

4.1 Atomic Theory and Bonding

C F K Z R W B R F N U C L E U S V Z L P I K G T A
S H T A B J W T C X J P P W U B P S O B N H L Z F
A C I E L E C T R O N S N J B Q N W N R T W V N I
Y V I U Q F P K N H M E S M G O L L E N G B W V Y
L I Y L Z I P M Z E Y F S U I D I A P P T B P T X
E Z L D N B J J O T C B V U B X H T A X B B E T K
W E Q C O M P O U N D U M L Z A N O I W Z O R R F
I Z B A A I O N I C A I P E W T T M R B M H I A T
S L P M U L T I V A L E N T R U W O K R I R O N W
H Z L W U I D H S W F O Z M P E X K M E P W D S D
B L R P T S O E S T A B L E L Y N X V I J L N I I
V A V N U C L E A R C H A R G E V W Q N C G N T A
C F G P R O T O N W C O V A L E N T W E C Z Q I T
I Z O I D M X J Q D D A T O M I C N U M B E R O O
A G H B A T Q C H E M I C A L L K U A Y W A Y N M
R H M J N E U T R O N S D O P F S U A Q G H U N I
W D S H E L L W B N W B B K Q C P C L U N P O U C

- _____ diagrams show the arrangement of protons, neutrons, and electrons in atoms and also in ions.
- These are formed from atoms that have lost or gained electrons.
- _____ diagrams show the arrangement of bonds within compounds.
- A pure substance that is composed of two or more atoms combined in a specific way.
- The smallest particle of any element that retains the properties of the element.
- _____ changes are changes in the ways the atoms and molecules in a pure substance are arranged and interconnected.
- _____ particles are the particles that make up an atom.
- Protons and neutrons are held tightly together at the centre of the atom in a tiny region called the _____.
- Most of the volume of an atom is the region occupied by its _____.
- The simplest possible nucleus is found in the element hydrogen, which contains only one _____.
- In heavier atoms, extra _____ help to make the nucleus stable by keeping the protons as far apart as possible.
- _____ is simply found by counting the number of protons.
- The nuclear charge is the same as the _____.
- In the periodic table, each row is also called a _____.
- _____ metals include familiar elements such as iron, nickel, copper, silver, and gold.
- Some metals are _____, which means they can form ions in more than one way, depending on the situation.
- The two elements in period 1 of the periodic table, hydrogen and helium, have a single occupied _____.
- In terms of atomic stability, lower energy states are more _____.
- In _____ bonding, one or more electrons transfers from each atom of the metal to each atom of the non-metal.
- In _____ bonding, atoms overlap slightly, and one unpaired electron from each atom will pair together.
- A pair of electrons in the valence shell that is not used in bonding is sometimes called a _____.
- A _____ molecule is a pair of atoms of the same element that are joined by covalent bonds.