

Name: _____

Date: _____

- 1 Which term describes a particle in an atom with a positive charge?
 - A proton
 - B isotope
 - C neutron
 - D electron

- 2 What was one significant discovery made by Rutherford?
 - A the orbit of electrons
 - B radioactivity of some isotopes
 - C the positive charge of protons
 - D the neutral charge of neutrons

- 3 Which describes an element with an atomic number of six?
 - A six electron clouds
 - B an atomic mass of six
 - C more than six neutrons
 - D six protons in the nucleus

- 4 Isotopes are atoms of the same element that have different numbers of what part?
 - A nuclei
 - B protons
 - C neutrons
 - D electrons

- 5 What information is found in all periodic tables?
 - A radioactivity
 - B atomic mass
 - C charge of protons
 - D number of electrons

- 6 discovered that protons are positively charged parts of the atom
 - A Bohr
 - B Rutherford
 - C Dalton
 - D Thomson
 - E Lavoisier

- 7 discovered negatively charged particles called electrons
 - A Bohr
 - B Rutherford
 - C Dalton
 - D Thomson
 - E Lavoisier

- 8 theorized electrons move in circles called energy levels
- A Bohr
 - B Rutherford
 - C Dalton
 - D Thomson
 - E Lavoisier
- 9 developed the law of conservation of mass
- A Bohr
 - B Rutherford
 - C Dalton
 - D Thomson
 - E Lavoisier
- 10 A(n) _____ is a small particle that makes up all matter.
- A atom
 - B proton
 - C neutron
 - D electron
 - E isotope
- 11 The proton is a _____ charged particle.
- A negatively
 - B positively
 - C neutrally
- 12 The neutron has a _____ charge.
- A positive
 - B negative
 - C neutral
- 13 The proton and neutron are found inside the _____ of the atom.
- A electron cloud
 - B energy level
 - C nucleus
- 14 The electron is a _____ charged particle.
- A negatively
 - B positively
 - C neutrally
- 15 What is the atomic number of element A?

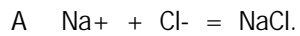
- 16 What is the number of neutrons in element B?
- 17 What is the number of electrons in element C?
- 18 What is the mass number for element C?
- 19 How many protons in element D?
- 20 What is the atomic number of element D?
- 21 How many protons in element E?
- 22 How many electrons in element E?
- 23 What is the atomic number of element 11?
- 24 Thomson' s model of the atom pictured electrons embedded in a ball of positive charge. Analyze why Rutherford' s gold-foil experiment led to a change in this model.
- A Rutherford' s model showed that most of the particles went straight through the foil, but a few were bounced straight back to the source. Rutherford' s experiment showed that much of an negatively charged space, with the mass evenly spread throughout the atom.
 - B Rutherford' s model showed that most of the particles went straight through the foil, but a few were bounced straight back to the source. Rutherford' s experiment showed that much of an atom is empty space. Most of the mass is concentrated in a dense, central nucleus.
- 25 Carbon has an atomic number of 6. How many neutrons does the isotope Carbon-12 have?
- 26 Carbon has an atomic number of 6. How many neutrons does Carbon-13 have?



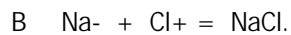
- 27 Carbon has an atomic number 6. How many neutrons does the isotope Carbon-14 have?

- 28 Contrast Bohr's explanation of electron movement with current theories of the movement of electrons in an electron cloud.
- A Bohr theorized that electrons travel in circular motions around the nucleus. While this explanation worked well for simple atoms like hydrogen, it did not work as well for more complex atoms. Currently, many scientists believe that electrons move freely in a region surrounding an atomic nucleus. Electrons move rapidly from one place to another, but tend to be found closer to the nucleus.
 - B Bohr theorized that electrons travel in circular motions around the nucleus. While this explanation worked well for simple atoms like hydrogen, it did not work as well for more complex atoms. Currently, many scientists believe that electrons do not travel in energy levels at all, but are all contained in a cloud inside the nucleus of an atom.
- 29 Susana's father had some medical tests done to determine the cause of his digestive troubles. The doctor gave him a radioactive substance to drink, so she could track the flow through the digestive system. Infer what atomic particle the drink could contain.
- A The drink could contain a radioactive isotope. Some isotopes are used in medicine to help track the cause of digestive and circulatory problems.
 - B The drink could contain a negatively charge ions. Some ions are used in medicine to help track the cause of digestive and circulatory problems.
- 30 Define the law of conservation of mass. Use an example to help define the law.
- A The law of conservation of mass states that the total mass of starting materials is always the same as the total mass of the products. For example, wood burns by combining with oxygen. Wood and oxygen are the starting materials. The products are ash, carbon dioxide gas, and water. The total mass of the wood and oxygen is equal to the total mass of the ash, carbon dioxide gas, and water.
 - B The law of conservation of mass states that atoms of different elements combine to form molecules in definite ratios. For example, a water molecule is always composed of two hydrogen atoms and one oxygen atom. The proportion for a water molecule is always 2 to 1.

- 31 Table salt is made from a sodium ion, Na^+ , and a chloride ion, Cl^- . Represent with symbols how the two ions form to create a compound and explain how this occurs.



The positively charged sodium ion joins with the negatively charged chloride ion to create the neutral compound of salt.



The negatively charged sodium ion joins with the positively charged chloride ion to create the neutral compound of salt.