

Time

45–60 min

Skills and Processes

The Chapter Review provides an opportunity for students to demonstrate their understanding of and their ability to apply the key ideas, vocabulary, and skills and processes.

Program Resources

BLM 0.0-10 Chapter Key Ideas
Chapter 8 Quiz
Nelson Science Probe 9 website
www.science.nelson.com

Chapter 8 Review Chart

- Ask students to make up questions (and answers) that can be asked about the illustrations on the review chart.
- Have students explain the concept(s) associated with an illustration to a classmate.
- Have students review their *Chapter 8 Study Guide Outline* notes to recall what they have learned in this chapter.
- Have students use *BLM 0.0-10 Chapter Key Ideas* to review the key ideas in the chapter.
- Encourage students to visit the online quiz centre on the Nelson Science website and complete the *Chapter 8 Self-Quiz*.
- Have students complete the *Chapter 8 Quiz* in the Student Workbook to review the vocabulary and concepts in this chapter.

Review Key Ideas and Vocabulary—Suggested Answers

- (d)
- (a) helium, neon, argon, krypton, xenon, radon
(b) fluorine, chlorine, bromine, iodine, astatine
(c) beryllium, magnesium, calcium, strontium, barium, radium
(d) lithium, sodium, potassium, rubidium, cesium, francium
- (c)
- (b)
- (d)
- Choose three from the following: helium, neon, argon, krypton, xenon, and radon.
- Element B should be soft, ductile, conduct electricity, and react with ammonia.
- (a) NaCl
(b) KCl
(c) K₂O
(d) MgO
(e) Al₂O₃
(f) AlN
- (a) Fe³⁺
(b) Ca²⁺

- (c) O^{2-}
(d) CO_3^{2-}
(e) NH_4^+
(f) Br^-
10. (a) NH_4F
(b) $(NH_4)_2S$
(c) $Mg(ClO_3)_2$
(d) $MgCO_3$
(e) $Mg_3(PO_4)_2$
(f) $Al(PO_4)_3$
11. (a) $Cu(NO_3)_2$
(b) $CuNO_3$
(c) $FeCO_3$
(d) $Fe_2(CO_3)_3$
(e) $PbCl_4$
(f) PbF_2
12. (a) aluminum oxide
(b) calcium carbonate
(c) ammonium chloride
(d) iron(III) sulphide
(e) chromium(II) phosphate
(f) potassium hydroxide
13. The brackets are used to indicate how many of the polyatomic ions are present; brackets are only placed around polyatomic ions, because they behave like single ions.

Use What You've Learned—Suggested Answers

14. First: $CuCl$, second: $CuCl_2$
15. $NaHCO_3$
16. 1^- . The charge was determined by comparing the number of dihydrogen phosphate ions to the number of strontium ions. The single strontium ion has a charge of $2+$, so the total negative charge must be 2^- . There are two negative ions, so each ion is 1^- .
17. Alkali metals. They are ductile, low density, electrically conductive, and react with water to form hydrogen gas and a base.

18. (a) “Leavening” in baking means to introduce gas bubbles into a dough to make it rise and be less dense. Yeast is used as a leavening agent.
- (b) Baking powder and baking soda create their effects by reacting baking soda (NaHCO_3) with an acid, producing carbon dioxide gas (CO_2). Baking powder contains the acid in dry form (potassium hydrogen tartrate, $\text{KC}_4\text{H}_5\text{O}_6$), and when water is added, the reaction begins. If baking soda alone is used, cream of tartar (the common name of potassium hydrogen tartrate) must be added, or some other acid in liquid form, such as vinegar or lemon juice.
- (c) Baking and cooking are chemical processes, so some knowledge of chemistry would be valuable.

Think Critically—Suggested Answers

19. Toothpaste will contain either sodium fluoride (NaF) or stannous fluoride (tin(II) fluoride, SnF_2)—the fluoride ions help harden the enamel of the teeth; many shampoos may contain sodium laureth sulphate $\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2(\text{OCH}_2\text{CH}_2)_3\text{OSO}_3\text{Na}$ or sodium lauryl sulphate $\text{NaC}_{12}\text{H}_{25}\text{SO}_4$ —these are surfactants (detergents) and foaming agents; cereals may contain thiamin hydrochloride (aka vitamin B1, $\text{C}_{12}\text{H}_{17}\text{ClN}_4\text{OS}$), or pyridoxine hydrochloride (aka vitamin B6, $\text{C}_8\text{H}_{11}\text{NO}_3$), or BHT—butylated hydroxytoluene ($\text{C}_{15}\text{H}_{24}\text{O}$), added to the packaging as a preservative; cleaning products may contain a variety of acids (increasing the solubility of fats and oils) such as phosphoric acid (H_3PO_4) or lactic acid ($\text{C}_3\text{H}_6\text{O}_3$), or sodium hypochlorite (NaClO), also known as bleach, used as a disinfectant. Many other chemicals may be present, depending on the product.
20. Old names for compounds are still used because they have become conventional—the old name has been in use for a long time and subsequent generations pass the names on. Muriatic acid is well known to masons (for cleaning brick and stone), but many do not recognize the name hydrochloric acid. Marketing is another reason for keeping the old name, so that ingredients sound exotic: if SnF_4 is added to toothpaste, the company’s marketing department may prefer the name stannous fluoride to tin(IV) fluoride. Who wants to put a tin compound in their mouths? Scientific names for some compounds are very long or are tongue-twisters (this is because some names describe the structure of the molecule), so using a common name for consumers may be a good idea.
21. As iodine and bromine are in the same chemical family, the compounds of these two elements should also be similar. Silver iodide is also photosensitive, like silver bromide, and is used in photographic emulsions.