

NAME:

## HONORS CHEMISTRY

SECTION:

Pair Tutoring: Nuclear Chemistry

### Directions:

1. Review the terms and definitions for five minutes.
2. Ask someone to quiz you by giving the definition for each item. You will say the term that matches that definition.
3. If your response is correct, put a check in the box next to that term. If your answer is incorrect, put a minus in the box, and the person quizzing you should explain why the answer is incorrect.
4. Repeat steps 1-3 with a new partner. This time, have your partner give you the word, and you give the definition.
5. Repeat this process until three checks in a row are completed for each item
6. Have each partner sign his or her name, with a compliment.

Terms	Responses					Definitions
Mass defect						The difference between the actual mass of an atom and the sum of the masses of the isolated particles composing it
Transmutation						The conversion of one element into another; may be natural or artificial
Binding energy						The energy required to split the nucleus into separate nucleons
Half-life						The length of time necessary for one-half an amount of a radioactive nuclide to disintegrate
Fission						The splitting of an atomic nucleus into smaller fragments, accompanied by the release of neutrons and a large amount of energy
Fusion						A nuclear reaction in which small nuclei are combined to make a larger nucleus, accompanied by the release of a large amount of energy
Alpha particle						A helium nucleus, containing two protons and two neutrons
Beta particle						A fast moving electron emitted from certain radioactive nuclei; it is formed when a neutron decomposes
Positron						A particle that has the same mass as an electron but has a positive charge
Radioactive decay						The process in which an unstable nucleus loses energy by emitting radiation
Gamma rays						A quantum of energy of very high frequency and very short wavelength
Geiger counter						A gas-filled metal tube used to detect the presence of beta radiation
Radioisotope						Isotopes that have unstable nuclei and undergo radioactive decay
Band of stability						The location of stable nuclei on a neutron-vs.-proton plot
Nucleon						A particle found in the nucleus of an atom; a proton or a neutron
Nuclide						An atom of a specific energy with a specified number of protons and a specified number of neutrons in its nucleus
Ionizing radiation						Radiation which has enough energy to produce ions by knocking electrons off some of the atoms it strikes
Chain reaction						A self-sustaining fission process caused by the production of neutrons that proceed to split other nuclei
Radiotracer						A radioactive nuclide, introduced into an organism for diagnostic purposes, whose pathway can be traced by monitoring its radioactivity
Scintillation counter						An instrument that measures radioactive decay by sensing the flashes of light that the radiation produces in a detector

Partner: \_\_\_\_\_ Compliment: \_\_\_\_\_

Partner: \_\_\_\_\_ Compliment: \_\_\_\_\_

Partner: \_\_\_\_\_ Compliment: \_\_\_\_\_