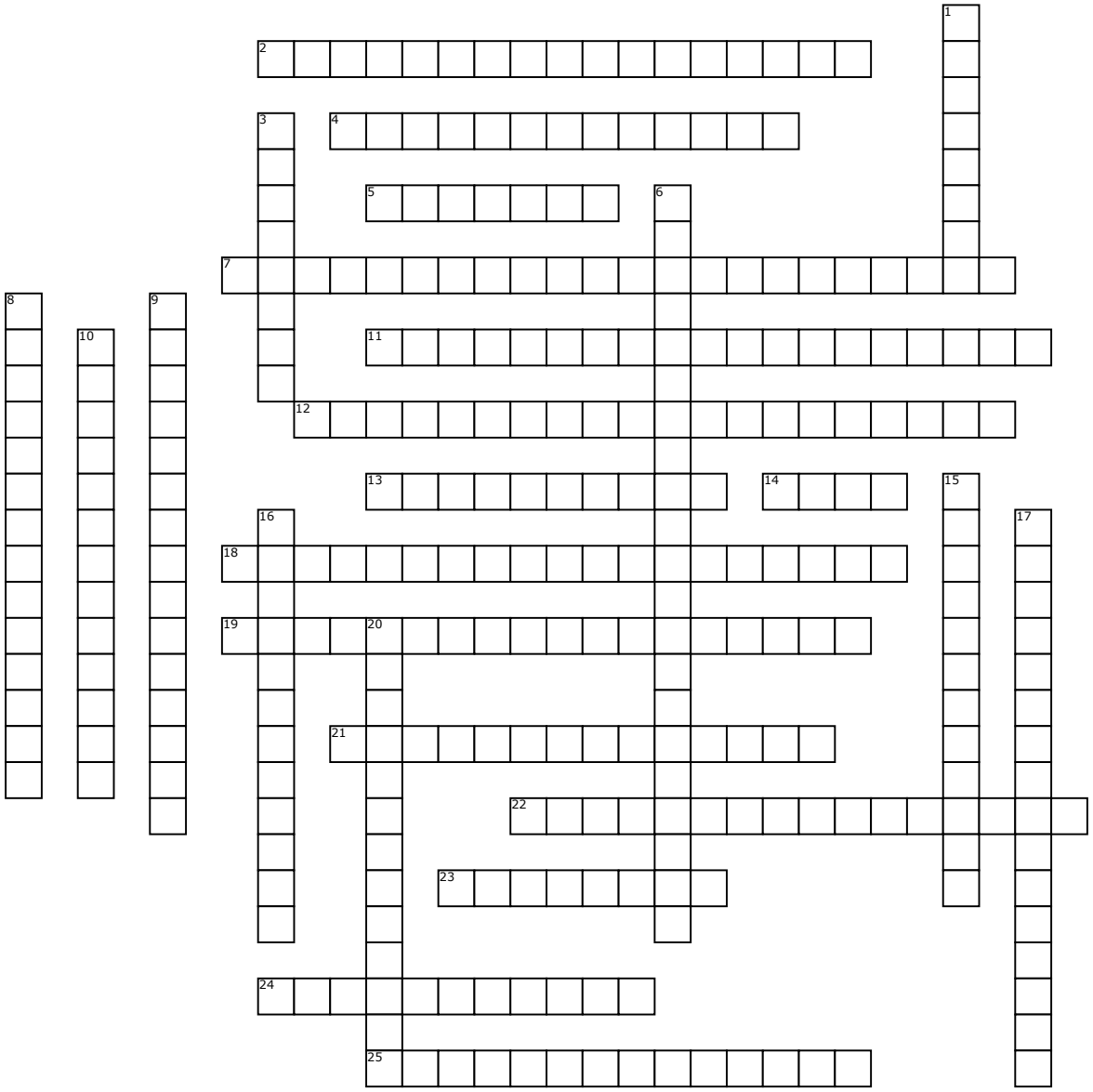
Name: _____ Date: _____ Period: _____

Nuclear Chemistry Vocabulary



Across

2. Radiation that is energetic enough to ionize matter it collides with

4. Radiation that is made up of beta particles and is deflected toward a positively charged plate when radiation from the radioactive source is directed between two electrically charged plates

5. Protons and neutrons

7. A series of nuclear reactions that starts with an unstable nucleus and results in the formation of a stable nucleus

11. The process that is used to determine the age of an object by measuring the amount of a certain radioisotope remaining in that object

12. The process in which nuclei are bombarded with high-velocity charged particles in order to create new elements

13. The difference in mass between a nucleus and its component nucleons

14. A form of high energy electromagnetic radiation emitted from some materials that are in an excited electron state

18. An element with an atomic number of 93 or greater on the periodic table

19. A force that acts on subatomic particles that are extremely close together and overcomes electrostatic repulsion among protons

21. Radiation that is made up of alpha particles and is deflected toward a negatively charged plate when radiation from a radioactive source is directed between two electrically plates

22. The ability of radiation to pass through matter

23. A particle that has the same mass as an electron but an opposite charge

24. An isotope that emits non-ionizing radiation and is used to signal the presence of an element or specific substance

25. The splitting of a nucleus into smaller, more stable fragments, accompanied by a large release of energy

Down

1. The time required for one-half of a radioisotope's nuclei to decay into its products

3. High energy radiation that accounts for most of the energy lost during radioactive decay

6. A nuclear fusion reaction

8. A nuclear reactor that is able to produce more fuel than it uses

9. A radioactive decay process that occurs when an atom's nucleus draws in a surrounding electron, which combines with a proton to form a neutron, resulting in an x-ray photon being emitted

10. A reaction in which an atom's atomic number is altered

15. Isotopes of atoms with unstable nuclei

16. The minimum mass of a sample of fissionable material necessary to sustain a nuclear chain reaction

17. A radioactive decay process in which a proton in the nucleus is converted into a neutron and a positron, and then the positron is emitted from the nucleus

20. The process of binding smaller atomic nuclei into a single, larger, and more stable nucleus