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HOME INDEPENDENT WORK PACKET

EIGHTH GRADE

PACKET 1
APRIL 13 - APRIL 24

Language Arts

8th Grade Study Guide

Unit 3

Name ..... Date .....

Grammar Practice

EXERCISE A

Insert a caret (^) in each place in the sentence where punctuation is needed to indicate a pause or a break. Then, on the line on the left, write **C** for commas or **D** for dashes to indicate the kind of punctuation that would be better to use.

Example: D The U.S. Virgin Islands^except during hurricane season^is a perfect honeymoon spot.

_____ 1. The mechanic who was meticulous as he took apart the car's engine clearly had several years of experience.

_____ 2. The soup was flavorful the seasonings were delicious as well as healthy.

_____ 3. The city's downtown area in the years following the great flood of 1972 was rebuilt to its former splendor.

Ellipsis Points

Ellipsis points are three dots (periods), separated by spaces. Their main purpose is to show that a word or words have been omitted from a quotation without changing its essential meaning. For example:

> In the opening of his first inaugural address, John Fitzgerald Kennedy said, "We observe today not a victor of party, but a celebration of freedom . . . signifying renewal, as well as change." Later in the speech, he stated, "Let every nation know, whether it wishes us well or ill, that we shall pay any price, bear any burden, meet any hardship . . . to assure the survival and the success of liberty."

Ellipsis points are sometimes used at the end of a sentence to show that the writer (or the person speaking in dialogue) has trailed off without completing his or her thought.

Example: I don't know what to make for dinner. I just don't know . . .

EXERCISE B

Put brackets ([]) around one or more sections from each of the following sentences that could be omitted and replaced with ellipsis points, without changing the basic meaning of the original.

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Language Arts

Name ..... Date .....

Grammar Practice

Example: Princess Diana[, who was married to Prince Charles of Whales,] was known for her humanitarian efforts and charity work.

4. Kennedy, commonly known as JFK, was the youngest man elected as U.S. president, though he almost gained a nomination for vice-president four years earlier.

5. More that 50 years after his death, in a world that has since seen drastic change, a troubled public still questions the motives behind Kennedy's assassination.

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Language Arts

Study Guide Answer Key

Unit 3

8th Grade ELA

This answer key contains answers to the Study Guide provided, with the exception of answers which are based on *Your Thoughts* and personal experience, which will always vary. Please refer to the *Rubric for Extended Writing Project*, provided at the back of each unit in the Study Guide, for assessing the writing of those type of answers.

Name Key Date

Grammar Practice

LB1A

VERBALS

Verbals are words that are formed from verbs but function as other parts of speech. There are three kinds of verbals: participles, gerunds, and infinitives.

Participles

A present participle is formed by adding *-ing* to a verb. A past participle is usually formed by adding *-ed* to a verb. Sometimes a participle acts as the main verb in a verb phrase. As a verb, the present participle is used with forms of the helping verb to be, and the past participle is used with forms of the helping verb to have. A participle can also act as an adjective to describe, or modify, a noun or a pronoun.

Examples: The robin was singing in the tree. (present participle as a main verb)
Our cat stared at the singing robin. (present participle as an adjective)
Tammy has tossed the water balloon. (past participle as a main verb)
The tossed water balloon hit the sidewalk. (past participle as an adjective)

EXERCISE A

Underline each participle. Write in the blank *pres.* if it is a present participle and *past* if it is a past participle.

Example: pres. The running guard caught the pass from Troy.

pres. 1. The nervous bird was pecking at the girl.
past 2. A printout of the results has been taped to the door.
pres. 3. The freezing lady put on her sweater.
past 4. The spilled oil spread over the floor.
past 5. By evening, they will have finished their assignment.
past, pres. 6. Everyone has wondered what the great detective was thinking.
past, pres. 7. Carol has rescued the trembling cat.
past 8. The elected chairperson must work hard.
pres. 9. David is throwing the rings at the milk bottles.
past 10. They found out too late that they had entered by the wrong door.
pres. 11. I made a running leap to clear the last hurdle.
pres., past, pres. 12. The engaging film star has smiled and posed for pictures.

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pres. 13. We were unable to keep warm in the blistering wind.
past 14. Allan should have looked at the price tag first.
past, past 15. We had recycled our discarded newspapers.
past 16. The new video store had a limited number of foreign films.
pres. 17. Do you see the antique car that is passing the new car?
past 18. Have you ever watched Rain Man?
past 19. I had noticed the necklace on the table.
pres. 20. The bucket was rapidly filling with water.

Gerunds

In addition to being used as an adjective (as in participles), a verb form ending in *-ing* may also se as a noun. A gerund is a verb form that ends in *-ing* and is used as a noun. It can be the subject c sentence, the direct object, or the object of a preposition.

Examples: Flying is a skill birds must learn. (subject)
Young birds practice flying. (direct object)
They can escape from dangers by flying. (object of a preposition)

EXERCISE B: Circle each gerund.

Example: One way people share good times is by (observing) holidays together.

1. Some people keep Valentine's Day by (sending) heart-shaped cards to friends.
2. (Sharing) valentines with others can brighten a wintry February day.
3. The custom of (celebrating) Valentine's Day stretches back a long way.
4. Many historians believe the holiday sprang from an ancient Roman custom of (honoring) two brothers by the name of Valentine.
5. (Coloring) eggs is an activity that belongs to another holiday.
6. Easter is often associated with the (blooming) of spring flowers.
7. In Christian traditions, Easter marks the (rising) of Jesus from the dead.
8. At the same time as Easter, Jews observe Passover by (preparing) a special meal, a seder.
9. By (eating) the special foods at the seder, Jews remember the flight of their ancestors from slavery in Egypt.

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10. (Playing) jokes on people seems a strange way to celebrate a holiday.
11. However, (exchanging) gag gifts was a custom in France that grew into our April Fool's Day.
12. A lesser-known spring holiday is dedicated to (planting) trees—Arbor Day.
13. Various states enjoy (observing) Arbor Day any time from December to May.
14. Most people would agree that (respecting) mothers is important every day of the year.
15. In 1914 Congress approved (reserving) a specific day for mothers.
16. The second Sunday in May is the day set aside for (remembering) Mom.
17. (Remembering) our patriotic dead is the purpose of another May holiday, Memorial Day.
18. By (decorating) the graves of soldiers, we honor their memories.
19. In (celebrating) Memorial Day at the end of May, we pay tribute to those who died for their country.
20. (Honoring) all members of the armed services is the purpose of Veterans Day, celebrated in November.

Infinitives

An infinitive is another verb form that may function as a noun. It may also function as an adjective or an adverb. An infinitive is formed from the word to followed by the base form of a verb. The word to is not a preposition when it is used immediately before a verb.

Examples: Jenny is always looking for a chance to read. (infinitive)
She goes to the library at least once a week. (not an infinitive; the word *to* is used as a preposition)

An infinitive used as a noun can be the subject of a sentence or the direct object of a verb.

Examples: To read is enjoyable. (subject)
Jenny tries to read every day. (direct object)

EXERCISE C: Circle each infinitive.

Example: My sister is teaching me (to play) chess.

1. Do you like (to eat) Chinese food?
2. It's hard (to choose) a video because the selection here is so large.
3. I'm lucky (to go) to such a good school.

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4. My little brother finds it almost impossible (to wait) until his birthday.
5. (To ignore) a sore throat is not a very good idea.
6. We have (to leave) immediately (to go) to the meeting at the recreation center.
7. (To win) the last three games of the season will not be easy.
8. (To get) a B on the next test is her objective.
9. (To grow) a moustache in time for the play became my dad's plan.
10. Let's get together (to watch) old Laurel and Hardy movies.
11. I know how (to fix) the glitch in your computer program.
12. (To take) a cruise in the Caribbean would be wonderful.
13. We love (to wander) around the old-fashioned shops at the history museum.
14. I don't want (to argue) about it now.
15. She said she'd love (to hear) from us.
16. The hospital chaplain stopped (to say) hello to Maggie after her operation.
17. Does Jordan like (to sing) in the Glee Club?
18. Did you ever want (to go) to a Broadway musical?
19. (To wait) for dinner doesn't bother me at all.
20. On her family's trip to the ocean, Megan is going (to try) scuba diving.

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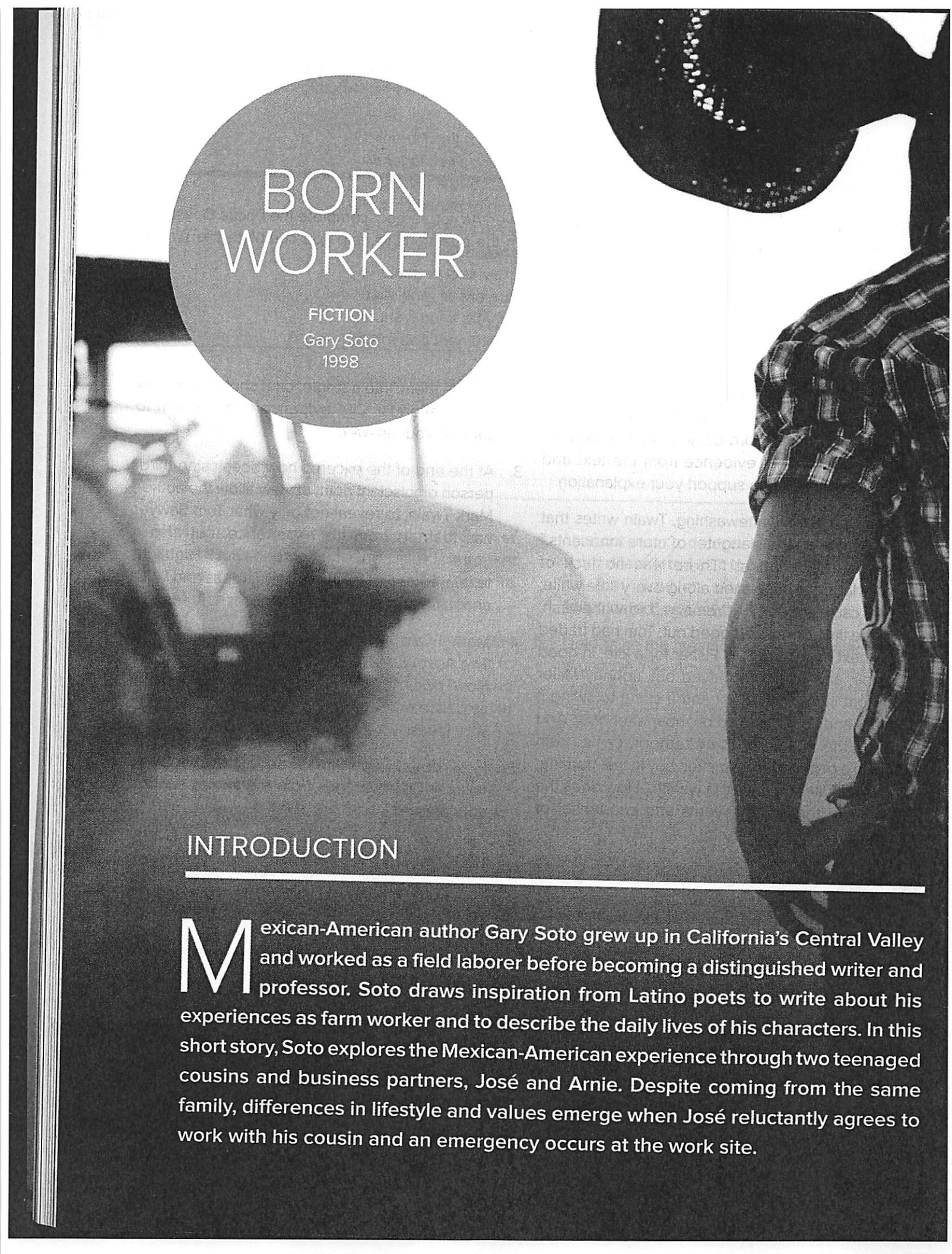

BORN WORKER

FICTION

Gary Soto
1998

INTRODUCTION

Mexican-American author Gary Soto grew up in California's Central Valley and worked as a field laborer before becoming a distinguished writer and professor. Soto draws inspiration from Latino poets to write about his experiences as farm worker and to describe the daily lives of his characters. In this short story, Soto explores the Mexican-American experience through two teenaged cousins and business partners, José and Arnie. Despite coming from the same family, differences in lifestyle and values emerge when José reluctantly agrees to work with his cousin and an emergency occurs at the work site.

"...his palms were already rough by the time he was three..."

FIRST READ

NOTES

1 They said that José was born with a ring of dirt around his neck, with grime under his fingernails, and skin calloused from the grainy twist of a shovel. They said his palms were already rough by the time he was three, and soon after he learned his primary color, his squint was the squint of an aged laborer. They said he was a born worker. By seven he was drinking coffee slowly, his mouth pursed the way his mother sipped. He wore jeans, a shirt with sleeves rolled to his elbows. His eye could measure a length of board, and his knees **genuflected** over flower beds and leafy gutters.

2 They said lots of things about José, but almost nothing of his parents. His mother stitched at a machine all day, and his father, with a steady job at the telephone company, climbed splintered, sun-sucked poles, fixed wires and looked around the city at tree level.

3 "What do you see up there?" José once asked his father.

4 "Work," he answered. "I see years of work, *mi'jo*."

5 José took this as a truth, and though he did well in school, he felt destined to labor. His arms would pump, his legs would bend, his arms would carry a world of earth. He believed in hard work, believed that his strength was as ancient as a rock's.

6 "Life is hard," his father repeated from the time José could first make out the meaning of words until he was stroking his fingers against the grain of his sandpaper beard.

7 His mother was an example to José. She would raise her hands, showing her fingers pierced from the sewing machines. She bled on her machine, bled because there was money to make, a child to raise, and a roof to stay under.

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NOTES

8 One day when José returned home from junior high, his cousin Arnie was sitting on the lawn sucking on a stalk of grass. José knew that grass didn't come from his lawn. His was cut and pampered, clean.

9 "José!" Arnie shouted as he took off the earphones of his CD Walkman.

10 "Hi, Arnie," José said without much enthusiasm. He didn't like his cousin. He thought he was lazy and, worse, spoiled by the trappings of being middle class. His parent had good jobs in offices and showered him with clothes, shoes, CDs, vacations, almost anything he wanted. Arnie's family had never climbed a telephone pole to size up the future.

11 Arnie rose to his feet, and José saw that his cousin was wearing a new pair of high-tops. He didn't say anything.

12 "Got an idea," Arnie said cheerfully. "Something that'll make us money."

13 José looked at his cousin, not a muscle of curiosity twitching in his face.

14 Still, Arnie explained that since he himself was so clever with words, and his best cousin in the whole world was good at working with his hands, that maybe they might start a company.

15 "What would you do?" José asked.

16 "Me?" he said brightly. "Shoot, I'll round up all kinds of jobs for you. You won't have to do anything." He stopped, then started again. "Except—you know—do the work."

17 "Get out of here," José said.

18 "Don't be that way," Arnie begged. "Let me tell you how it works."

19 The boys went inside the house, and while José stripped off his school clothes and put on his jeans and a T-shirt, Arnie told him that they could be rich.

20 "You ever hear of this guy named Bechtel?" Arnie asked.

21 José shook his head.

22 "Man, he started just like us," Arnie said. "He started digging ditches and stuff, and the next thing you knew, he was sitting by his own swimming pool. You want to sit by your own pool, don't you?" Arnie smiled, waiting for José to speak up.

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23 "Never heard of this guy Bechtel," José said after he rolled on two huge socks, worn at the heels. He opened up his chest of drawers and brought out a packet of Kleenex.

24 Arnie looked at the Kleenex.

25 "How come you don't use your sleeve?" Arnie joked.

26 José thought for a moment and said, "I'm not like you." He smiled at his retort.

27 "Listen, I'll find the work, and then we can split it fifty-fifty."

28 José knew fifty-fifty was a bad deal.

29 "How about sixty-forty?" Arnie suggested when he could see that José wasn't going for it. "I know a lot of people from my dad's job. They're waiting for us."

30 José sat on the edge of his bed and started to lace up his boots. He knew that there were agencies that would find you work, agencies that took a portion of your pay. They're cheats, he thought, people who sit in air-conditioned offices while others work.

31 "You really know a lot of people?" José asked.

32 "Boatloads," Arnie said. "My dad works with this millionaire—honest—who cooks a steak for his dog every day."

33 He's a liar, José thought. No matter how he tried, he couldn't picture a dog grubbing on steak. The world was too poor for that kind of silliness.

34 "Listen, I'll go eighty-twenty." José said.

35 "Aw, man," Arnie whined. "That ain't fair."

36 José laughed.

37 "I mean, half the work is finding the jobs," Arnie explained, his palms up as he begged José to be reasonable.

38 José knew this was true. He had had to go door-to-door, and he disliked asking for work. He assumed that it should automatically be his since he was a good worker, honest, and always on time.

39 "Where did you get this idea, anyhow?" José asked.

40 "I got a business mind," Arnie said proudly.

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NOTES

41 "Just like that Bechtel guy," José retorted.

42 "That's right."

43 José agreed to a seventy-thirty split, with the condition that Arnie had to help out. Arnie hollered, arguing that some people were meant to work and others to come up with brilliant ideas. He was one of the latter. Still, he agreed after José said it was that or nothing.

44 In the next two weeks, Arnie found an array of jobs. José peeled off shingles from a rickety garage roof, carried rocks down a path to where a pond would go, and spray-painted lawn furniture. And while Arnie accompanied him, most of the time he did nothing. He did help occasionally. He did shake the cans of spray paint and kick aside debris so that José didn't trip while going down the path carrying the rocks. He did stack the piles of shingles, but almost cried when a nail bit his thumb. But mostly he told José what he had missed or where the work could be improved. José was bothered because he and his work had never been criticized before.

45 But soon José learned to ignore his cousin, ignore his comments about his spray painting, or about the way he lugged rocks, two in each arm. He didn't say anything, either, when they got paid and Arnie rubbed his hands like a fly, muttering, "It's payday."

46 Then Arnie found a job scrubbing a drained swimming pool. The two boys met early at José's house. Arnie brought his bike. José's own bike had a flat that grinned like a clown's face.

47 "I'll pedal," José suggested when Arnie said that he didn't have much leg strength.

48 With Arnie on the handlebars, José tore off, his pedaling so strong that tears of fear formed in Arnie's eyes.

49 "Slow down!" Arnie cried.

50 José ignored him and within minutes they were riding the bike up a gravel driveway. Arnie hopped off at first chance.

51 "You're scary," Arnie said, picking a gnat from his eye.

52 José chuckled.

53 When Arnie knocked on the door, an old man still in pajamas appeared in the window. He motioned for the boys to come around to the back.

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NOTES

54 "Let me do the talking," Arnie suggested to his cousin. "He knows my dad real good. They're like this." He pressed two fingers together.

55 José didn't bother to say OK. He walked the bike into the backyard, which was lush with plants—roses in their last bloom, geraniums, hydrangeas, pansies with their skirts of bright colors. José could make out the splash of a fountain. Then he heard the hysterical yapping of a poodle. From all his noise, a person might have thought the dog was on fire.

56 "Hi, Mr. Clemens," Arnie said, extending his hand. "I'm Arnie Sanchez. It's nice to see you again."

57 José had never seen a kid actually greet someone like this. Mr. Clemens said, hiking up his pajama bottoms, "I only wanted one kid to work."

58 "Oh," Arnie stuttered. "Actually, my cousin José really does the work and I kind of, you know, supervise."

59 Mr. Clemens pinched up his wrinkled face. He seemed not to understand. He took out a pea-sized hearing aid, fiddled with its tiny dial, and fit it into his ear, which was surrounded with wiry gray hair.

60 "I'm only paying for one boy," Mr. Clemens shouted. His poodle click-clicked and stood behind his legs. The dog bared its small crooked teeth.

61 "That's right," Arnie said, smiling a strained smile. "we know that you're going to **compensate** only one of us."

62 Mr. Clemens muttered under his breath. He combed his hair with his fingers. He showed José the pool, which was shaped as round as an elephant. It was filthy with grime. Near the bottom some grayish water shimmered and leaves floated as limp as cornflakes.

63 "It's got to be real clean," Mr. Clemens said, "or it's not worth it."

64 "Oh, José's a great worker," Arnie said. He patted his cousin's shoulders and said that he could lift a mule.

65 Mr. Clemens sized up José and squeezed his shoulders, too.

66 "How do I know you, anyhow?" Mr. Clemens asked Arnie, who was aiming a smile at the poodle.

67 "You know my dad," Arnie answered, raising his smile to the old man. "He works at Interstate Insurance. You and he had some business deals."

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NOTES

68 Mr. Clemens thought for a moment, a hand on his mouth, head shaking. He could have been thinking about the meaning of life, his face was so dark.

69 "Mexican fella?" he inquired.

70 "That's him," Arnie said happily.

71 José felt like hitting his cousin for his cheerful attitude. Instead, he walked over and picked up the white plastic bottle of bleach. Next to it was a wire brush, a **pumice** stone, and some rags. He set down the bottle and, like a surgeon, put on a pair of rubber gloves.

72 "You know what you're doing, boy?" Mr. Clemens asked.

73 José nodded as he walked into the pool. If it had been filled with water, his chest would have been wet. The new hair on his chest would have been floating like the legs of a jellyfish.

74 "Oh, yeah," Arnie chimed, speaking for his cousin. "José was born to work."

75 José would have drowned his cousin if there had been more water. Instead, he poured a bleach solution into a rag and swirled it over an area. He took the wire brush and scrubbed. The black algae came up like a foamy monster.

76 "We're a team," Arnie said to Mr. Clemens.

77 Arnie descended into the pool and took the bleach bottle from José. He held it for José and smiled up at Mr. Clemens, who, hands on hips, watched for a while, the poodle at his side. He cupped his ear, as if to pick up the sounds of José's scrubbing.

78 "Nice day, huh?" Arnie sang.

79 "What?" Mr. Clemens said.

80 "Nice day," Arnie repeated, this time louder. "So which ear can't you hear in?" Grinning, Arnie wiggled his ear to make sure that Mr. Clemens knew what he was asking.

81 Mr. Clemens ignored Arnie. He watched José, whose arms worked back and forth like he was sawing logs.

82 "We're not only a team," Arnie shouted, "but we're also cousins."

83 Mr. Clemens shook his head at Arnie. When he left, the poodle leading the way, Arnie immediately climbed out of the pool and sat on the edge, legs dangling.

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84 "It's going to be blazing," Arnie complained. He shaded his eyes with his hand and looked east, where the sun was rising over a sycamore, its leaves hanging like bats.

85 José scrubbed. He worked the wire brush over the black and green stains, the grime dripping like tears. He finished a large area. He hopped out of the pool and returned hauling a garden hose with an attached nozzle. He gave the cleaned area a blast. When the spray got too close, his cousin screamed, got up, and, searching for something to do, picked a **loquat** from a tree.

86 "What's your favorite fruit?" Arnie asked.

87 José ignored him.

88 Arnie stuffed a bunch of loquats into his mouth, then cursed himself for splattering juice on his new high-tops. He returned to the pool, his cheeks fat with the seeds, and once again sat at the edge. He started to tell José how he had first learned to swim. "We were on vacation in Mazatlán. You been there, ain't you?

89 José shook his head. He dabbed the bleach solution onto the sides of the pool with a rag and scrubbed a new area.

90 "Anyhow, my dad was on the beach and saw this drowned dead guy," Arnie continued. "And right there, my dad got scared and realized I couldn't swim."

91 Arnie rattled on about how his father had taught him in the hotel pool and later showed him where the drowned man's body had been.

92 "Be quiet," José said.

93 "What?"

94 "I can't concentrate," José said, stepping back to look at the cleaned area.

95 Arnie shut his mouth but opened it to lick loquat juice from his fingers. He kicked his legs against the swimming pool, bored. He looked around the backyard and spotted a lounge chair. He got up, dusting off the back of his pants, and threw himself into the cushions. He raised and lowered the back of the lounge. Sighing, he snuggled in. He stayed quiet for three minutes, during which time José scrubbed. His arms hurt but he kept working with long strokes. José knew that in an hour the sun would drench the pool with light. He hurried to get the job done.

96 Arnie then asked, "You ever peel before?"

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97 José looked at his cousin. His nose burned from the bleach. He scrunched up his face.

98 "You know, like when you get sunburned."

99 "I'm too dark to peel," José said, his words echoing because he had advanced to the deep end. "Why don't you be quiet and let me work?"

100 Arnie babbled on that he had peeled when on vacation in Hawaii. He explained that he was really more French than Mexican, and that's why his skin was sensitive. He said that when he lived in France, people thought that he could be Portuguese or maybe Armenian, never Mexican.

101 José felt like soaking his rag with bleach and pressing it over Arnie's mouth to make him be quiet.

102 Then Mr. Clemens appeared. He was dressed in white pants and flowery shirt. His thin hair was combed so that his scalp, as pink as a crab, showed.

103 "I'm just taking a little rest," Arnie said.

104 Arnie leaped back into the pool. He took the bleach bottle and held it. He smiled at Mr. Clemens, who came to inspect their progress.

105 "José's doing a good job," Arnie said, then whistled a song.

106 Mr. Clemens peered into the pool, hands on knees, admiring the progress.

107 "Pretty good, huh?" Arnie asked.

108 Mr. Clemens nodded. Then his hearing aid fell out, and José turned in time to see it roll like a bottle cap toward the bottom of the pool. It leaped into the stagnant water with a plop. A single bubble went up, and it was gone.

109 "Dang," Mr. Clemens swore. He took shuffling steps toward the deep end. He steadied his gaze on where the hearing aid had sunk. He leaned over and suddenly, arms waving, one leg kicking out, he tumbled into the pool. He landed standing up, then his legs buckled, and he crumbled, his head striking against the bottom. He rolled once, and half of his body settled in the water.

110 "Did you see that!" Arnie shouted, big-eyed.

111 José had already dropped his brushes on the side of the pool and hurried to the old man, who moaned, eyes closed, his false teeth jutting from his mouth. A ribbon of blood immediately began to flow from his scalp.

112 "We better get out of here!" Arnie suggested. "They're going to blame us!"

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NOTES

113 José knelt on both knees at the old man's side. He took the man's teeth from his mouth and placed them in his shirt pocket. The old man groaned and opened his eyes, which were shiny wet. He appeared startled, like a newborn.

114 "Sir, you'll be all right," José cooed, then snapped at his cousin. "Arnie, get over here and help me!"

115 "I'm going home," Arnie whined.

116 "You punk!" José yelled. "Go inside and call 911."

117 Arnie said that they should leave him there.

118 "Why should we get involved?" he cried as he started for his bike. "It's his own fault."

119 José laid the man's head down and with giant steps leaped out of the pool, shoving his cousin as he passed. He went into the kitchen and punched in 911 on a telephone. He explained to the operator what had happened. When asked the address, José dropped the phone and went onto the front porch to look for it.

120 "It's 940 East Brown," José breathed. He hung up and looked wildly about the kitchen. He opened up the refrigerator and brought out a plastic tray of ice, which he twisted so that a few of the cubes popped out and slid across the floor. He wrapped some cubes in a dish towel. When he raced outside, Arnie was gone, the yapping poodle was doing laps around the edge of the pool, and Mr. Clemens was trying to stand up.

121 "No, sir," José said as he jumped into the pool, his own knees almost buckling. "Please, sit down."

122 Mr. Clemens staggered and collapsed. José caught him before he hit his head again. The towel of ice cubes dropped from his hands. With his legs spread to absorb the weight, José raised the man up in his arms, this fragile man. He picked him up and carefully stepped toward the shallow end, one slow elephant step at a time.

123 "You'll be all right," José said, more to himself than to Mr. Clemens, who moaned and struggled to be let free.

124 The sirens wailed in the distance. The poodle yapped, which started a dog barking in the neighbor's yard.

125 "You'll be OK," José repeated, and in the shallow end of the pool, he edged up the steps. He lay the old man in the lounge chair and raced back inside for more ice and another towel. He returned outside and placed the bundle of cubes on the man's head, where the blood flowed. Mr. Clemens was awake,

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looking about. When the old man felt his mouth, José reached into his shirt pocket and pulled out his false teeth. He fit the teeth into Mr. Clemens's mouth and a smile appeared, something bright at a difficult time.

126 "I hit my head," Mr. Clemens said after smacking his teeth so that the fit was right.

127 José looked up and his gaze floated to a telephone pole, one his father might have climbed. If he had been there, his father would have seen that José was more than just a good worker. He would have seen a good man. He held the towel to the old man's head. The poodle, now quiet, joined them on the lounge chair.

128 A fire truck pulled into the driveway and soon they were surrounded by firemen, one of whom brought out a first-aid kit. A fireman led José away and asked what happened. He was starting to explain when his cousin reappeared, yapping like a poodle.

129 "I was scrubbing the pool," Arnie shouted, "and I said, 'Mr. Clemens, you shouldn't stand so close to the edge.' But did he listen? No, he leaned over and . . . Well, you can just imagine my horror."

130 José walked away from Arnie's **jabbering**. He walked away, and realized that there were people like his cousin, the liar, and people like himself, someone he was getting to know. He walked away and in the midmorning heat boosted himself up a telephone pole. He climbed up and saw for himself what his father saw—miles and miles of trees and houses, and a future lost in the layers of yellowish haze.

"Born Worker" from Petty Crimes: Stories by Gary Soto. Copyright (c) 1998 by Gary Soto. Reprinted by permission of Houghton Mifflin Harcourt Publishing Company. All rights reserved.

THINK QUESTIONS

CA-CCSS: CA.RL.8.1, CA.RL.8.4, CA.L.8.4a, CA.L.8.4c, CA.L.8.4d

1. Why do you think José feels he is "destined to labor"? Support your answer with textual evidence.
2. José doesn't like his cousin Arnie, so why does he decide to go into business with him? Support your answer with textual evidence.
3. Use details from the text to cite some of the major differences between Arnie and José.
4. Use context to determine the meaning of the word **genuflected** as it is used in "Born Worker." Write your definition of "genuflected" and explain how you found it.
5. Use context to determine the meaning of the word **jabbering** as it is used in "Born Worker." Write your definition of "jabbering" and show how you found it. Check your answer against the dictionary definition.

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CLOSE READ

CA-CCSS: CA.RL.8.1, CA.RL.8.2, CA.RL.8.3, CA.RL.8.4, CA.RL.8.5, CA.RL.8.9, CA.W.8.4, CA.W.8.5, CA.W.8.6, CA.W.8.10

Reread the short story "Born Worker." As you reread, complete the Focus Questions below. Then use your answers and annotations from the questions to help you complete the Writing Prompt.

FOCUS QUESTIONS

1. As trickster archetypes, how do Arnie (in this story) and Tom Sawyer (in *The Adventures of Tom Sawyer)* both use lies and deception to get what they want? Use textual evidence from both texts to support your answer.
2. José doesn't like his cousin because he feels Arnie is "lazy and, worse, spoiled by the trappings of being middle class." What details does the author include in the story that reveal how Arnie really feels about José? Does he see José as his equal? Support your answer with textual evidence.
3. Highlight the paragraph that presents the climax of the story. What do the characters' responses to this event reveal about both José and Arnie, and how are their responses linked to the theme of the story? Cite textual evidence to support your answer.
4. José's father works for the telephone company, and throughout the story, Gary Soto refers to telephone poles. What is the significance of the telephone pole as the author uses it in the story? How does it relate to the theme? Cite textual evidence to support your answer.
5. How does José's experience with Mr. Clemens shape, and ultimately change, his values? How does it compare to what Tom Sawyer realizes after his whitewashing experience? Highlight evidence from both texts and make annotations to support your answer.

WRITING PROMPT

Read the excerpt from *The Adventures of Tom Sawyer.* Think about how both Tom Sawyer and Arnie Sanchez represent the trickster, a deceptive character who acts in a way that opposes conventional behavior. Write a short essay in which you compare and contrast Tom and Arnie. Who is more likeable, Tom or Arnie? Cite evidence from both texts to support your response.

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Spring Board

Math Packet

Course 3

Getting Ready Practice

Independent Study
La Mesa-Spring Valley School District

NAME CLASS DATE

Ratio and Proportion

A *ratio* is a comparison of two quantities. A *proportion* is an equation stating that two ratios are equal.

EXAMPLE A

Find an equivalent ratio to $\frac{4}{12}$.

Method 1

Step 1: Multiply each term by the same number.

$$\frac{4\times 2}{12\times 2}=\frac{8}{24}$$

Solution: $\frac{4}{12}=\frac{8}{24}$

Method 2

Step 1: Divide each term by the same number.

$$\frac{4\div 2}{12\div 2}=\frac{2}{6}$$

Solution: $\frac{4}{12}=\frac{2}{6}$

To find an unknown value using proportions, create a number sentence using equal ratios. Using cross products, you can determine the value of the variable that makes the proportion a true statement.

EXAMPLE B

Find the value of x: $\frac{5}{9}=\frac{x}{81}$.

Step 1: Cross multiply. $5(81)=9x$

$405=9x$

Step 2: Divide both sides of the equation by 9. $\frac{405}{9}=\frac{9x}{9}$

$45=x$

Solution: The value of x is 45.

PRACTICE

Find an equivalent ratio.

1. $\frac{5}{8}$

2. $\frac{15}{30}$

3. $\frac{6}{18}$

Find the value of x.

4. $\frac{4}{7}=\frac{12}{x}$

5. $\frac{56}{35}=\frac{8}{x}$

6. $\frac{0.5}{x}=\frac{2.5}{6}$

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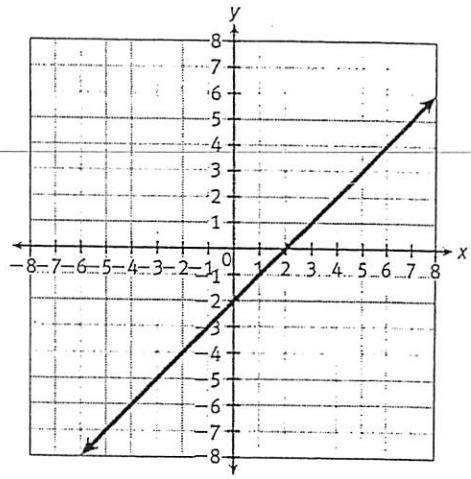
NAME CLASS DATE

Representations of Linear Relationships

A linear relationship is a relationship in which the two quantities being compared have a constant rate of change. Ordered pairs from a linear relationship lie in a straight line when graphed on a coordinate grid.

The graph to the right is an example of a linear relationship.



You may use a linear relationship when figuring out your constant monthly expenses or predicting the total amount of money you'll have if you save the same amount each week.

You can use a table to determine if a relationship is linear by determining if the rate of change is constant.

EXAMPLE A

Do the ordered pairs in the table form a linear relationship? Make a graph to check your answer.

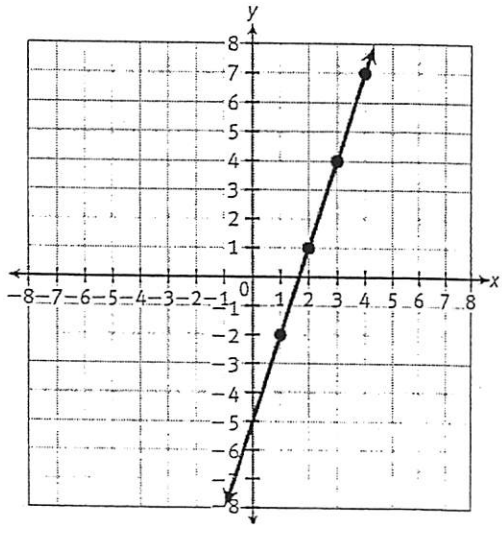
Input	Output
1	−2
2	1
3	4
4	7

Step 1: Write the ordered pairs for each pair of values in the table. The input is the x-value, and the output is the y-value. As the x-values increase by 1, the y-values increase by 3, so the rate of change is constant and the relationship is linear.

Step 2: Plot the points on a coordinate grid.

Step 3: Draw a line through the points. The line is straight.

(1, −2), (2, 1), (3, 4), (4, 7)



Solution: Because the ordered pairs show a constant rate of change and the points lie in a straight line, the ordered pairs in the table form a linear relationship.

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You can complete a table representing a linear relationship by comparing the change in y-values, or output values, to the change in x-values, or input values, to determine whether the rate of change is constant. If the relationship is not constant, the relationship is not linear.

EXAMPLE B

Complete the table below so that the data are linear.

x	y
0	1
1	3
2	5
3	
4	9

Step 1: Find the pattern of change in the input values.	Each input value increases by 1.
Step 2: Find the pattern of change in the output values.	Each output value increases by 2.
Step 3: The rate of change is constant. Add 2 to the output value 5 to determine the missing number.	Output: $5 + 2 = 7$
Step 4: Check your work by adding 2 to the number you found.	$7 + 2 = 9$, which is the next output value.

Solution:

x	y
0	1
1	3
2	5
3	7
4	9

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The linear relationship in the table for Example B can also be described using the linear equation. $y = 2x + 1$.

EXAMPLE C

Given the linear equation $y = 3x - 2$, find the ordered pairs for all integer values of x from -3 to 3.

Step 1: Substitute each integer value from −3 to 3 for x in the linear equation $y = 3x - 2$ and evaluate.

$y = 3(-3) - 2 = -11$
$y = 3(-2) - 2 = -8$
$y = 3(-1) - 2 = -5$
$y = 3(0) - 2 = -2$
$y = 3(1) - 2 = 1$
$y = 3(2) - 2 = 4$
$y = 3(3) - 2 = 7$

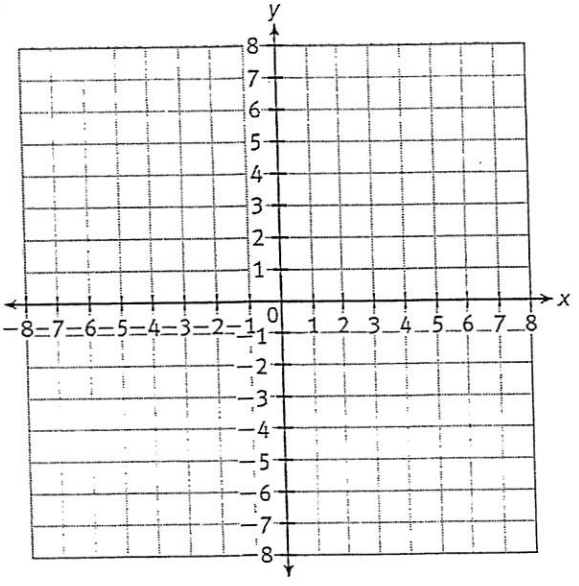
Step 2: Write the ordered pairs.

$(-3, -11), (-2, -8), (-1, -5), (0, -2), (1, 1), (2, 4), (3, 7)$

Solution: For the linear equation $y = 3x - 2$, the ordered pairs for integer values of x from -3 to 3 are $(-3, -11)$, $(-2, -8)$, $(-1, -5)$, $(0, -2)$, $(1, 1)$, $(2, 4)$, and $(3, 7)$.

PRACTICE

1. On the grid below, draw a figure that illustrates the meaning of linear.



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ame five additional ordered pairs that would be on a graph made from each table.

2.

Input	Output
1	3
2	6
3	9

3.

Input	Output
4	1
5	2
6	3

4.

Input	Output
1	4
2	7
3	10

Complete each table so that the data are linear.

5.

Input	Output
1	
2	6
3	8
4	

6.

Input	Output
4	
6	2
8	3
10	

7.

Input	Output
1	5
2	8
3	
4	

ame three ordered pairs that satisfy each equation.

8. $y = 2x - 3$

9. $y = 3x + 5$

10. $y = 5x - 2$

11. Ron was given the ordered pairs $(-2, -5)$ and $(1, 1)$. Name the ordered pair for each integer value of x from -4 to 4 that would form a linear relationship with Ron's given ordered pairs.

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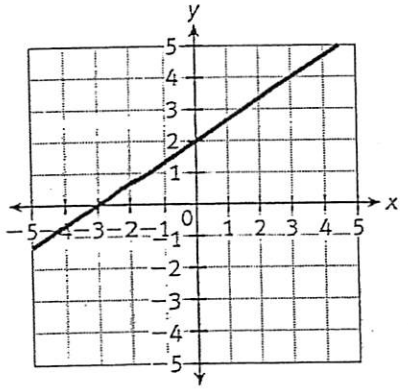
NAME CLASS DATE

Linear Equations: Slope-Intercept Form

When lines are graphed in the coordinate plane, they cross the axes. The point where a line crosses the x-axis is called the ***x-intercept***. The point where a line crosses the y-axis is called the ***y-intercept***.

EXAMPLE A

Name the y-intercept for the line graphed.



Step 1: Write the ordered pair where the line crosses the y-axis. The y-coordinate is the y-intercept. (0, 2)

Solution: The y-intercept is 2.

Slope is a number indicating the steepness of a line. To find the slope of a line you can use the differences between ordered pairs.

$$\text{slope } m = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}.$$

EXAMPLE B

Determine the slope of the line.

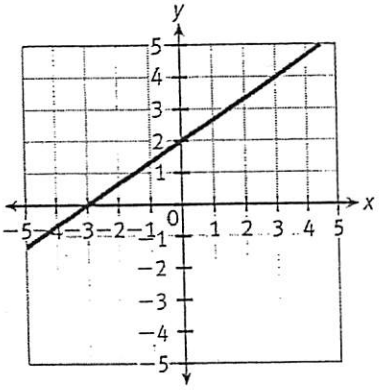
Step 1: Select two points on the graph. $(-3, 0)$ and $(0, 2)$

Step 2: Substitute into the formula.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{2 - 0}{0 - (-3)}$$

$$= \frac{2}{3}.$$



Solution: The slope of the line is $\frac{2}{3}$.

One way to write the equation of a line is in ***slope-intercept form***. The line with slope m and y-intercept b is given by $y = mx + b$.

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EXAMPLE C

Write the equation of the line.

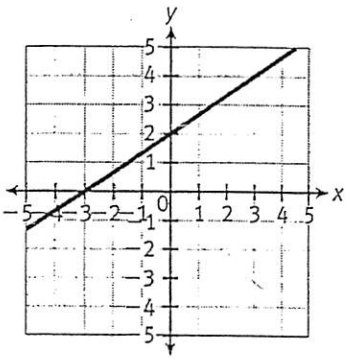
Step 1: Determine the y-intercept. We found this in Example A. (0, 2)

Step 2: Determine the slope. We found this in Example B. $\frac{2}{3}$

Step 3: Substitute into the slope-intercept form. $y = mx + b$

$y = \frac{2}{3}x + 2$

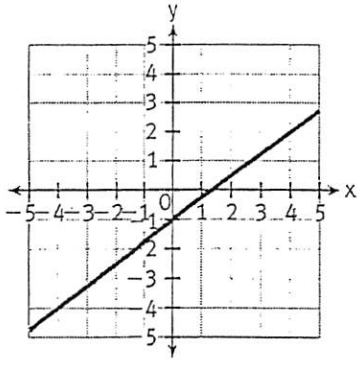
Solution: The equation of the line is $y = \frac{2}{3}x + 2$.



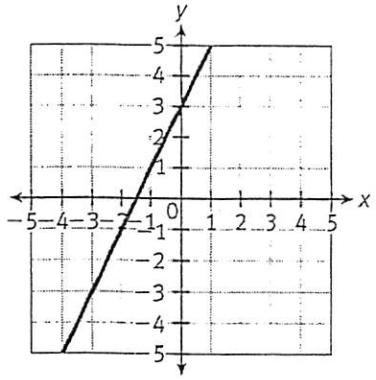
PRACTICE

Write the equation of each line graphed below.

1.



2.



Find the slope of the line containing these three points. Then write the equation of the line.

3.

x	y
0	−2
2	4
4	10

4.

x	y
0	4
3	−2
5	−6

5.

x	y
0	3
2	4
4	5

6.

x	y
0	−3
5	1
−10	−11

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Spring Board

Math Packet

Answer Key

Course 3

Independent Study
La Mesa-Spring Valley School District

NAME CLASS DATE

Ratio and Proportion

A *ratio* is a comparison of two quantities. A *proportion* is an equation stating that two ratios are equal.

EXAMPLE A

Find an equivalent ratio to $\frac{4}{12}$.

Method 1

Step 1: Multiply each term by the same number.

$$\frac{4\times 2}{12\times 2}=\frac{8}{24}$$

Solution: $\frac{4}{12}=\frac{8}{24}$

Method 2

Step 1: Divide each term by the same number.

$$\frac{4\div 2}{12\div 2}=\frac{2}{6}$$

Solution: $\frac{4}{12}=\frac{2}{6}$

To find an unknown value using proportions, create a number sentence using equal ratios. Using cross products, you can determine the value of the variable that makes the proportion a true statement.

EXAMPLE B

Find the value of x: $\frac{5}{9}=\frac{x}{81}$.

Step 1: Cross multiply. $5(81)=9x$

$405=9x$

Step 2: Divide both sides of the equation by 9. $\frac{405}{9}=\frac{9x}{9}$

$45=x$

Solution: The value of x is 45.

PRACTICE

Find an equivalent ratio.

1. $\frac{5}{8}$ sample answer: $\frac{10}{16}$

2. $\frac{15}{30}$ sample answer: $\frac{1}{2}$

3. $\frac{6}{18}$ sample answer: $\frac{3}{9}$

Find the value of x.

4. $\frac{4}{7}=\frac{12}{x}$

   $x = 21$

5. $\frac{56}{35}=\frac{8}{x}$

   $x = 5$

6. $\frac{0.5}{x}=\frac{2.5}{6}$

   $x = 1.2$

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NAME CLASS DATE

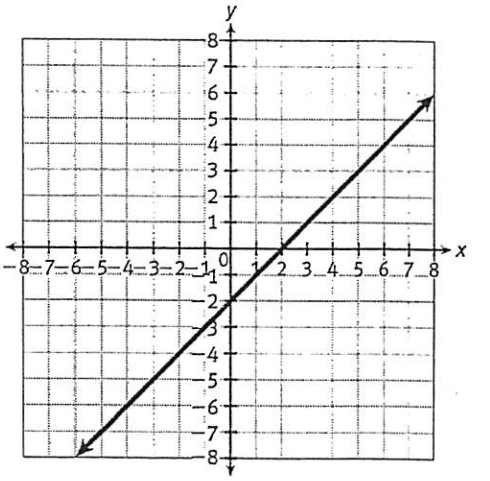
Representations of Linear Relationships

A linear relationship is a relationship in which the two quantities being compared have a constant rate of change. Ordered pairs from a linear relationship lie in a straight line when graphed on a coordinate grid.

The graph to the right is an example of a linear relationship.

You may use a linear relationship when figuring out your constant monthly expenses or predicting the total amount of money you'll have if you save the same amount each week.

You can use a table to determine if a relationship is linear by determining if the rate of change is constant.



EXAMPLE A

Do the ordered pairs in the table form a linear relationship? Make a graph to check your answer.

Input	Output
1	−2
2	1
3	4
4	7

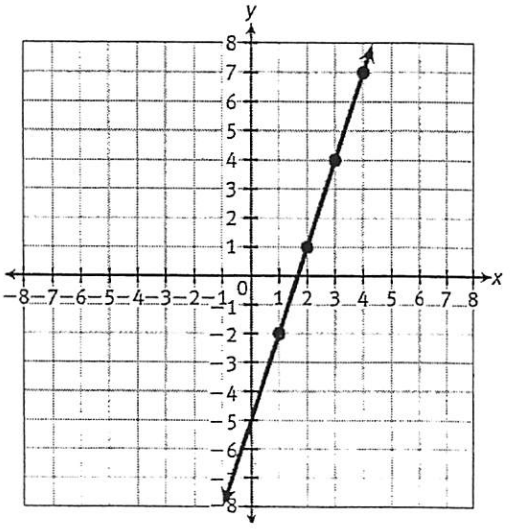
Step 1: Write the ordered pairs for each pair of values in the table. The input is the x-value, and the output is the y-value. As the x-values increase by 1, the y-values increase by 3, so the rate of change is constant and the relationship is linear.

Step 2: Plot the points on a coordinate grid.

Step 3: Draw a line through the points. The line is straight.

Solution: Because the ordered pairs show a constant rate of change and the points lie in a straight line, the ordered pairs in the table form a linear relationship.

(1, −2), (2, 1), (3, 4), (4, 7)



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You can complete a table representing a linear relationship by comparing the change in y-values, or output values, to the change in x-values, or input values, to determine whether the rate of change is constant. If the relationship is not constant, the relationship is not linear.

EXAMPLE B

Complete the table below so that the data are linear.

x	y
0	1
1	3
2	5
3	
4	9

Step 1: Find the pattern of change in the input values.

Each input value increases by 1.

Step 2: Find the pattern of change in the output values.

Each output value increases by 2.

Step 3: The rate of change is constant. Add 2 to the output value 5 to determine the missing number.

Output: $5 + 2 = 7$

Step 4: Check your work by adding 2 to the number you found.

$7 + 2 = 9$, which is the next output value.

Solution:

x	y
0	1
1	3
2	5
3	7
4	9

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The linear relationship in the table for Example B can also be scribed using the linear equation. $y = 2x + 1$.

EXAMPLE C

Given the linear equation $y = 3x - 2$, find the ordered pairs for all integer values of x from -3 to 3.

Step 1: Substitute each integer value from −3 to 3 for x in the linear equation $y = 3x - 2$ and evaluate.

$y = 3(-3) - 2 = -11$
$y = 3(-2) - 2 = -8$
$y = 3(-1) - 2 = -5$
$y = 3(0) - 2 = -2$
$y = 3(1) - 2 = 1$
$y = 3(2) - 2 = 4$
$y = 3(3) - 2 = 7$

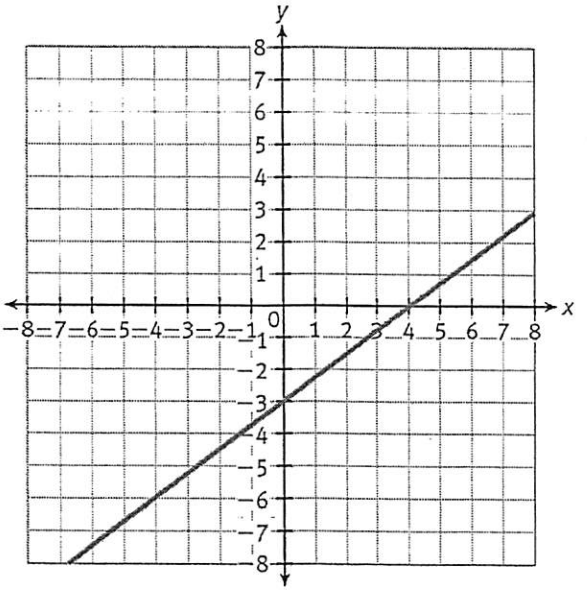
Step 2: Write the ordered pairs.

$(-3, -11), (-2, -8), (-1, -5), (0, -2), (1, 1), (2, 4), (3, 7)$

Solution: For the linear equation $y = 3x - 2$, the ordered pairs for integer values of x from -3 to 3 are $(-3, -11), (-2, -8), (-1, -5), (0, -2), (1, 1), (2, 4)$, and $(3, 7)$.

PRACTICE

1. On the grid below, draw a figure that illustrates the meaning of linear. Answers may vary. Sample graph shown.



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Name five additional ordered pairs that would be on a graph made from each table. Answers may vary.

2.

Input	Output
1	3
2	6
3	9

3.

Input	Output
4	1
5	2
6	3

4.

Input	Output
1	4
2	7
3	10

Complete each table so that the data are linear.

5.

Input	Output
1	4
2	6
3	8
4	10

6.

Input	Output
4	1
6	2
8	3
10	4

7.

Input	Output
1	5
2	8
3	11
4	14

Name three ordered pairs that satisfy each equation. Answers may vary.

8. $y = 2x - 3$

9. $y = 3x + 5$

10. $y = 5x - 2$

11. Ron was given the ordered pairs $(-2, -5)$ and $(1, 1)$. Name the ordered pair for each integer value of x from -4 to 4 that would form a linear relationship with Ron's given ordered pairs.

$(-4, -9)$
$(-3, -7)$
$(-2, -5)$
$(-1, -3)$
$(0, -1)$
$(1, 1)$
$(2, 3)$
$(3, 5)$
$(4, 7)$

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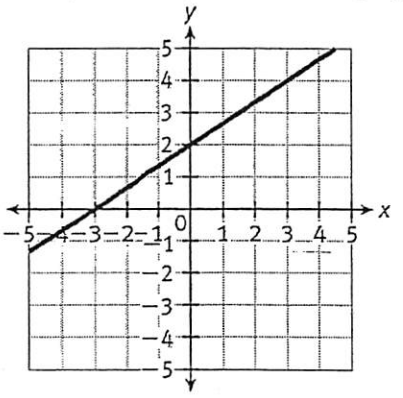
NAME CLASS DATE

Linear Equations: Slope-Intercept Form

When lines are graphed in the coordinate plane, they cross the axes. The point where a line crosses the x-axis is called the ***x-intercept***. The point where a line crosses the y-axis is called the ***y-intercept***.

EXAMPLE A

Name the y-intercept for the line graphed.



Step 1: Write the ordered pair where the line crosses the y-axis. The y-coordinate is the y-intercept. (0, 2)

Solution: The y-intercept is 2.

Slope is a number indicating the steepness of a line. To find the slope of a line you can use the differences between ordered pairs.

$$\text{slope } m = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}.$$

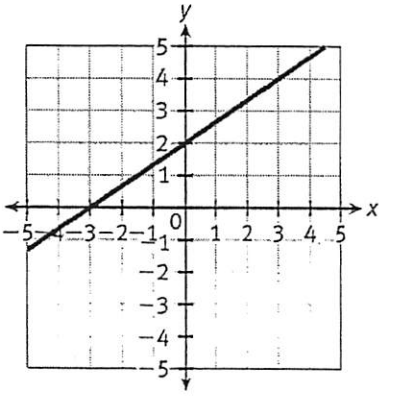
EXAMPLE B

Determine the slope of the line.

Step 1: Select two points on the graph. (−3, 0) and (0, 2)

Step 2: Substitute into the formula.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$= \frac{2 - 0}{0 - (-3)}$$
$$= \frac{2}{3}$$



Solution: The slope of the line is $\frac{2}{3}$.

One way to write the equation of a line is in ***slope-intercept form***. The line with slope m and y-intercept b is given by $y = mx + b$.

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EXAMPLE C

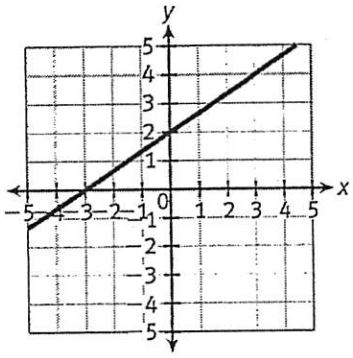
Write the equation of the line.

Step 1: Determine the y-intercept. We found this in Example A. $(0, 2)$

Step 2: Determine the slope. We found this in Example B. $\frac{2}{3}$

Step 3: Substitute into the slope-intercept form. $y = mx + b$

$y = \frac{2}{3}x + 2$

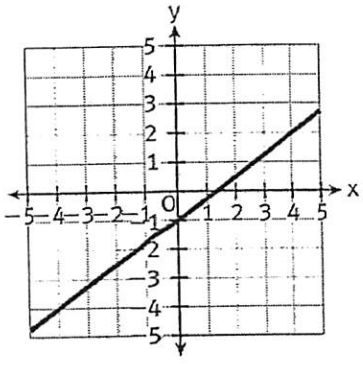


Solution: The equation of the line is $y = \frac{2}{3}x + 2$.

PRACTICE

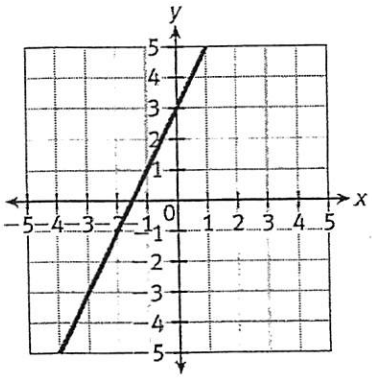
Write the equation of each line graphed below.

1.



$y = \frac{3}{4}x - 1$

2.



$y = 2x + 3$

Find the slope of the line containing these three points. Then write the equation of the line.

3.

x	y
0	−2
2	4
4	10

$m = 3, y = 3x - 2$

4.

x	y
0	4
3	−2
5	−6

$m = -2, y = -2x + 4$

5.

x	y
0	3
2	4
4	5

$m = \frac{1}{2}, y = \frac{1}{2}x + 3$

6.

x	y
0	−3
5	1
−10	−11

$m = \frac{4}{5}, y = \frac{4}{5}x - 3$

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Physical Education

Physical activity has positive benefits to student health and academic achievement. The goal is to provide an adequate amount of moderate to vigorous physical acivity, build interest and proficiency in movement skills, and encourage students' lifelong fitess through physical activity. And finally, as educators of our children, we have the opportunity to be role models by example and by providing opportunities and encouraging children to make healthy choices.

Physical Education

Physical Education shall be provided:

Grade 1-6: 20 minutes per day
Grade 7-8: 40 minutes per day

Physical Fitness Testing

La Mesa-Spring Valley currently administers physical fitness tests (Fitness Gram) to students in grades 5 and 7. Each students' score on the physical performance test shall be included in his/her cumulative record.

Highlights of the Standards

The five overarching model content standards for elementary and middle school Physical Education students are as follows:

Standard 1: Students demonstrate the ***motor skills and movement patterns*** needed to perform a variety of physical activities (dribbling).

Standard 2: Students demonstrate ***knowledge of movement concepts***, principles, and strategies that apply to the learning and performance of physical activities (holding a bat).

Standard 3: Students assess and maintain a ***level of physical fitness*** to improve health and performance (improving).

Standard 4: Students demonstrate ***knowledge of physical fitness concepts***, principles, and strategies to improve health and performance (research and knowledge).

Standard 5: Students demonstrate and utilize ***knowledge of psychological and sociological concepts***, principles, and strategies that apply to the learning and performance of physical activity(sportsmanship).

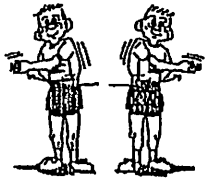
The content standards emphasize the way in which students move through space and time in their environment, the way in which the student and a partner move in space together, the continuity and change in movement, the manipulation of objects in time and through space, and the manipulation of objects with accuracy and speed.

Component	*Kindergarten*	*First*	*Second*	*Third*	*Fourth*	*Fifth*	*Sixth*	*Seventh/Eighth*
Physical Fitness A. Endurance	Jog/walks for 3 minutes	Jog-walks for 4 minutes	Jog-walks for 5 minutes	Jog-walks for 6 minutes	Competes 9-110 yd. laps during 6 min. jog-walk	Completes 10-110 yd. Laps during 6 min. Jog-walk	Completes 11-110 yd. Laps during 6 min. jog-walk	Completes 6 min. jog
B. Strength	Climbs/hangs on apparatus for 5-10 seconds	Supports weight on overhead bar 10 seconds Sidesteps to the right and left	Crosses horizontal ladder Performs 8 knee bent sit-ups in 30 seconds	Crosses horizontal ladder alternate arms Performs 16 knee bent sit-ups in 60 seconds Jumps 40" in standing long jump	Flexed-arm hang for 7 seconds or 1 pull-up (palms outward) Performs 20 knee bent sit-ups in 60 seconds Jumps 56" in standing long jump 8 chair push ups girls, 15 boys 12 sidesteps in 10 seconds	Flexed arm hang for 9 seconds or 2 pull-ups (palms outward) Performs 24 knee bent sit-ups in 60 seconds Jumps 60" in standing long jump 10 chair push ups girls, 16 boys 14 sidesteps in 10 seconds	Flexed arm hang for 10 seconds or 2 pull-ups (palms outward) Performs 28 knee bent sit-ups in 60 seconds Jumps 64" in standing long jump 10 chair push ups girls, 20 boys 17 sidesteps in 10 seconds	Performs 32 knee bent sit-ups in 60 seconds Jumps 64" in standing long jump 10 chair push ups girls, 2(boys
Movement & Skill Throwing & Catching	Rolls & stops large ball Bounces a large ball Catches a large ball Bounces & catches large ball in succession	Bounces & catches large ball 10-15 feet apart Bounces & catches large ball to rhythmic accompaniment Throws small ball underhand 10-12 feet Throws large ball overhead with 2 hands for 10 feet	Throws & catches large ball in air 10-15 feet apart Throws ball overhand stepping forward on opposite foot Bounces large ball with either hand	Throws & catches volleyball in air 10-15 feet apart Throws ball to hit moving object Catches ball thrown to various heights	Throws & catches 12" softball 20 feet apart Throws softball from second base to home plate (65') with or without bouncing Dribbles basketball 50 feet Throws basketball with chest pass Shoots basketball from standing position	Catches fly balls and fields ground ball accurately Shoots basketball while moving (lay up)	Receives & sets volleyball	Can catch fly/ground ball Receives & sets volleyba Dribbles basketball 50 fee
Sportsmanship	Interacts positively with peers Takes turns Follows rules	Takes turns Demonstrates cooperative attitude Accepts differences in ability levels of self & peers	Takes turns Cooperates with others Accepts differences in ability levels Accepts wins & losses	Follows rules Plays without quarreling Accepts wins & losses Demonstrates teamwork	Respects feelings of. others Plays safely & fairly Chooses & accepts teammates willingly Accepts wins & losses	Encourages teammates Recognizes good playing by opposing team members Accepts wins & losses	Assists less capable teammates Assumes leadership role in group Demonstrates good sportsmanship	Demonstrates good sportsmanship Accepts wins & losses gracefully Helps less capable teammates

Get Fit Exercises

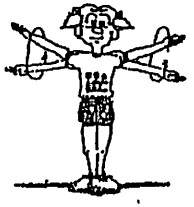
WARM-UP ACTIVITIES

Side Bend


Trunk Twist

Knee Lift

Calf Stretch


Arm Circles

Jumping Jacks

Brisk Walking

STRENGTH DEVELOPMENT ACTIVITIES

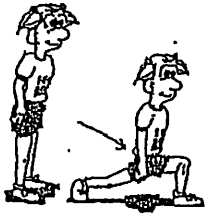
Crunch

Curl-ups

Sit-ups

Back Arch

Wall Sit

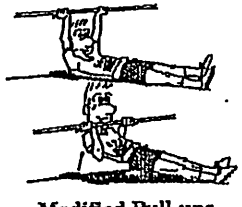

Lunges

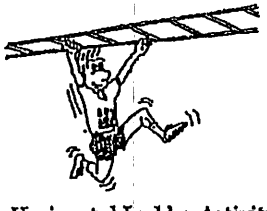
Single Leg Lift

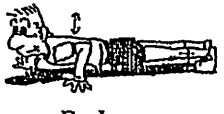
Arm Curls

Military Press

(using canned food as weight)


Modified Pull-ups


Horizontal Ladder Activities


Push-ups

Climbing Activities

AEROBIC ACTIVITIES

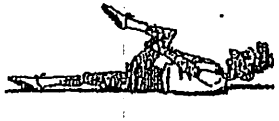
Jogging Cycling Swimming Brisk Walking Rope Jumping Soccer Basketball

COOL-DOWN ACTIVITIES

Calf Stretch

Thigh Stretch

Sitting Toe Touch

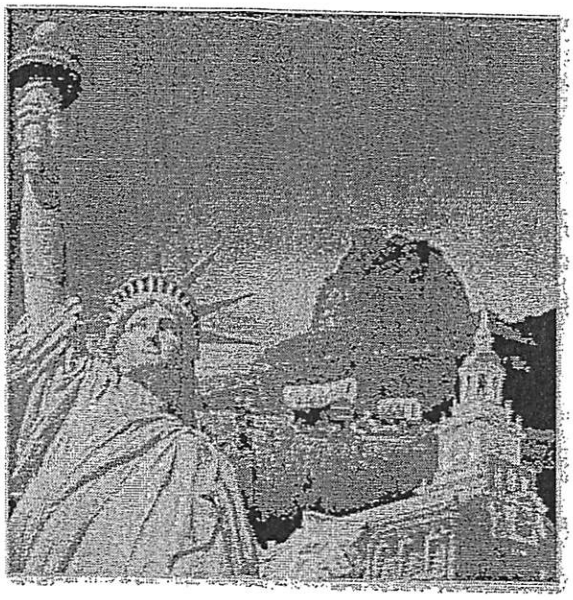

Knee Hug

Arm/Shoulder Stretch

Arm/Side Stretch

The American Journey

To World War I



CHAPTER 10 RESOURCES

The Age of Jackson

Glencoe

New York, New York Columbus, Ohio Chicago, Illinois Peoria, Illinois Woodland Hills, California

Section 3

Jackson and the Bank

Guide to Reading

History Social Science Standards

US8.8 Students analyze the divergent paths of the American people in the West from 1800 to the mid-1800s and the challenges they faced.

Looking Back, Looking Ahead

In Section 2, you learned about the removal of Native Americans to Western lands. In this section, you will learn about Jackson's fight with the National Bank and the election of the Whigs to power.

Focusing on the Main Ideas

- President Jackson forced the National Bank to close, and the Panic of 1837 caused economic problems that split the Democratic Party. *(page 459)*
- After Harrison's death, Tyler took the presidency in a direction opposed to the Whigs' goals, and the Whigs lost power after 1844. *(page 461)*

Meeting People

Nicholas Biddle
Martin Van Buren
William Henry Harrison
John Tyler

Content Vocabulary

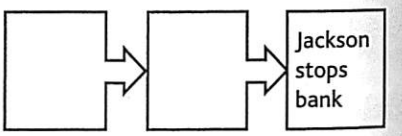
veto
depression
laissez-faire (LEH • SAY • FEHR)

Academic Vocabulary

contribute (kuhn • TRIH • byuht)
symbol (SIHM • buhl)

Reading Strategy

Sequencing Information As you read the section, re-create the diagram below. In the spaces provided, describe the steps Andrew Jackson took that put the Bank of the United States out of business.



NATIONAL GEOGRAPHIC **Who & When?**

1830

Bank note

1832 Andrew Jackson challenges the Bank of the United States

1836

1837 Economic depression strikes the nation

1842

1841 President William Henry Harrison dies in office

William Henry Harrison

US8.8.1 Discuss the election of Andrew Jackson as president in 1828, the importance of Jacksonian democracy, and his actions as president (e.g., the spoils system, veto of the National Bank, policy of Indian removal, opposition to the Supreme Court).

War Against the Bank

Main Idea **President Jackson forced the National Bank to close, and the Panic of 1837 caused economic problems that split the Democratic Party.**

Reading Connection Do you have a bank account? Do you know what would happen to your money if an economic crisis occurred? Read on to find out what happened to banks during the Panic of 1837.

Jackson had another great struggle during his presidency. For years, he had criticized the Bank of the United States as being an organization of wealthy Easterners over which ordinary citizens had no control. The Bank of the United States was a powerful institution. It held the federal government's money and controlled much of the country's money supply. Although the Bank had been chartered by Congress, it was run by private bankers rather than elected officials.

The Bank's president, **Nicholas Biddle,** represented everything Jackson disliked. Jackson prided himself on being a self-made man who started with nothing. Biddle, on the other hand, came from a wealthy family.

In 1832 Jackson's opponents gave him the chance to take action against the Bank. Senators Henry Clay and Daniel Webster, friends of Biddle, planned to use the Bank to defeat Jackson in the 1832 presidential election. They persuaded Biddle to apply early for a new charter—a government permit to operate the Bank—even though the Bank's current charter did not expire until 1836.

Clay and Webster believed the Bank had popular support. They thought that an attempt by Jackson to take away its charter would lead to his defeat and allow Henry Clay to be elected president. When the bill to renew the Bank's charter came to Jackson for signature, he was sick in bed. Jackson told his friend **Martin Van Buren,** "The bank, Mr. Van Buren, is trying to kill me. But I will kill it!" Jackson **vetoed,** or rejected, the bill.

▼ Paper money issued in mid-1800s

Jackson, like many others, believed the Bank was unconstitutional despite the Supreme Court's decision to the contrary in *McCulloch* v. *Maryland* (1819). In a message to Congress, Jackson denounced the Bank arguing that:

> **"when the laws... make the rich richer and the potent more powerful, the humble members of society—the farmers, mechanics, and laborers—who have neither the time nor the means of securing like favors to themselves, have a right to complain of the injustice of their Government."**
>
> **—Andrew Jackson, as quoted in *The Annals of America***

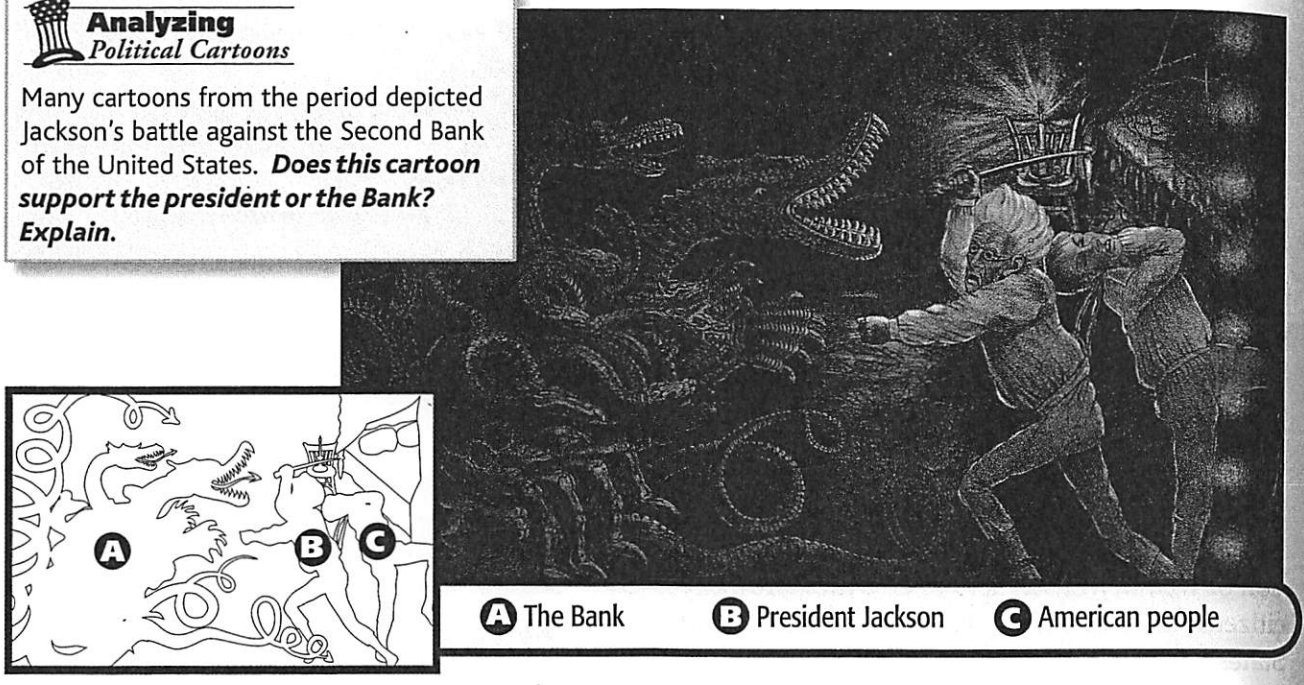
Once again, Jackson was publicly opposing a ruling by the Supreme Court, as he had in *Worcester* v. *Georgia*.

The Election of 1832 Webster and Clay were right about one thing. The Bank of the United States did play a large part in the campaign of 1832. Their strategy for gaining support for Clay as president, however, backfired. Most people supported Jackson's veto of the bank charter bill. Jackson was reelected, receiving 55 percent of the popular vote and collecting 219 electoral votes to Clay's 49. Martin Van Buren was elected vice president.

Once reelected, Jackson decided on a plan to "kill" the Bank. He ordered the withdrawal of all government deposits from the Bank and placed the funds in smaller state banks.

Analyzing *Political Cartoons*

Many cartoons from the period depicted Jackson's battle against the Second Bank of the United States. ***Does this cartoon support the president or the Bank? Explain.***



Without those government deposits, the National Bank could not do business. By putting an end to the Bank, Jackson had won a political victory. Later, however, critics charged that the end of the National Bank **contributed** to the economic problems that the nation faced in the years ahead.

What Caused Economic Problems? When Jackson decided not to run for a third term in 1836, the Democrats selected Martin Van Buren of New York, Jackson's vice president, as their candidate. Van Buren faced bitter opposition from the Whigs, a new political party that included former National Republicans and other anti-Jackson forces. Jackson's great popularity and his personal support helped Van Buren easily defeat several Whig opponents. Van Buren was inaugurated in 1837.

Two months after Van Buren took office, the country entered a severe economic **depression,** a period in which business and employment fall to a very low level. The depression began with the Panic of 1837, a time when land values dropped sharply, investments declined suddenly, and banks failed.

Within a few weeks, thousands of businesses had closed and hundreds of thousands of people had lost their jobs. Many Americans could not afford food or rent. In February 1837, people in New York put up signs voicing their anger: "Bread, Meat, Rent, and Fuel! Their prices must come down!"

President Van Buren believed in the principle of **laissez-faire** (LEH • SAY • FEHR)—that government should interfere as little as possible in the nation's economy. However, Van Buren believed that some actions were necessary. Van Buren persuaded Congress to establish an independent federal treasury in 1840. The government would no longer deposit its money with private individual banks as it had started to do during President Jackson's war with the Bank of the United States. Instead, the government would store its money in the federal treasury. The new system, Van Buren believed, would guard against bank crises.

Van Buren called the new law a "second declaration of independence" because it separated government finances from those of the nation's banks. However, criticism of the act came from members of Van Buren's own Democratic Party as well as from Whigs. The split in the Democratic Party meant the Whigs had a chance to win the presidency in 1840.

Reading Check **Explain** What was the new treasury system supposed to prevent?

US8.8.1 Discuss the election of Andrew Jackson as president in 1828, the importance of Jacksonian democracy, and his actions as president (e.g., the spoils system, veto of the National Bank, policy of Indian removal, opposition to the Supreme Court).

The Whigs Come to Power

Main Idea **After Harrison's death, Tyler took the presidency in a direction opposed to the Whigs' goals, and the Whigs lost power after 1844.**

Reading Connection What kind of political disagreements take place in your community? Read on to find out how the Whig Party lost the election of 1844 due to internal disputes.

With the country still in a depression, the Whigs hoped to beat Van Buren in the election of 1840. Their candidates were the military hero **William Henry Harrison** and his running mate **John Tyler.** Because Harrison had won fame in the Battle of Tippecanoe, the Whigs' campaign slogan was "Tippecanoe and Tyler Too."

Harrison sought the votes of laborers and farmers. Harrison was portrayed as a "man of the people." Whig cartoons showed him in front of a log cabin, the Whigs' campaign **symbol.** The log cabin campaign worked, and Harrison won easily. Four weeks after his inauguration in 1841, Harrison died of pneumonia. John Tyler became the first vice president to gain the presidency because the elected president died in office.

Although Tyler had been elected as a Whig, he had once been a Democrat. As president, Tyler backed states' rights and vetoed several Whig-sponsored bills. This lack of party loyalty angered Whigs. Most of the cabinet resigned, and Whig leaders in Congress expelled Tyler from the party.

Whig leaders, however, could not agree on policies. This division partly explains why the Whig candidate, Henry Clay, lost the election of 1844 to Democratic candidate Polk. After only four years, the Whigs were out of power again.

Reading Check **Describe** How did John Tyler become president?

History Online
Study Central Need help understanding Jackson and the Bank? Visit ca.hss.glencoe.com and click on Study Central.

Section 3 Review

Reading Summary

Review the Main Ideas

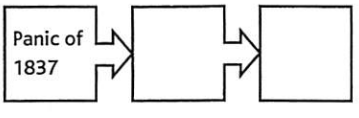
- Jackson waged a war against the bank and won not only his side of the war but the election of 1832 as well.
- Criticism over Van Buren's response to the Panic of 1837 brought the Whigs to power, but dissension among members of the party helped a Democrat to win the next election.

What Did You Learn?

1. List Jackson's reasons for wanting to "kill" the Bank of the United States.
2. What tactics did the Whigs borrow from Jackson's campaign to win the election of 1840?

Critical Thinking

3. **Organize Information** Re-create the diagram below to show how the Panic of 1837 affected the presidency of Martin Van Buren. CA HI2.



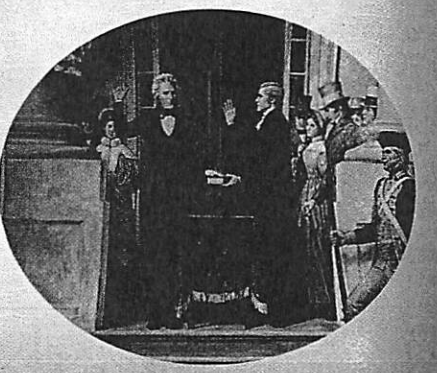
4. **The Big Ideas** Why did President Van Buren do little to solve the nation's economic problems during the depression?
5. **Creative Writing** Write a campaign slogan for Van Buren or Harrison in the election of 1840. Then design a campaign button that incorporates your slogan. CA 8WA2.5.a

Analyzing Primary Sources

US8.8.1 Discuss the election of Andrew Jackson as president in 1828, the importance of Jacksonian democracy, and his actions as president (e.g., the spoils system, veto of the National Bank, policy of Indian removal, opposition to the Supreme Court).

Jacksonian Democracy

The spirit of Jacksonian democracy was seen in the 1829 inauguration of America's new president, Andrew Jackson. Unlike previous presidents, Jackson invited "common people" to his inauguration and presented himself as one of them. Called "the people's choice," Jackson responded to the wishes of ordinary Americans who wanted changes in their government's leadership.



Jackson is sworn in as president. ▶

Reader's Dictionary

tranquil (TRAN • kwuhl): free of disturbance or commotion

edifice (EH • duh • fuhs): a building, especially one that is large or impressive

portico (POHR • tih • KOH): a covered entrance or walkway

rotunda (roh • TUHN • duh): a large round room or hall

rends: disturbs the silence or pierces the air with a loud sound

reverberate: to echo repeatedly

sublime (suh • BLYM): awe-inspiringly beautiful

pecuniary (pih • KYOO • nee • EHR • ee): relating to or involving money

incalculably (ihn • KAL • kyuh • luh • buh • lee): too great or numerous to be measured

solicitude (suh • LIH • suh • TOOD): concern and consideration

The Inauguration of Andrew Jackson

In 1829 Andrew Jackson became president. A Washington resident, Mrs. Samuel Harrison Smith, wrote about Jackson's inauguration in a letter:

Thousands and thousands of people, without distinction of rank, collected in an immense mass round the Capitol, silent, orderly and **tranquil,** with their eyes fixed on the front of that **edifice,** waiting the appearance of the President in the **portico.** The door from the **Rotunda** opens, preceded by the marshals, surrounded by the Judges of the Supreme Court, the old man with his gray locks, that crown of glory, advances, bows to the people, who greet him with a shout that **rends** the air, the Cannons from the heights around, . . . proclaim the oath he has taken and all the hills **reverberate** the sound. It was grand,—it was **sublime!** An almost breathless silence, succeeded and the multitude was still,—listening to catch the sound of his voice, [though] it was so low, as to be heard only by those nearest to him. After reading his speech, the oath was administered to him by the Chief Justice. The Marshal presented the Bible. The President took it from his hands, pressed his lips to it, laid it reverently down, then bowed again to the people—Yes, to the people in all their majesty.

—from *The First Forty Years of Washington Society*

Indian Removal

In 1830 President Andrew Jackson delivered a message to Congress describing his plans for removing Native Americans from their lands by forcing them west to an area beyond the Mississippi River.

The consequences of a speedy removal will be important to the United States, to individual states, and to the Indians themselves. The **pecuniary** advantages which it promises to the government are the least of its recommendations. It puts an end to all possible danger of collision between the authorities of the general and state governments on account of the Indians. It will place a dense and civilized population in large tracts of country now occupied by a few savage hunters. By opening the whole territory between Tennessee on the north and Louisiana on the south to the settlement of the whites it will **incalculably** strengthen the southwestern frontier and render the adjacent states strong enough to repel future invasions without remote aid. It will relieve the whole state of Mississippi and the western part of Alabama of Indian occupancy, and enable those states to advance rapidly in population, wealth, and power.

It will separate the Indians from immediate contact with settlements of whites; free them from the power of the states; enable them to pursue happiness in their own way and under their own rude institutions; will retard the progress of decay, which is lessening their numbers, and perhaps cause them gradually, under the protection of the government and through the influence of good counsels, to cast off their savage habits and become an interesting, civilized, and Christian community. These consequences, some of them so certain and the rest so probable, make the complete execution of the plan sanctioned by Congress at their last session an object of much **solicitude.**

—Message to Congress, December 6, 1830

▲ **John Ross (left), the principal chief of the Cherokee, opposed the removal of his people. Rebecca Neugin (right) was one of the Cherokee forced to march west to Oklahoma. In this 1931 photograph, Neugin is 96 years old.**

DBQ Document-Based Questions

The Inauguration of Andrew Jackson

1. How do you think Mrs. Smith's account of this event might be different from a news reporter's account?

Indian Removal

2. What does President Jackson state is the best reason for the removal of Native Americans?
3. How will the Native Americans benefit from this plan, according to President Jackson?

Read to Write

4. President Jackson was known as a "man of the people." Is this perception apparent in these documents? Do you see any inconsistencies? Summarize your conclusions. Next, identify a political leader that has an image in popular culture and contrast that with policy decisions made by that leader. Compare the contemporary leader you chose with Andrew Jackson. CA 8WS1.0

Name _____ Date _____ Class _____

Guided Reading Activity 10-3

Jackson and the Bank

Directions: Reading for Accuracy Reading the section and completing the activity below will help you learn more about Jackson's fight with the Bank of the United States and the election of the Whigs to power. Use your textbook to decide if a statement is true or false. Write **T** or **F** in the blank, and if a statement is false, rewrite it correctly on the line.

_____ **1.** The Bank of the United States was chartered by Congress and run by elected officials.

_____

_____ **2.** Jackson believed the Bank of the United States was unconstitutional.

_____

_____ **3.** Jackson put an end to the Bank of the United States by ordering the withdrawal of all government deposits from the Bank and placing the funds in smaller state banks.

_____

_____ **4.** Martin Van Buren was selected as the Whig candidate for president in 1836.

_____

_____ **5.** Two months after Van Buren took office, the country entered a severe economic recession.

_____

_____ **6.** The principle of laissez-faire means that the government should interfere as much as possible in the nation's economy.

_____

_____ **7.** Van Buren persuaded Congress to establish an independent federal treasury.

_____

_____ **8.** Criticism of the new treasury system came from Democrats and Whigs.

_____

_____ **9.** As president, John Tyler backed states' rights and vetoed several Whig-sponsored bills.

_____

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Social Studies

Answer Key

Guided Reading Activity 10-1

I.
- A. House of Representatives
- B. Henry Clay
- C. two
  1. Democratic-Republicans
  2. National Republicans
- D. Andrew Jackson

II.
- A. democratic
  1. voting
  2. people
- B. spoils system
- C. nominating conventions

III.
- A. tariff
- B. state
- C. nullification
- D. military action

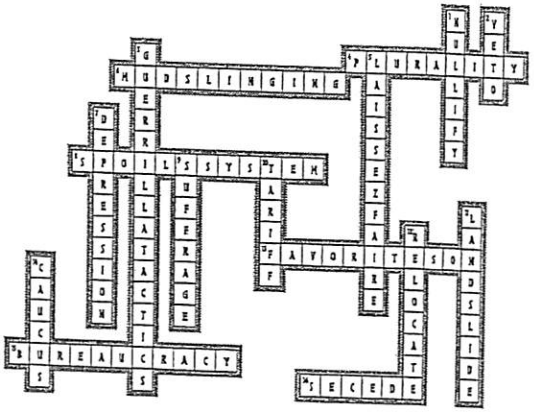
Guided Reading Activity 10-2

1. Cherokee, Creek, Seminole, Chickasaw, and Choctaw
2. relocate them to west of the Mississippi River
3. the Indian Removal Act
4. Georgia
5. The Trail Where They Cried
6. Black Hawk
7. the Seminole of Florida
8. African Americans who had run away to escape slavery
9. land set aside for use by Native Americans
10. present-day Oklahoma

Guided Reading Activity 10-3

1. F The Bank of the United States was chartered by Congress and run by private bankers.
2. T
3. T
4. F Martin Van Buren was selected as the Democratic candidate for president in 1836.
5. F Two months after Van Buren took office, the country entered a severe economic depression.
6. F The principle of laissez-faire means that the government should interfere as little as possible in the nation's economy.
7. T
8. T
9. T

Content Vocabulary Activity 10



Study Guide B
with Directed Reading Worksheets

HOLT CALIFORNIA

Physical Science

Includes

- Directed Reading B worksheets
- Vocabulary and Section Summary B worksheets

HOLT, RINEHART AND WINSTON

Chapter Summary

go.hrw.com
SUPER SUMMARY
KEYWORD: HY7CLTS

The Big Idea

All living things depend on chemical compounds, especially those that are based on the element carbon.

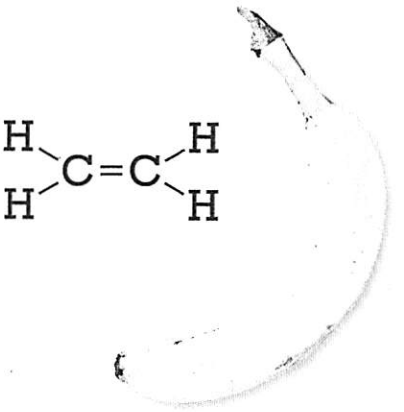
Section | **Vocabulary**

1 Elements in Living Things

Key Concept Carbon atoms combine in many ways with each other and atoms of other elements and form the backbone of many molecules needed by living things.

- Carbon is a unique element because it can form long chains as well as bond with other elements.
- Living organisms are made of molecules that consist largely of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.

organic compound p. 311



Bananas are made of carbon-based compounds. The compound ethene, shown here, helps bananas ripen.

2 Compounds of Living Things

Key Concept Living things depend on very large carbon-based molecules and on smaller compounds, including water and salt.

- Living organisms depend on large compounds such as carbohydrates, lipids, proteins, and nucleic acids.
- Living organisms depend on many smaller compounds such as water and salt.

carbohydrate p. 314
lipid p. 315
protein p. 315
nucleic acid p. 317

Animals need salt in their diets because their bodies use salt.

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary B

Elements in Living Things

VOCABULARY

After you finish reading the section, try this puzzle! Write the word or phrase being described below in the spaces provided.

1. a covalently bonded compound that contains carbon

_ _ _ _ _ _ _ _ _
2 1

_ _ _ _ _ _ _ _ _

2. type of bond formed when there are three bonds between carbon atoms

_ _ _ _ _ _ _ _ _ _ _ _ _
3

3. type of bond formed when there are four separate covalent bonds between a carbon atom and another atom

_ _ _ _ _ _ _ _ _ _ _ _
4

4. type of bond formed when there are two covalent bonds between carbon atoms

_ _ _ _ _ _ _ _ _ _ _ _
5 6

5. an oil that comes from organic material deep in Earth's crust; used to make gasoline

_ _ _ _ _ _ _ _ _ _ _ _
7 8 9

Using the numbered letters above, fill in the spaces below to find what forms the backbone of many molecules needed by living things.

_ _ _ _ _ _ _ _ _ _ _ _
1 2 3 4 5 6 2 7 8 9

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Phys. Science

Name _____ Class _____ Date _____

Skills Worksheet

Vocabulary and Section Summary B

Compounds of Living Things

VOCABULARY

After you finish reading the section, try this puzzle! Use the clues below to fill in the blanks with the correct terms. Then, use the words to complete the word search puzzle on the next page. Words may appear horizontally, vertically, backward, or diagonally.

_____ **1.** These organic compounds are sometimes called the "blueprints of life."

_____ **2.** Plants store these as oils.

_____ **3.** These organic compounds are made by living things.

_____ **4.** These biochemicals are composed of one or more simple sugar molecules bonded together.

_____ **5.** These biochemicals have many functions in the body, such as regulating chemical activities.

_____ **6.** These are building blocks of a protein.

_____ **7.** This is a chain of repeating units.

_____ **8.** This is an important protein found in red blood cells.

_____ **9.** These are the subunits that make up nucleic acids.

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11

The Chemistry of Living Things

The Big Idea All living things depend on chemical compounds, especially those that are based on the element carbon.

California Standards

Focus on Physical Sciences

8.3 Each of the more than 100 elements of matter has distinct properties and a distinct atomic structure. All forms of matter are composed of one or more of the elements. (Section 2)

8.6 Principles of chemistry underlie the functioning of biological systems. (Sections 1 and 2)

Investigation and Experimentation

8.9 Scientific progress is made by asking meaningful questions and conducting careful investigations. (Science Skills Activity)

Math

7.1.1, 7.2.2 Algebra and Functions

7.1.3 Mathematical Reasoning

English–Language Arts

8.2.2 Reading

8.1.1 Writing

About the Photo

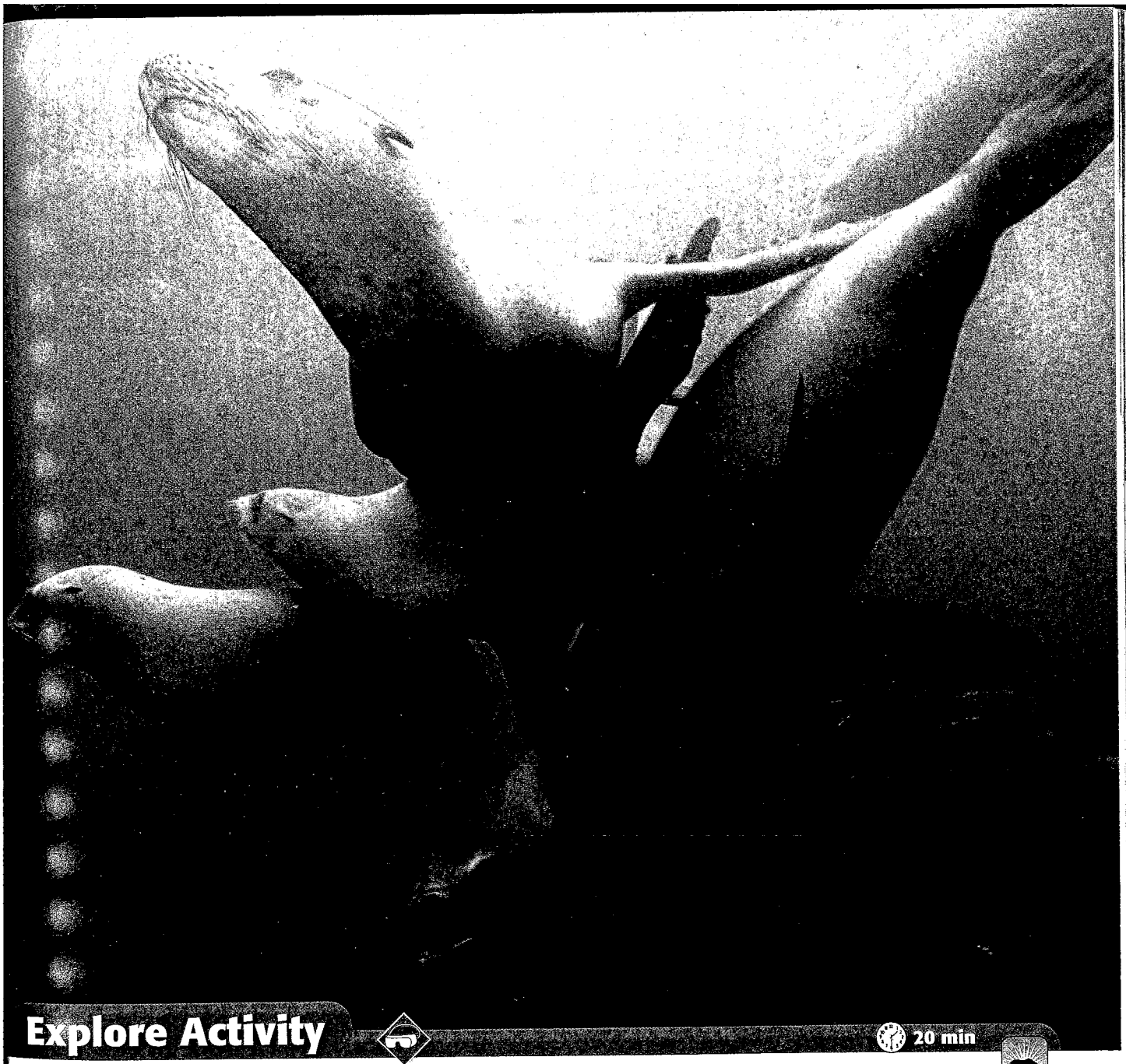
These California Sea Lions are fast swimmers. They dart through the water with great speed as they look for food. They eat a wide variety of fish, squid, and shellfish, which give the sea lions the protein they need. Protein is one important chemical compound that all living organisms need.

Organize

Key-Term Fold

Before you read the chapter, create the FoldNote entitled "Key-Term Fold." Write a key term from the chapter on each tab of the key-term fold. As you read the chapter, write the definition of each key term under the appropriate tab.

Instructions for creating FoldNotes are located in the Study Skills section on p. 519 of the Appendix.



Explore Activity

20 min

8.6.a

Building an Organic Molecule

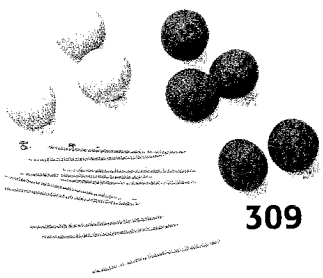
In this activity, you will build models of carbon-based molecules using clay and toothpicks. Each toothpick represents a chemical bond.

Procedure

1. Choose one color of **modeling clay** to use for carbon atoms, a second color to use for hydrogen atoms, and a third color to use for oxygen atoms.
2. Make a carbon atom. Insert four **toothpicks** into the clay so that each toothpick is at a maximum distance from each of the other toothpicks. (Hint: The result will be three-dimensional.)
3. Place a hydrogen atom at the end of each toothpick to complete a model of a methane molecule.
4. Use two toothpicks to connect two carbon atoms.
5. On each carbon atom, place two more toothpicks to form a *Y* with the pair of toothpicks. Place a hydrogen atom onto each toothpick to complete a model of an ethene molecule.
6. Make a carbon atom. Attach two pairs of toothpicks in opposite sides of the clay. Attach an oxygen atom to each pair of toothpicks to complete a model of a carbon dioxide molecule.

Analysis

7. Identify the number and type of atoms found in each molecule.
8. How many bonds does each carbon atom make in each of these molecules?



SECTION 1

Elements in Living Things

Key Concept Carbon atoms combine in many ways with each other and atoms of other elements and form the backbone of many molecules needed by living things.

What You Will Learn

- Carbon is a unique element because it can form long chains as well as bond with other elements.
- Living organisms are made of molecules that consist largely of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.

Why It Matters

Most of the chemical compounds that make up your body are carbon-based compounds.

Vocabulary

- organic compound

READING STRATEGY

Summarizing Read this section silently. In pairs, take turns summarizing the material. Stop to discuss ideas and words that seem confusing.

Would you believe that more than 90% of all compounds belong to a single group of compounds? This group is made up of covalent compounds that are based on the element carbon. All living organisms need these compounds. For example, the carbon compound glucose, a kind of sugar, is an energy source for many living things.

The Bonding of Carbon Atoms

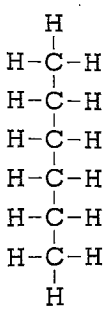
Carbon has a central role in the chemistry of living organisms. You can understand why when you look at the way carbon makes chemical bonds. Carbon atoms can form long chains with other carbon atoms. Some compounds have hundreds or thousands of carbon atoms! Carbon atoms can also bond with atoms of other elements.

Standards Check **Which element has a central role in the chemistry of living organisms? 8.6.a**

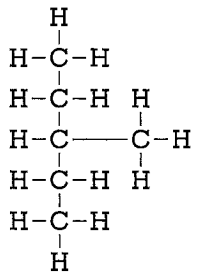
Carbon Backbones

Each carbon atom has four valence electrons. So, each carbon atom can make a total of four bonds. Carbon-based molecules can come in many different shapes. Many organic compounds are based on the kinds of carbon backbones shown in **Figure 1.** These models show how atoms are connected. Each line represents a covalent bond.

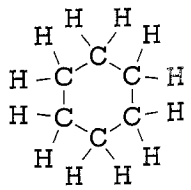
Figure 1 Three Kinds of Carbon Backbones



Straight chain
Carbon atoms are connected one after another.



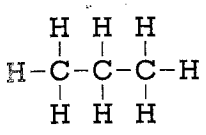
Branched chain
The chain of carbon atoms branches when a carbon atom bonds to more than two other carbon atoms.

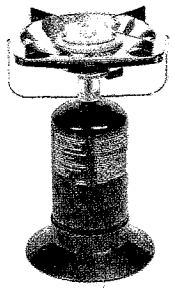


Ring
The chain of carbon atoms forms a ring.

Figure 2 **Three Types of Bonds Between Carbon Atoms**

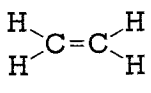
Single Bond





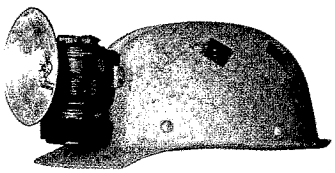
The **propane** in this camping stove contains only single bonds.

Double Bond



Fruits make **ethene,** which is a compound that helps ripen the fruit.

Triple Bond



Ethyne is better known as *acetylene.* It is burned in this miner's lamp and in welding torches.

Single Bonds

Compounds that contain carbon are called **organic compounds.** All of the compounds shown in **Figure 1** and **Figure 2** are organic compounds.

organic compound (awr GAN ik KAHM POWND) a covalently bonded compound that contains carbon

Atoms of carbon most often form four separate single bonds with other atoms. A *single bond* is a covalent bond made up of one pair of shared electrons. Propane, shown in **Figure 2,** has only single bonds. Gasoline is a mixture of carbon compounds in which the carbon atoms are joined by single bonds. These compounds are similar to propane. But their carbon chains are longer than propane's.

Gasoline is made from *petroleum,* which is a mixture of organic compounds that comes from organic material deep in Earth's crust. Carbon atoms in petroleum come from the remains of organisms that lived long ago. Various fuels, as well as plastics, waxes, and lubricants, are made from petroleum.

Wordwise **petroleum**
The root *petr-* means "rock." Another example is *petrify.*

Double Bonds

Carbon atoms can also form two covalent bonds between them. This is called a *double bond.* Ethene, shown in **Figure 2,** is the simplest example of an organic compound with a double bond. Many fats and oils are examples of larger organic compounds that have double bonds.

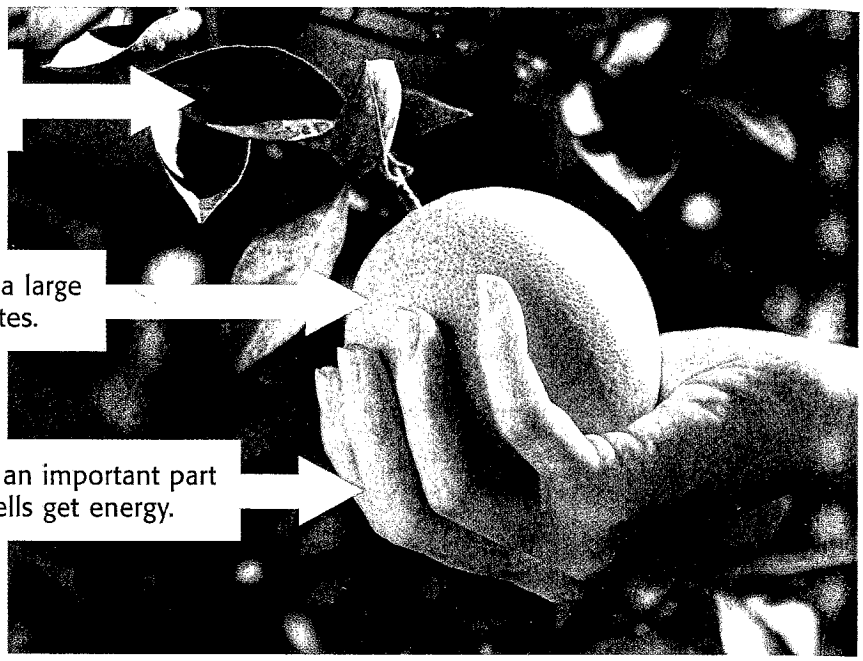
Triple Bonds

Triple bonds, three bonds between carbon atoms, are also possible. One example is in ethyne, shown in **Figure 2.** As you can tell, atoms of carbon can form bonds in many different ways. And so far, we have considered compounds made of only carbon and hydrogen!

Standards Check What are the three kinds of bonds that carbon atoms can form? **8.6.a**

8.6.a Students know that carbon, because of its ability to combine in many ways with itself and other elements, has a central role in the chemistry of living organisms.
8.6.b Students know that living organisms are made of molecules consisting largely of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.

Figure 3 Elements in Living Organisms



Other Elements in Living Organisms

All living things depend on organic compounds. A single cell in your body contains a very large number of organic compounds. Other elements combine with carbon to make the large variety of compounds on which living things depend. **Figure 3** shows examples of where different elements can be found in living things. Although billions of compounds make up your body, just a few elements make up most of those compounds.

Elements in Organic Compounds

Carbon can combine with elements other than itself and hydrogen. These include oxygen, nitrogen, sulfur, and phosphorus. The pie graph in **Figure 4** shows the elements that make up most of your body. As you can see, your body is made up of a lot of oxygen. Water has atoms of oxygen, and there is a lot of water in your body. Oxygen is found in many organic molecules.

You probably don't think much about elements such as sulfur and phosphorus in your body. But they're there! Atoms of nitrogen and sulfur are important parts of proteins. And without phosphorus, your cells could not get the energy that they need. All of these other elements in your body come from the food you eat.

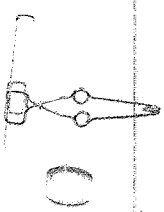
Standards Check Name the six elements that molecules in living things are mostly made up of. 8.6.b

Quick Lab

What's in the Wax?

8.6.a

1. Have your teacher light a **tealight candle.**
2. Using a **test-tube holder,** hold a **cold test tube** upside-down just above the flame.



3. Watch the test tube as you hold it above the flame for about 1 min. Record your observations.
4. What substances appear to have collected on the test tube?
5. What elements make up the wax? Explain your answer.

10 min

Organic Compounds—Not Just from Living Things!

You have learned that all organic compounds contain the element carbon. The special bonding abilities of carbon allow it to form many different compounds. Organic compounds are also distinctive because they make up living organisms.

For a long time, people thought that organic compounds could be made only by living organisms. It was thought that organic compounds could not be made by chemical reactions in a laboratory. But this thinking began to change in the 1800s, after chemists learned more about the chemistry of carbon.

Today, many kinds of organic compounds are manufactured. Most medicines and drugs are organic compounds. Vitamins, hormones, and other supplements are often manufactured. These compounds are the same ones that you find naturally in food or that are made in your own body. Although living organisms are different from nonliving things, a chemical is a chemical, no matter where it comes from!

Elements in the Human Body

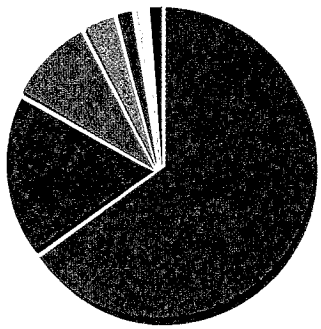


Figure 4 *After oxygen (which is found in water), carbon is the element found in the greatest percentage by weight in the body.* ***After carbon, what is the next most common element in the body?***

SECTION Review

8.6.a, 8.6.b

Summary

- Organic compounds are compounds that contain the element carbon.
- Organic compounds play a central role in the chemistry of living organisms because of carbon's ability to bond with other elements and to form long chains with other carbon atoms.
- Living organisms are made of compounds that are composed mostly of the elements carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.

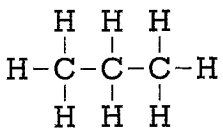
Using Vocabulary

1. In your own words, write a definition for the term *organic compound.*

Understanding Concepts

2. **Describing** What makes carbon so important to the chemistry of living organisms?

INTERPRETING GRAPHICS Use the diagram below to answer the next two questions.



3. **Identifying** What elements are found in the compound represented in the diagram?
4. **Applying** Is this an organic compound? Explain your answer.

Critical Thinking

5. **Identifying Relationships** On a periodic table, find the six elements that make up most organic compounds in an organism. What do you notice about the location on the periodic table of most of those elements?
6. **Making Inferences** Petroleum products such as gasoline are mostly made of carbon-based compounds. In what way is this an important clue about where petroleum products come from?

Internet Resources

For a variety of links related to this chapter, go to www.scilinks.org

Topic: Carbon Compounds; Organic Compounds

SciLinks code: HY70215; HY71078

SECTION 2

Compounds of Living Things

Key Concept Living things depend on very large carbon-based molecules and on smaller compounds, including water and salt.

What You Will Learn

- Living organisms depend on large compounds such as carbohydrates, lipids, proteins, and nucleic acids.
- Living organisms depend on many smaller compounds such as water and salt.

Why It Matters

Knowing about the chemicals your body uses and makes helps you understand how your body works.

Vocabulary

- carbohydrate
- protein
- lipid
- nucleic acid

READING STRATEGY

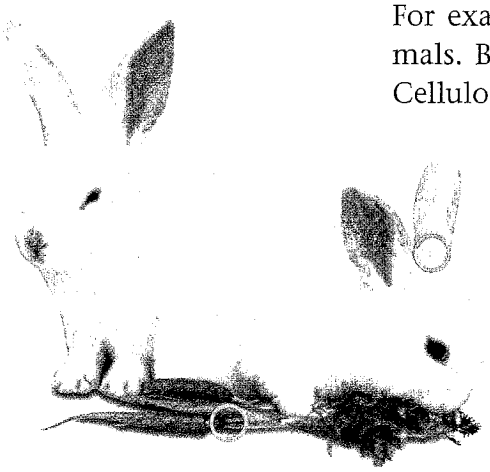
Graphic Organizer In your **Science Journal,** make a Spider Map with the categories structure, function, and examples for each compound discussed in this section.

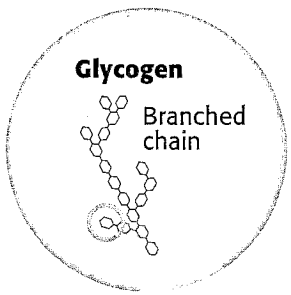
Imagine you are eating your favorite meal. What kinds of foods are included? Did you ever stop to think about what it's all made of? You have probably heard of carbohydrates, proteins, and fats. Carbohydrates are found in breads, grains, and sugars. Protein is found in meat, beans, eggs, and dairy products. Fats are found in meat, vegetable oils, and dairy products. All of these compounds are *biochemicals:* large organic compounds that living things make and use. You need all of these kinds of compounds, because most of your body is made of them. That's why a balanced diet is important for good health.

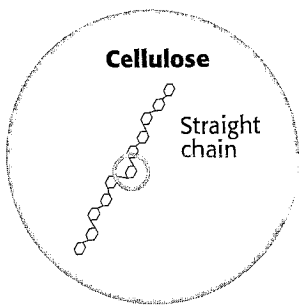
Carbohydrates

Biochemicals that are composed of sugar molecules bonded together are called **carbohydrates.** Simple sugars, such as glucose, are simple carbohydrates. But simple sugars can join to form complex carbohydrates, as shown in **Figure 1.** A complex carbohydrate can be a long-chain polymer. A *polymer* is a chain of repeating units. Complex carbohydrates may be made up of a chain of thousands of simple sugars.

Living things use carbohydrates mostly as a source of energy. For example, glycogen supplies energy to muscle cells in animals. But carbohydrates also have other uses in living things. Cellulose gives cell walls in plants their rigid structure.







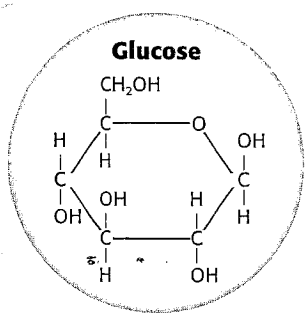


Figure 1 *Glucose molecules, represented by hexagons, can bond to form complex carbohydrates, such as cellulose and glycogen.*

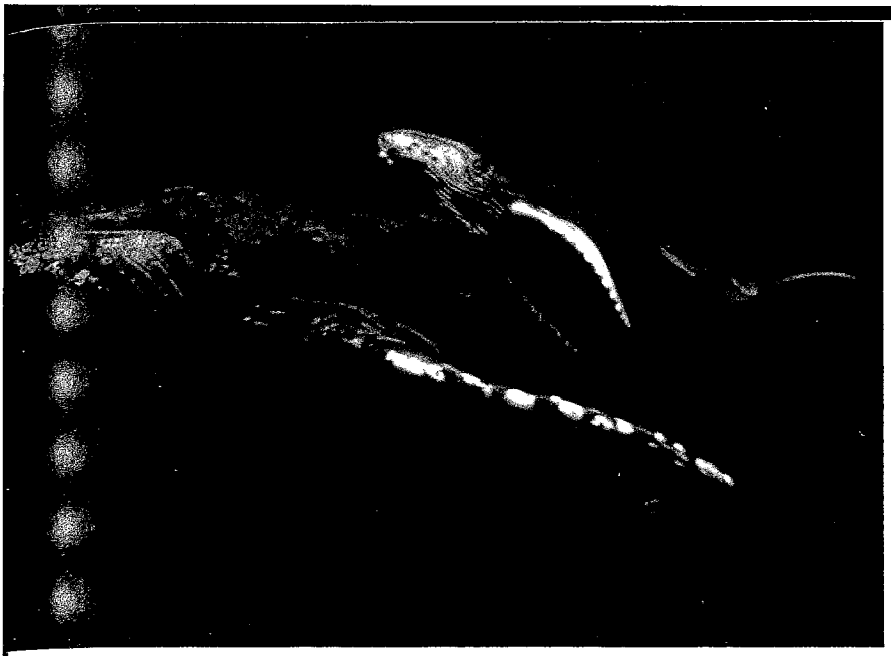


Figure 2 *Like most whales, these humpback whales store large amounts of lipids in their bodies. This insulates their bodies from the cold ocean water.*

Lipids

Lipids are biochemicals that do not dissolve in water. Fats, oils, and waxes are lipids. Lipids have many functions in living things. Lipids store energy. They also make up cell membranes. Although too much fat in your diet can be unhealthy, some fat is important to good health.

Lipids are made of mostly carbon and hydrogen. Lipids usually have very long chains of carbon atoms. So, lipids are very large molecules. Saturated fats are lipids that have only single bonds between their carbon atoms. Unsaturated fats are lipids in which the carbon atoms have double bonds and single bonds.

Plants store lipids as oils. Olive oil is an example of a lipid from a plant. Animals tend to store lipids as fats. Some animals, such as the whales shown in **Figure 2,** have many more lipids in their bodies than humans do. When an organism has used up most of its carbohydrates, it can get energy by breaking down lipids. Lipids are also used to store some vitamins.

Proteins

Proteins are biochemicals that are made of much smaller molecules called *amino acids*. Most proteins are made of very long chains of amino acids. So, most proteins are very large molecules and are long-chain polymers.

There are 20 different amino acids that can combine in any order to form proteins in living things. So, proteins are more complex than carbohydrates and lipids. The amino acids that make up proteins give each protein its special function in your body.

Standards Check What do the structures of carbohydrates and proteins have in common? 8.3.c

carbohydrate (KAHR boh HIE drayt) a class of energy-giving nutrients that includes sugars, starches, and fiber; contains carbon, hydrogen, and oxygen

lipid (LIP id) a fat molecule or a molecule that has similar properties; examples include oils, waxes, and steroids

Wordwise The root *lip-* means "fat."

protein (PROH TEEN) a molecule that is made up of amino acids and that is needed to build and repair body structures and to regulate processes

8.3.c Students know atoms and molecules form solids by building up repeating patterns, such as the crystal structure of NaCl or long-chain polymers.
8.6.c Students know that living organisms have many different kinds of molecules, including small ones, such as water and salt, and very large ones, such as carbohydrates, fats, proteins, and DNA.

Figure 3 *Proteins play a variety of important roles in living organisms.*

Examples of Proteins

In living things, proteins play important roles and have many different functions. **Figure 3** shows some examples. The structural proteins of silk fibers make the spider web strong and lightweight. Hair is also made of protein. Nuts and beans are foods that have large amounts of proteins.

An especially important protein, called *hemoglobin,* is found in red blood cells. It helps carry oxygen to all of the cells of the body. Some hormones are proteins. For example, insulin is a protein hormone that helps control your blood-sugar level.

INTERNET ACTIVITY

My New Sandwich

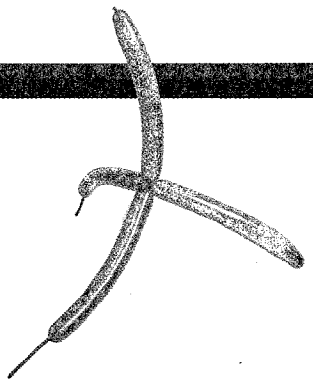
Can you think of a new sandwich that is healthy and tasty? Create such a sandwich for your favorite restaurant. Then, explain the nutritional value of each ingredient. Go to **go.hrw.com,** and type in the keyword HY7BD7W.

Quick Lab

Modeling Proteins

8.3.c
8.6.c

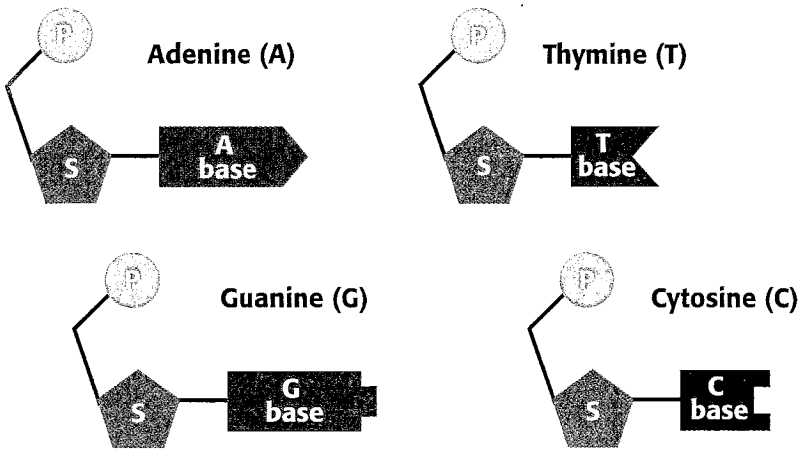
Proteins are long chains of amino acids. In this activity, you will make a model of a protein by using balloons.



1. Out of **thin balloons of various colors,** take two balloons of the same color.
2. Fill both of the balloons with air, and tie them shut. Twist off each balloon in the middle.
3. Put the twisted-off parts of the two balloons together. Bend each balloon back so that the balloons lock together. You have made a model of an amino acid.
4. Twist off a portion of your amino acid model at one of its four ends.
5. Combine your amino acid model with that of another classmate by locking the twisted-off ends together. Repeat until all the amino acids in the classroom are connected.
6. Describe why proteins can be very large molecules.
7. How is the number of different balloon colors related to the number of different protein models your class could make?

15 min

Figure 4 The Four Nucleotides of DNA



MATH PRACTICE

Nucleic Acids

You can calculate the number of different DNA strands of a certain length that can be made from the four nucleotides by using the expression 4^x, where x is the number of nucleotides in the strand. How many different strands of DNA that are 5 nucleotides long could be made?

Nucleic Acids

The largest molecules made by living organisms are nucleic acids. **Nucleic acids** are biochemicals made up of *nucleotides* (NOO klee oh TIEDZ). The four kinds of nucleotides in DNA are shown in **Figure 4.** The S represents a sugar, and the P represents a phosphate. Nucleotides are molecules made of carbon, hydrogen, oxygen, nitrogen, and phosphorus atoms.

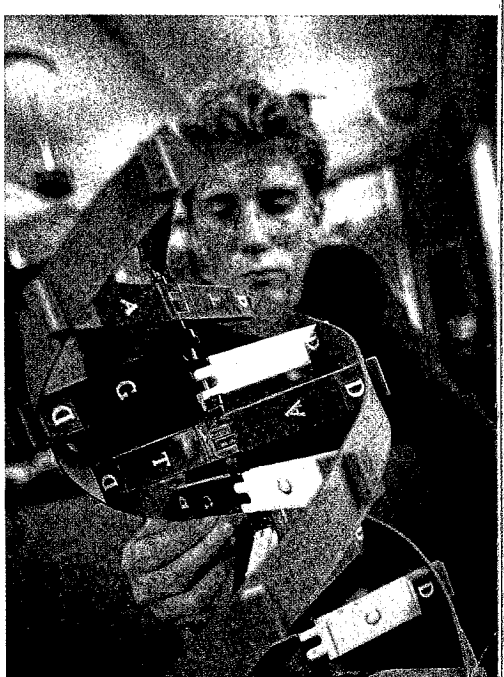
Nucleic acids store genetic information. Nucleic acids are sometimes called *the blueprints of life,* because they carry all of the information needed for a cell to make all of its proteins. Nucleic acids may have millions of nucleotides bonded together. The reason that living things differ from each other is that each living thing has a different order of nucleotides in its DNA.

nucleic acid (noo KLEE ik AS id) molecule made up of subunits called *nucleotides*

DNA and RNA

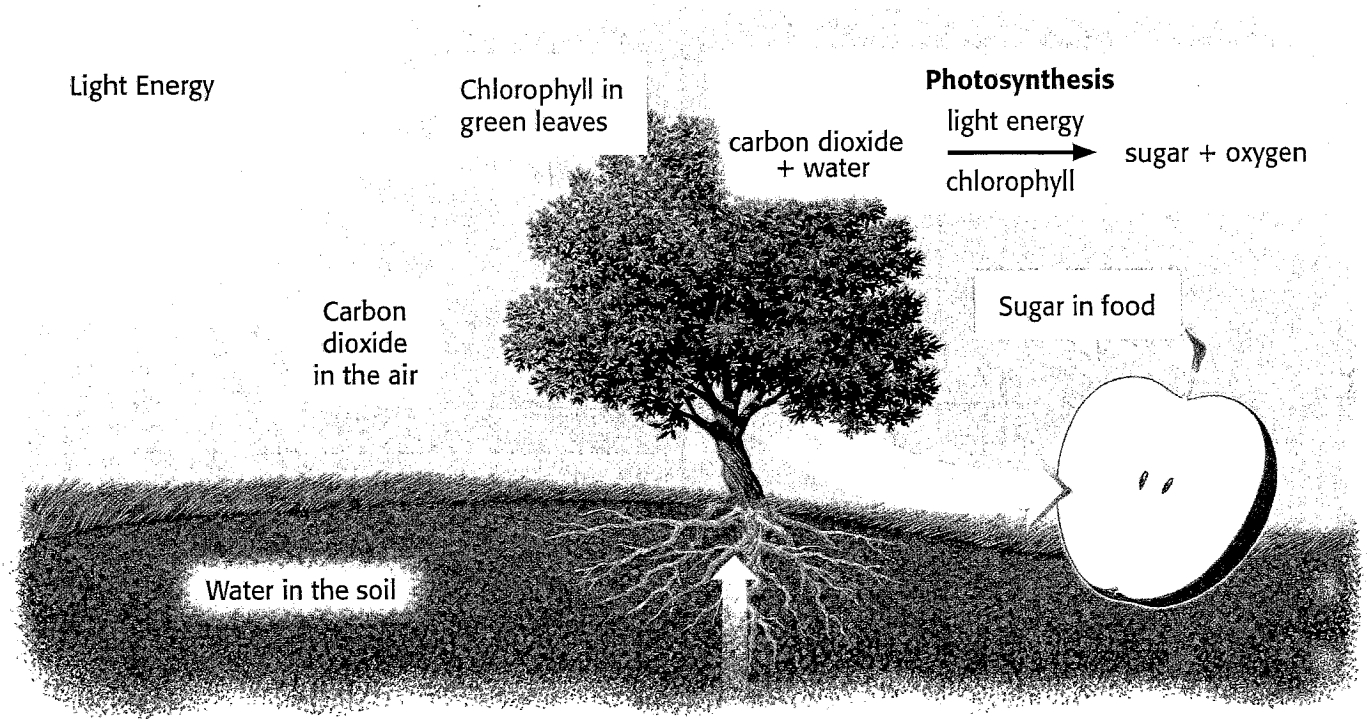
There are two kinds of nucleic acids: DNA and RNA. A model of DNA (deoxyribonucleic acid) is shown in **Figure 5.** DNA is the genetic material of the cell. DNA molecules are long-chain polymers. They can store a huge amount of information because of their length. The DNA molecules in a single human cell have a length of about 2 m—which is more than 6 ft long! When a cell needs to make a certain protein, the cell copies a certain part of the DNA onto another type of nucleic acid, RNA (ribonucleic acid). The information copied from the DNA onto the RNA directs the order in which amino acids are bonded to make that protein.

Figure 5 *Two strands of DNA are twisted in a spiral shape. Four different nucleotides make up the rungs of the DNA ladder.*



Standards Check What are four types of very large organic molecules that living organisms have? 8.6.c

Figure 6 From Light Energy to Chemical Energy



Other Important Compounds

As you have learned, biochemicals are very important for the functions of living organisms. In addition to very large molecules, such as carbohydrates, fats, proteins, and DNA, organisms also need a variety of much smaller compounds that are not organic compounds. The most important of these is one that you are very familiar with—water!

Water

No living thing on Earth can survive without water. In fact, about 70% of your body is made up of water! Water is in every cell of your body. Water regulates temperature, helps transport substances, and provides lubrication.

An example of the importance of water is shown in **Figure 6.** Without water, a plant will dry up and die. The soil collects water from rain and other sources. Plants, such as trees, get their water from the soil. Plants use light energy from the sun to join water with carbon dioxide to form carbohydrates. Plants use these carbohydrates to get the energy they need to live. Water also moves up the trunks or stems of plants and carries nutrients to all of a plant's cells.

Standards Check What are three functions of water in living things?

8.6.c

SCHOOL to HOME

Water in Fruits

With an adult, put some raisins into a glass of water. Observe the raisins several times over the next two days. Record your observations in your **Science Journal.** Explain how the change in the appearance of the raisins demonstrates that water is in fruits.

ACTIVITY

Salt

Why is the deer shown in **Figure 7** licking salt? Well, think about your own body. If you have ever tasted a drop of sweat, then you know that salt is present in your body. And if you lose salt through sweating, you need to replace it. But why is salt so important?

Salt plays an important role in nerve cells. Salt helps nerve cells conduct electrical signals throughout your body. Ordinary table salt is the kind of salt that your body uses the most. Other salts may also be found in food.

Figure 7 *Animals have salt in their bodies. Therefore, they need to have a certain amount of salt in their diets.*

SECTION Review

8.3.c, 8.6.c

Summary

- Carbohydrates provide energy for living organisms. Many complex carbohydrates are made of long chains of simple sugars.
- Lipids have long carbon chains, store energy, and make up cell membranes.
- Proteins are composed of amino acids and perform special functions within cells.
- Nucleic acids store the genetic information that cells use to make proteins.
- In addition to large biochemical compounds, much smaller compounds, such as water and salt, are also important to organisms.

Using Vocabulary

Correct each statement by replacing the underlined term.

1. Carbohydrates do not dissolve in water and are used by organisms to store energy.
2. Proteins contain all of the information a cell needs to make its lipids.

Understanding Concepts

3. **Identifying** What smaller molecules make up proteins?
4. **Classifying** What role in organisms do carbohydrates and lipids share?
5. **Analyzing** What feature of protein structure makes proteins especially complex biochemicals?

Critical Thinking

6. **Making Comparisons** Compare the roles of large organic compounds in living organisms with the roles of smaller, nonorganic compounds in living organisms.
7. **Identifying Relationships** Hemoglobin is a protein that is in blood and that transports oxygen to the tissues of the body. What would happen if there was a change in the nucleic acids that carry the information to make hemoglobin?

Challenge

8. **Interpreting Statistics** Suppose a certain organism's DNA has 6.0×10^7 nucleotides that carry information to make proteins. For every three of these nucleotides, one amino acid is made. If this organism's DNA has information to make 4.0×10^4 proteins, what is the average number of amino acids in the organism's proteins? (Hint: First find the number of amino acids coded for by the DNA.)

Internet Resources

For a variety of links related to this chapter, go to www.scilinks.org

Topic: Carbohydrates; Lipids

SciLinks code: HY70213; HY70881

HOLT CALIFORNIA

Physical Science

Study Guide B
with Directed Reading Worksheets

ANSWER KEY

HOLT, RINEHART AND WINSTON
A Harcourt Education Company
Orlando • Austin • New York • San Diego • London

SECTION: ACIDS AND BASES (Pg. 120)

Across

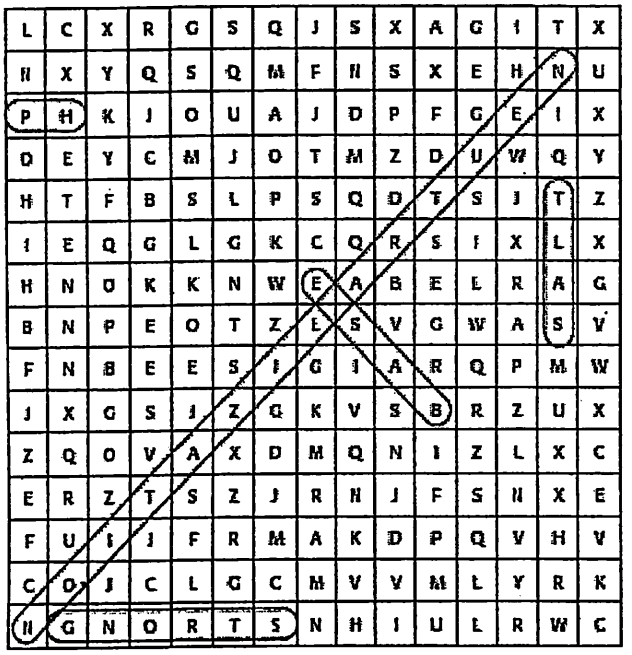
2. acid
4. bromthymol blue

Down

1. indicator
3. corrosive
5. Base

SECTION: SOLUTIONS OF ACIDS AND BASES (Pg. 122)

1. strong
2. neutralization
3. pH
4. base
5. salt



Directed Reading B

SECTION: ELEMENTS IN LIVING THINGS (Pg. 124)

1. Carbon atoms can form long chains with other carbon atoms, and carbon atoms can also bond with atoms of other elements.
2. four
3. four
4. the atoms are connected
5. organic compound
6. C
7. D
8. A
9. B
10. organic (or carbon-based) compounds
11. carbon, hydrogen, oxygen, nitrogen, sulfur, and phosphorus (answers may be in any order)
12. form lots of different compounds
13. Answers may vary. Answers should include two types of manufactured organic compounds, which may include the following: medicines, drugs, vitamins, hormones, and other supplements.

SECTION: COMPOUNDS OF LIVING THINGS (Pg. 126)

1. D
2. B
3. A
4. B
5. C
6. C
7. A
8. B
9. C
10. Answers should include any three of the following: regulate chemical processes; control blood-sugar levels; carry oxygen to cells throughout the body; build and repair body structures.
11. nucleic acids
12. nucleotides
13. Each living thing has a different order of nucleotides.
14. the blueprints of life
15. Answers may vary. Sample answer: The two main kinds of nucleic acids are DNA and RNA. DNA is the genetic material of the cell. RNA is involved in building proteins needed by the cell.

Vocabulary and Section Summary B

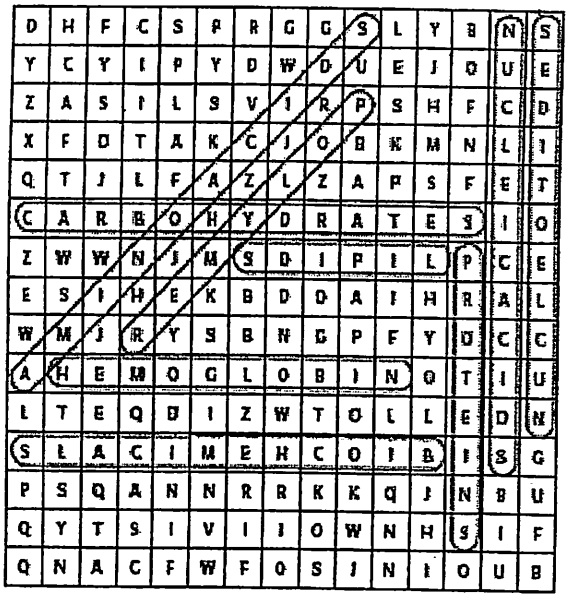
SECTION: ELEMENTS IN LIVING THINGS (Pg. 128)

1. organic compound
2. triple bond
3. single bond
4. double bond
5. petroleum

Solution: carbon atom

SECTION: COMPOUNDS OF LIVING THINGS (Pg. 130)

1. nucleic acids
2. lipids
3. biochemicals
4. carbohydrates
5. proteins
6. amino acids
7. polymer
8. hemoglobin
9. nucleotides



Directed Reading B

SECTION: MEASURING MOTION (Pg. 132)

1. Answers may vary. Sample answer: I cannot see Earth moving, yet I know it moves (revolves) around the sun.
2. A
3. D
4. reference points
5. Answers may vary. Sample answer: buildings; trees
6. Moving objects can also be used as reference points.
7. *x*
8. distance
9. m/s, or meters per second
10. Answers may vary. Sample answer: miles per hour; feet per second
11. Average speed equals the total distance traveled divided by the total time taken to travel that distance. Equation ÷ form: *average speed = total distance ÷ total time*
12. time
13. The distance varies because the speed is not constant.
14. The birds would end up at different destinations if they were traveling in different directions.
15. Velocity includes direction; speed does not include direction.
16. In order for an object's velocity to change, the object's speed, direction, or both must change.
17. velocity
18. acceleration
19. second
20. positive
21. negative acceleration; deceleration
22. because it is always changing direction
23. centripetal
24. time
25. Answers may vary. Sample answers: because the car's speed increases as time passes; because the line between 0 s and 5 s is sloping upward
26. Answers may vary. Sample answer: The speed of the car is constant between 5 s and 7 s because the slope of the graph is zero.

SECTION: WHAT IS A FORCE? (Pg. 135)

1. force
2. direction, magnitude [order may be reversed]
3. newton
4. objects
5. Answers may vary. Sample answer: I exert a force on a book when I pull it open; I exert a force when I press the keys of a computer keyboard.
6. Answers may vary. Sample answer: When I sit on a chair, the force I exert on the chair does not make it move.
7. net force
8. Add the forces together to determine the net force.
9. Subtract the smaller force from the larger force.
10. The net force must be 0 N.
11. tension
12. 0 [zero]
13. an unbalanced force