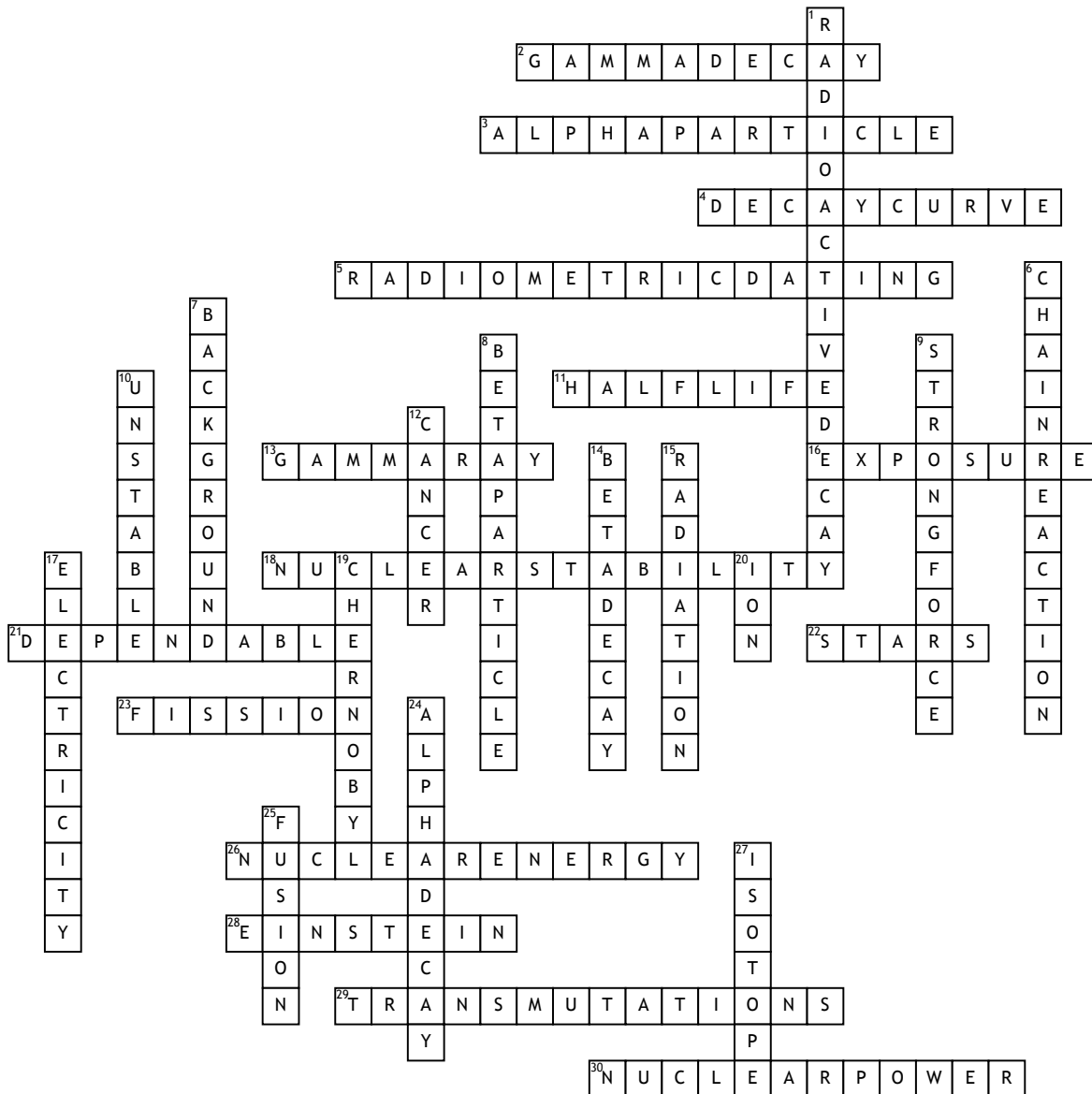


Nuclear Energy and Radioactive Materials



Across

2. What is a type of radioactive decay that does not change the mass number or the atomic number of an atom?
3. What is positively charged, is made up of 2 protons and 2 neutrons, and the more massive type of nuclear radiation?
4. A graph of the number of radioactive parent nuclei remaining in a sample as a function time is called what?
5. Using knowledge of half-life to date very old specimen is called what?
11. The time it takes for one half of a sample of radioactive material to decay is called what?
13. What is a form of electromagnetic energy?
16. The 2 factors that depend on risk of damage from radiation are the type of radiation and the amount of what?
18. A factor of _____ is the proton/neutron ratio
21. Nuclear energy is a _____, long term solution for producing power.
22. Fusion is the power source for what?

23. What is a nuclear reaction that causes a nucleus to split into two or more pieces and releases neutrons and energy?

26. Both nuclear fusion and nuclear fission produce what?

28. Who made the famous, mass-energy equation? ($E=mc^2$)

29. The changing of one element into another by radioactive decay is called?

30. The electricity produced from a nuclear reaction is called what?

Down

1. Alpha decay, Beta decay, and gamma decay are all types of what?

6. What is a continuous series of nuclear fission reactions?

7. The human body has evolved to withstand what type of radiation?

8. What are fast moving negative electrons that have the same mass as an electron?

9. A _____ nuclear _____ causes protons and neutrons to attract to one another

10. Too many protons and neutrons can cause a nucleus to become what?

12. _____ is one of the risks from being exposed to high levels of radiation

14. What results in the atomic number increasing by 1 and the mass staying the same from its original value?

15. Alpha particles, Beta particles, and Gamma rays all produce what?

17. The energy produced from a nuclear power plant can be used to make what?

19. Where in Ukraine did a devastating nuclear disaster happen that caused the whole area to have high levels of radiation?

20. What is it called when the number of electrons are different from the number of protons?

24. What results in a new element with 2 less than the original atomic number and 4 less than the original mass number?

25. What is a nuclear reaction in which two light nuclei fuse together under extreme temperatures to form heavy nuclei and releases energy?

27. What is it called when you have a different number of neutrons than the base atom?