

4.1 CHECK YOUR UNDERSTANDING ANSWER KEY

Checking Concepts

- (a) Both protons and neutrons are about the same mass. Students may have also mentioned that they are both subatomic particles and are both found in the nucleus.
(b) Protons and neutrons have different electric charges.
- Proton and neutron
- The neutron is nearly equal to the mass of the proton plus the mass of the electron.
- (a) Protons and neutrons
(b) Electrons
- The charges of all the subatomic particles in an atom add up to zero.
- (a) 2+
(b) The nuclear charge equals the number of protons in the nucleus.

	Element	Atomic Number	Number of Protons	Number of Electrons
(a)	Pb	82	82	82
(b)	O	8	8	8
(c)	Zn	30	30	30
(d)	Fe	26	26	26
(e)	Ag	47	47	47
(f)	Cl	17	17	17

8.

Element	(a) Period	(b) Group
Cs	6	1
S	3	16
Kr	36	36
C	2	14

Pause and Reflect Answer

Students may include some of these points in their answer.

- Illustrate an atom with protons and neutrons in the centre and with electrons arranged around it in the pattern 2, 8, 8,
- Illustrate an atom using a Bohr diagram.
- Distinguish number of protons, neutrons, electrons, atomic number, and mass number.
- Show simple compounds using Bohr diagrams.
- Show simple compounds using Lewis diagrams.

Element	(a) Period	(b) Group
Fe	4	8
Hg	6	12

9. For example: alkali metals, alkaline earth metals, halogens, noble gases

Understanding Key Ideas

- (a) Electron
(b) Proton, electron
(c) Electron
(d) Neutron
(e) Proton, neutron
(f) Proton
- In a covalent compound, atoms bond together by sharing a pair of electrons. In an ionic compound, ions form as a result of the transfer of electrons, and then ions of opposite charge attract each other.
- (a) Bohr and Lewis diagrams are similar in that they show the valence electrons and how they result in bond formation.
(b) They are different in that Bohr diagrams show all the atoms in each atom or ion, while Lewis diagrams show only valence electrons.

