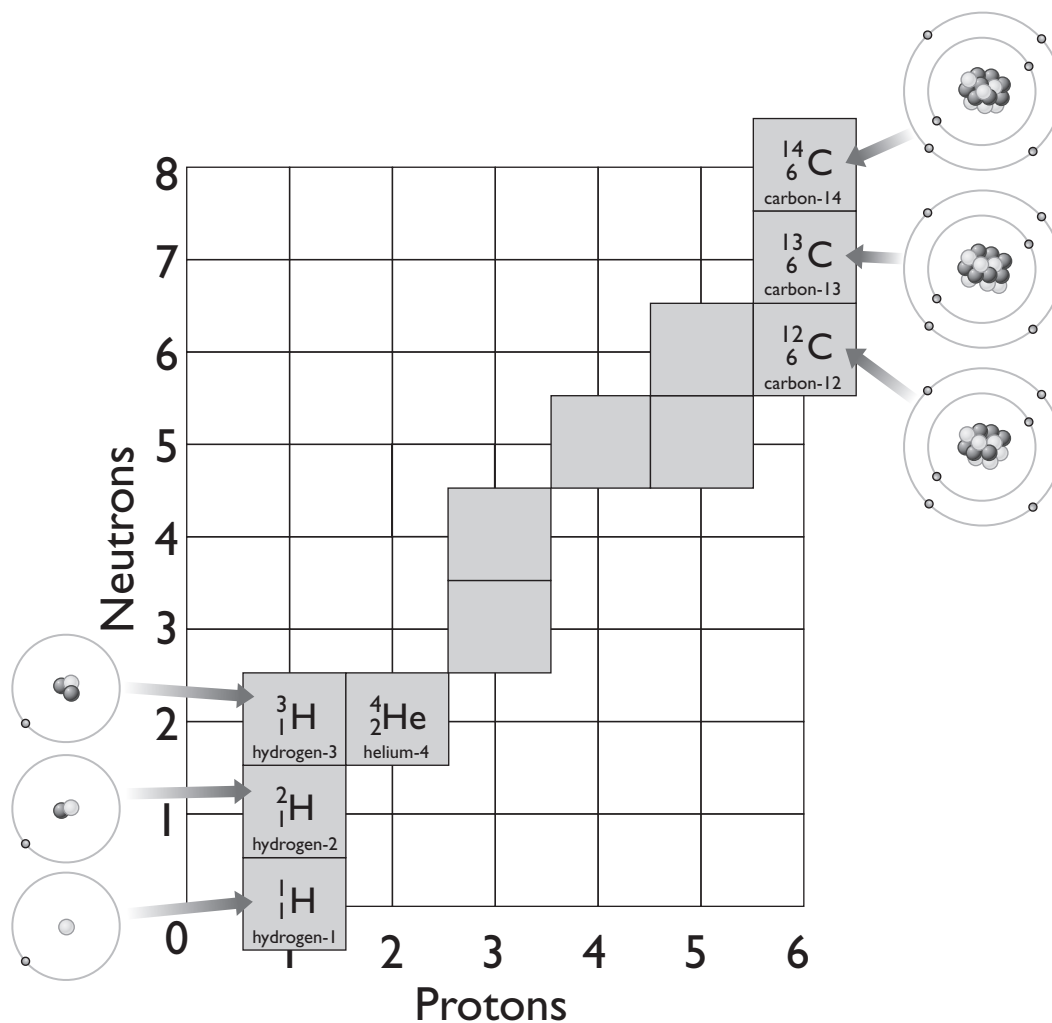
Date _____ Period _____

Purpose

To explore the naturally occurring isotopes of the elements.

Part I: Elements 1 Through 6

The chart shows the isotopes that exist for the first six elements. Use your periodic table to fill in the shaded boxes. Then answer the questions about the graph.



1. How many isotopes does hydrogen have? How do they differ?
2. If you had a sample of beryllium, would all the atoms be identical? What about a sample of lithium? Explain your answers.

3. Next to the chart on the first page, draw a simple atomic model of beryllium, Be.

Part 2: All the Naturally Occurring Isotopes

Look at the Handout: Chart of Naturally Occurring Isotopes.

1. Phosphorus has one naturally occurring isotope. Write its name and symbol.
2. Which element has the most isotopes? How many does it have?
3. Write the isotope name and symbol for the most abundant isotope of nickel.
4. Do you expect to find an atom with 26 protons and mass number 52? Explain your thinking.
5. Imagine that a chemist is trying to establish whether a piece of rock is from a meteorite that fell from outer space. The rock contains more copper-65 atoms than copper-63 atoms. What can you conclude?
6. Where on the periodic table are the majority of radioactive isotopes found? Write the isotope symbol for one example of a radioactive isotope.
7. Which elements have isotopes with the same number of protons and neutrons?
8. **Making Sense** List four types of general information that you can obtain from the isotope graph on the handout.
9. **If You Finish Early** What do you think nuclear chemists mean when they say that 8, 20, and 50 are magic numbers for isotopes?