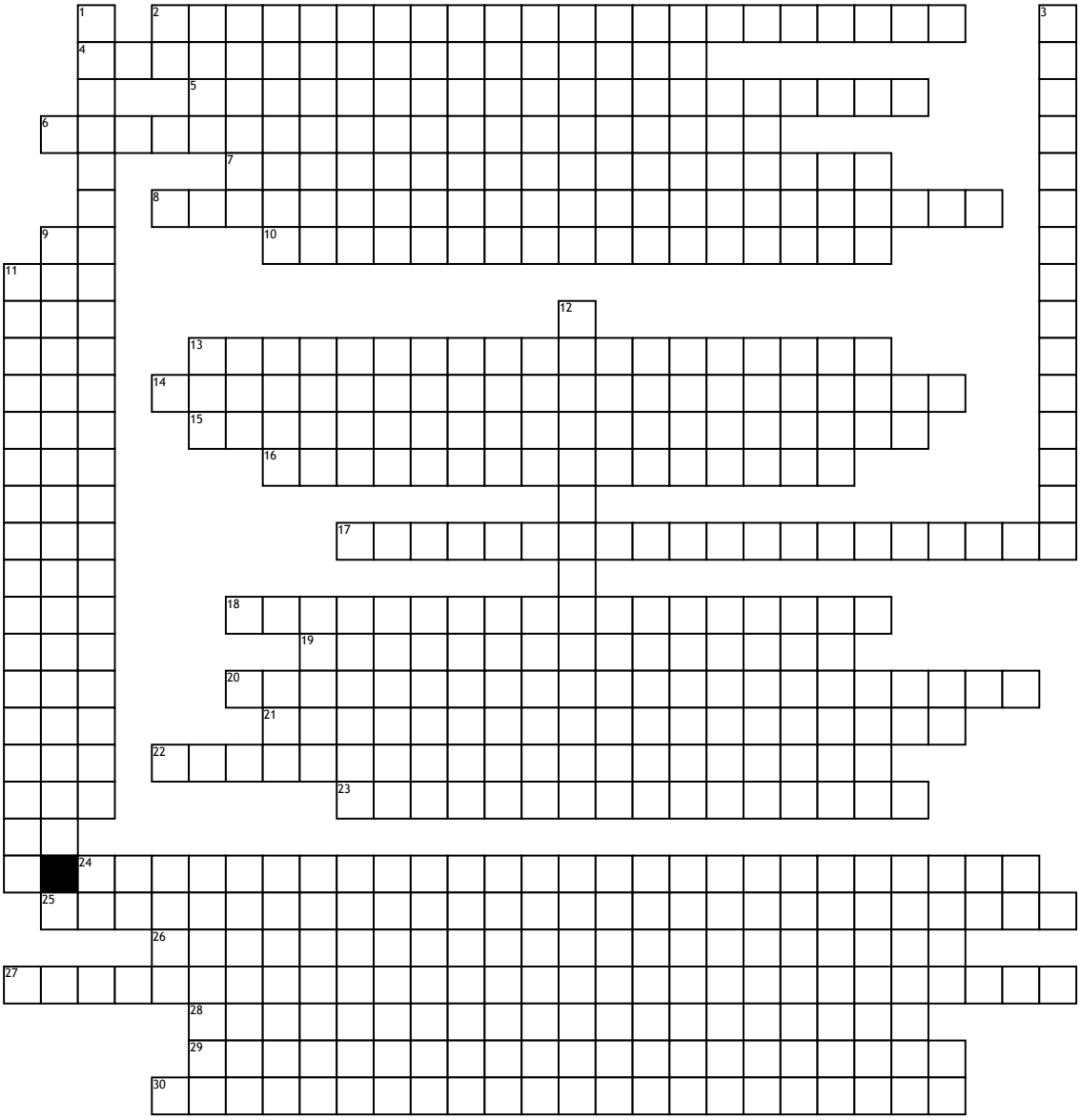
Name: _____ Date: _____

Atomic Theory



Across

2. See Figure 5; accounted for everything but stability

4. an English biologist who discovered Brownian Motion, the jerking movement of microscopic particles. This movement was caused by the movement of molecules of the fluid they were suspended in.

5. presented the first atomic model that most closely resembles the accepted model

6. accidentally discovered radiation when he left uranium crystals in a drawer with an undeveloped photograph, which suggested that some materials continuously emit energy

7. calculated atoms too small, didn't account for formation of ions, but account for different atomic masses and internal structure.

8. a French chemist who proved that the quantities of any pure chemical compound's elements were not dependent on the source. His discovery became known as Proust's law or Law of Definite Proportions,this law was discovered by experimenting with metals that react with oxygen and sulfur

10. See Figure 1; could not account for the formation of ions, and did not account for protons, electrons, and neutrons

13. found that beams of electrons were able to pass through a sheet of aluminum foil with almost no deflection, and correctly concluded that atoms are mostly empty space

14. See Figure 4; accounted for different atomic masses, and internal structure

15. discovered the specific laws of chemical electrolysis and discovered electro-magnetic induction

16. pioneered the scientific method.

17. an English scientist who proposed a mechanical universe that contained small particles in motion (atoms)

18. a pre-socratic philosopher who coined the term atomos which in ancient greek means unbreakable, who also belived that parts of matter were unbreakable

19. an English physicist who proposed an atomic model called the "plum pudding model",discovered the electron when attempting to prove that cathode rays were caused by charged particles he originally called corpuscles. Through experimentation, he determined that electrons were present in all matter.

20. an Austrian physicist who developed the electron cloud model. His model proposed a dense nucleus and outer cloud of electrons and used math and used quantum mechanics to determine the positions of the electrons

21. discovered the neutron by bombarding Beryllium with beta radiation, which led to nuclear fission released a neutron

22. invented the canal ray tube, a tube that examined the flow of positively charged particles, and found that positively charged particles flow the opposite direction of negatively charged particles

23. an English chemist, physicist, and meteorologist, who proposed an "atomic theory" with spherical solid atoms based on the properties mass

24. See Figure 2

25. See Figure 6; accounted for all three basic subatomic particles

26. a wealthy French scienctist during the French Revolution who proved that matter is conserved in chemical reactions; thus, the creation and recognition of the law of conservation of mass, discovered that water is not an element and was a creator of the metric system

27. two scientists who conducted a series of experiments that concluded that the nucleus of an atom was positively charged, this investigated the scattering of alpha particles realizing that if viewed at large angles it could be seen that alpha particles were bouncing back toward their source.

28. an Italian physicist who was among the first atomists to recognize that elements existed as molecules as well as individual atoms.studied the work of John Dalton and Joseph Gay-Lussac and discovered that gas reactions of equal volumes and same temperature and pressure contain the same amount of molecules, now known as Avogadro's Law.

29. discovered the electromagnetic wave called x-rays that could pass through solid objects

30. See Figure 7; the modern model of the atom, that is most widely accepted, is stable and accounts for all properties of the atom

Down

1. a New Zealand physicist who discovered the proton, atomic nucleus, and the element radon, also proposed the Rutherford Model of the atom, and further contributed to atomic theory, coining terms like alpha, beta, and gamma rays.

3. a Danish physicist who developed the modern model of the atom, introduced the electron in it's proper place, orbiting around the nucleus, later won the Nobel Peace Prize for his work in Nuclear Physics

9. used electrolysis to break down compounds and discover seven new elements

11. an English scientist who experimented mostly on gases. Boyle discovered through experimentation that gas exists and is made of something (atoms). His experiments also led to the discovery of Boyle's Law, which describes an inverse relationship between volume and pressure

12. See Figure 3; accounted for everything, but is unstable