|  |  |  |
| --- | --- | --- |
| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Date: \_\_\_\_\_\_\_\_\_ | Period: \_\_\_\_\_\_\_ |

Nuclear Chemistry Vocabulary

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1H |  |  |  |
|  |  |  |  |  |  |  | 2I |  O |  N |  I |  Z |  I |  N |  G |  R |  A |  D |  I |  A |  T |  I |  O |  N |  |  |  A |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  L |  |  |  |
|  |  |  |  |  |  |  | 3G |  | 4B |  E |  T |  A |  R |  A |  D |  I |  A |  T |  I |  O |  N |  |  |  |  |  F |  |  |  |
|  |  |  |  |  |  |  |  A |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  L |  |  |  |
|  |  |  |  |  |  |  |  M |  |  | 5N |  U |  C |  L |  E |  O |  N |  | 6T |  |  |  |  |  |  |  |  I |  |  |  |
|  |  |  |  |  |  |  |  M |  |  |  |  |  |  |  |  |  |  |  H |  |  |  |  |  |  |  |  F |  |  |  |
|  |  |  |  |  |  | 7R |  A |  D |  I |  O |  A |  C |  T |  I |  V |  E |  D |  E |  C |  A |  Y |  S |  E |  R |  I |  E |  S |  |  |
| 8B |  |  |  | 9E |  |  |  R |  |  |  |  |  |  |  |  |  |  |  R |  |  |  |  |  |  |  |  |  |  |  |
|  R |  | 10T |  |  L |  |  |  A |  |  | 11R |  A |  D |  I |  O |  C |  H |  E |  M |  I |  C |  A |  L |  D |  A |  T |  I |  N |  G |  |
|  E |  |  R |  |  E |  |  |  Y |  |  |  |  |  |  |  |  |  |  |  O |  |  |  |  |  |  |  |  |  |  |  |
|  E |  |  A |  |  C |  |  |  | 12I |  N |  D |  U |  C |  E |  D |  T |  R |  A |  N |  S |  M |  U |  T |  A |  T |  I |  O |  N |  |  |
|  D |  |  N |  |  T |  |  |  |  |  |  |  |  |  |  |  |  |  |  U |  |  |  |  |  |  |  |  |  |  |  |
|  E |  |  S |  |  R |  |  |  |  |  | 13M |  A |  S |  S |  D |  E |  F |  E |  C |  T |  | 14X |  R |  A |  Y |  | 15R |  |  |  |
|  R |  |  M |  |  O |  |  | 16C |  |  |  |  |  |  |  |  |  |  |  L |  |  |  |  |  |  |  |  A |  | 17P |  |
|  R |  |  U |  |  N |  | 18T |  R |  A |  N |  S |  U |  R |  A |  N |  I |  U |  M |  E |  L |  E |  M |  E |  N |  T |  |  D |  |  O |  |
|  E |  |  T |  |  C |  |  |  I |  |  |  |  |  |  |  |  |  |  |  A |  |  |  |  |  |  |  |  I |  |  S |  |
|  A |  |  A |  |  A |  | 19S |  T |  R |  O | 20N |  G |  N |  U |  C |  L |  E |  A |  R |  F |  O |  R |  C |  E |  |  |  O |  |  I |  |
|  C |  |  T |  |  P |  |  |  I |  |  |  U |  |  |  |  |  |  |  |  R |  |  |  |  |  |  |  |  I |  |  T |  |
|  T |  |  I |  |  T |  |  |  C |  |  |  C |  |  |  |  |  |  |  |  E |  |  |  |  |  |  |  |  S |  |  R |  |
|  O |  |  O |  |  U |  |  |  A |  | 21A |  L |  P |  H |  A |  R |  A |  D |  I |  A |  T |  I |  O |  N |  |  |  |  O |  |  O |  |
|  R |  |  N |  |  R |  |  |  L |  |  |  E |  |  |  |  |  |  |  |  C |  |  |  |  |  |  |  |  T |  |  N |  |
|  |  |  |  |  E |  |  |  M |  |  |  A |  |  |  | 22P |  E |  N |  E |  T |  R |  A |  T |  I |  N |  G |  P |  O |  W |  E |  R |
|  |  |  |  |  |  |  |  A |  |  |  R |  |  |  |  |  |  |  |  I |  |  |  |  |  |  |  |  P |  |  M |  |
|  |  |  |  |  |  |  |  S |  |  |  F |  | 23P |  O |  S |  I |  T |  R |  O |  N |  |  |  |  |  |  |  E |  |  I |  |
|  |  |  |  |  |  |  |  S |  |  |  U |  |  |  |  |  |  |  |  N |  |  |  |  |  |  |  |  |  |  S |  |
|  |  |  |  |  |  |  |  |  |  |  S |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  S |  |
|  |  |  |  |  |  |  | 24R |  A |  D |  I |  O |  T |  R |  A |  C |  E |  R |  |  |  |  |  |  |  |  |  |  |  I |  |
|  |  |  |  |  |  |  |  |  |  |  O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  O |  |
|  |  |  |  |  |  |  |  |  |  | 25N |  U |  C |  L |  E |  A |  R |  F |  I |  S |  S |  I |  O |  N |  |  |  |  |  N |  |

|  |  |
| --- | --- |
| **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  |