

7 Ionic and Metallic Bonding

Big idea BONDING AND INTERACTIONS

7.1 Ions

For students using the Foundation edition, assign problems 1, 3–5, 7–12, 14, 15, 18–20.

Essential Understanding Ions form when atoms gain or lose valence electrons, becoming electrically charged.

Lesson Summary

Valence Electrons Valence electrons are the electrons in the outermost occupied energy level and are involved in ion formation.

- ▶ For a representative element, the group number equals the number of valence electrons the atom contains.
- ▶ An electron dot structure shows the symbol of the element and its valence electrons.
- ▶ Atoms tend to gain or lose the number of electrons that will provide the atom with a noble gas electron configuration.

Formation of Cations Cations are positively charged ions formed when an atom loses one or more valence electrons.

- ▶ Atoms and the cations formed from them have different properties.
- ▶ Elements in Group 1 form cations with a charge of $1+$, and those in Group 2 form cations with a charge of $2+$.
- ▶ Many transition metals form more than one cation and do not follow the octet rule.

Formation of Anions Anions are negatively charged ions formed when an atom gains one or more valence electrons.

- ▶ Commonly, the name of an anion ends in *-ide*.
- ▶ Anions form from nonmetallic elements.
- ▶ The anions formed from halogens are known as halides.

After reading Lesson 7.1, answer the following questions.

Valence Electrons

1. What are valence electrons?

Valence electrons are the electrons in the highest occupied energy level of an element's atoms.

2. The valence electrons largely determine the *chemical properties* of an element and are usually the only electrons used in *chemical bonds*.

Lesson 4 Reading And Study Workbook Answers

Emilie Sanchez



Lesson 4 Reading And Study Workbook Answers:

The Enigmatic Realm of **Lesson 4 Reading And Study Workbook Answers**: Unleashing the Language is Inner Magic

In a fast-paced digital era where connections and knowledge intertwine, the enigmatic realm of language reveals its inherent magic. Its capacity to stir emotions, ignite contemplation, and catalyze profound transformations is nothing short of extraordinary. Within the captivating pages of **Lesson 4 Reading And Study Workbook Answers** a literary masterpiece penned by way of a renowned author, readers embark on a transformative journey, unlocking the secrets and untapped potential embedded within each word. In this evaluation, we shall explore the book's core themes, assess its distinct writing style, and delve into its lasting effect on the hearts and minds of those that partake in its reading experience.

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