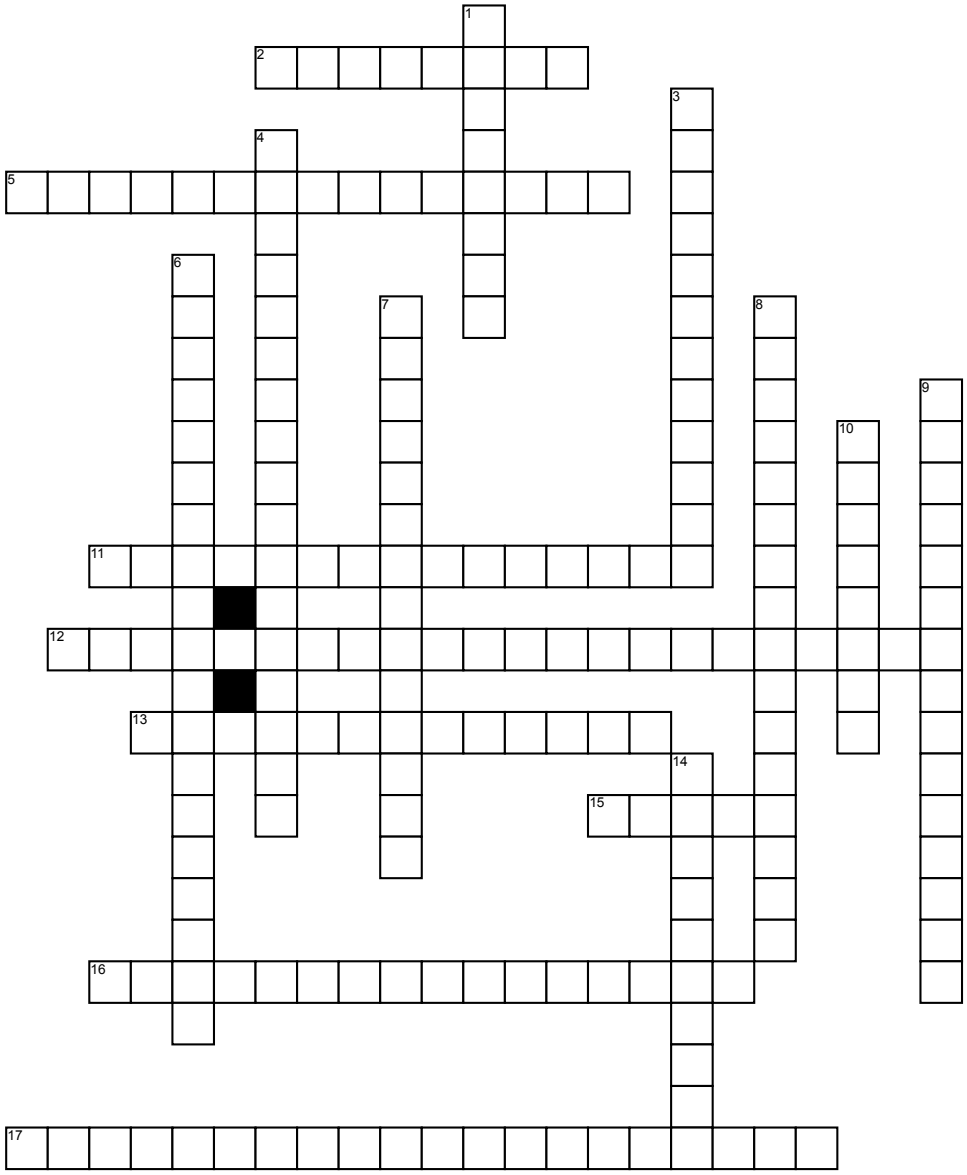
# Nuclear Chemistry Puzzle



**Across**

**2.** The protons and neutrons in an atom's nucleus

**5.** Occurs when the nucleus of an atom draws in a surrounding electron, usually one from the lowest energy level

**11.** Reactors able to produce more fuel than they use

**12.** Is a series of nuclear reactions that begins with an unstable nucleus and results in the formation of a stable nucleus

**13.** Isotopes of atoms with unstable nuclei

**15.** A form of high-energy electromagnetic radiation

**16.** The ability of radiation to pass through matter

**17.** The process, which involves striking nuclei with high velocity particles

**Down**

**1.** Is a particle with the same mass as an electron but opposite charge; it is represented by the symbol e+

**3.** A sample that is massive enough to sustain a chain reaction

**4.** Radiation energetic enough to ionize matter it contacts is called

**6.** The process of determining the age of an object by measuring the amount of a certain radioisotope remaining in that object

**7.** The splitting of a nucleus into fragments is known as

**8.** Is a radiactive decay process that involves the emission of a positron from a nucleus

**9.** The area on the graph within which all stable nuclei are found

**10.** Is the time required for one half of a radioisotope's nuclei to decay into its products

**14.** An observed difference in mass between a nucleus and its component nucleons