

Answer Key

Unit I: Computers and Automation (pages I-17)

Search Your Knowledge (page 1)

1. Examples of how computers are used in everyday life:

Your Own Uses	Other Applications
calculator	travel reservations
word processor	air traffic control
automated teller machine (ATM)	supermarket checkout
games	bank account records
e-mail	library catalogs

Other answers are possible.

2. Possible similarities between computers and other machines include:

They are used like tools, for special purposes.

They make life easier by reducing work.

They save time.

They need electricity to run, like some machines.

3. Possible differences between computers and other machines include the following:

Computers are “smart.”

You can give them special instructions.

They are very fast.

They work by processing information.

What’s the Point? (page 4)

1. b
2. d
3. a

Understanding Words and Phrases (page 5)

Answers will vary but could include the following.

1. They are completely different from other machines because they have a memory.

2. permanent: a program; ability to add; spelling checker

temporary: numbers to be added; words typed (but not yet saved)

2 Answer Key

3. to fix mistakes; to increase speed; to add new operations
4. a screen, a printer, a plotter, speakers, a machine operation
5. a typewriter, a telephone, a piano, an organ, an accordion
6. names in a phonebook; page numbers in a book

What's the Point? (page 9)

1. F
2. T
3. F
4. T
5. T
6. F

Understanding Words and Phrases (page 10)

1. a
2. c
3. b
4. b
5. a
6. d
7. a
8. c
9. d
10. b

Grammar Check (page 11)

Active forms of the example sentences on page 11:

People **cannot alter** or **add to** these instructions.

Someone **instructs** the computer to distinguish two kinds of numbers.

A programmer also **tells** it how to multiply.

Exercise 1 (page 12)

A *by*-phrase in parentheses is optional, depending on the importance of the agent.

1. Some day, the neighborhood hardware store **will be run** by Roger's children.
2. Traffic laws **must be obeyed**.
3. Breakfast **had been eaten** before ten o'clock.
4. No change—intransitive verb
5. How **are** these experiments **supposed to be conducted**?
6. The packages **are going to be packed and shipped** (by my sister) tomorrow.
7. Human behavior **is not understood** very well.
8. Construction of this building **should have been completed** last month.
9. No change—intransitive verb
10. **Has** the patient **been examined** (by a doctor) yet?
11. No change—intransitive verb
12. **Could** this stone **have been lifted** by a single person?

Active forms of the examples on pages 14–15:

- a. Steps that involve adding and inverting numbers **do** the subtraction, for example.
- b. In each one, a certain number of bars and spaces **form** a number, letter, or other character.

Exercise 2 (page 15)

1. People (or bombs) destroyed the city library in the war. People rebuilt it ten years later.
2. First, one thoroughly washes the chicken. Then, one seasons it with spices and places it in the oven to roast.
3. Girls performed the singing, while boys did the tap-dancing.
4. People (or bakers) bake the bread and pastries in this resort hotel fresh every morning.
5. A friend from Japan gave me one; a friend from China brought the other.
6. When did someone first introduce you to classical music?
7. Usually, a specialist performs this type of surgery, but this time, my family doctor did it.
8. People frequently produce electricity from fossil fuels. They can also produce it from nuclear and solar energy.
9. Mr. Charles Goodyear invented vulcanized rubber, which we (or people) use for automobile tires.
10. Mostly European and American artists did the paintings. Asian and African artists created the sculptures and pottery. Native American tribes donated the special collection of textiles.

Note: Most sentences sound awkward because either the agent is not important, or the order of the main topic and the added new information is reversed. The passive form is more natural for these sentences.

Unit 2: FLIGHT (pages 18–33)**Search Your Knowledge (page 18)**

3. Answers will vary but could include the following:
 We are heavy.
 We have no wings.
 We would need a lot of energy or power.

Key Words (page 19)

Forces in physics or in other areas include gravity, friction, and electromagnetic force. Additional forces may be listed.

4 Answer Key

What's the Point? (page 26)

Part I (page 26)

1. balloons (also airships, also known as blimps)
2. kites, gliders, aircraft (airplanes, helicopters)
3. They produce a force that overcomes their weight (or gravity).
4. wind power
5. the airfoil and its power of lift
6. motor and propeller; jet engine; manpower (pedaling)

Part II (page 26)

1. T 2. F 3. T 4. F 5. F 6. T 7. T 8. F 9. T 10. F

Understanding Words and Phrases (page 27)

Part I (page 27)

1. generate 2. float 3. overcome 4. solo 5. exceeded 6. retained

Part II (page 28)

1. b 2. a 3. b 4. b 5. a

Individual sentences will vary.

Grammar Check (page 29)

Exercise 1 (page 30)

Subordinating conjunctions are in **bold**.

1. **By the time** you come home from work, dinner will certainly be ready.
2. We're enjoying our sightseeing vacation. It hasn't rained at all **since** we got here.
3. Larry always carries an umbrella **in case** it rains.
4. **Although** I don't like vegetables very much, I eat them every day **because** they're good for me.
5. **When** she is thirsty, she prefers hot drinks **whether or not** it is cold outside.
6. **Now that** Mark and Christina have children, they seldom go out to dinner or the movies.
7. Ken and Belinda have different tastes in music. He likes country, **whereas** she prefers jazz.
8. **Since** we are making good progress on this project, let's keep working. We can have lunch later **unless** you are very hungry now.

Exercise 2 (page 31)

1. **As soon as** he gets home, he takes off his shoes.
Or: He takes off his shoes **as soon as** he gets home.
2. Tracy is very upset **because** she lost the diamond ring that belonged to her grandmother.
Or: **Because** she lost the diamond ring that belonged to her grandmother, Tracy is very upset.
3. You should brush your teeth **before** you go to bed.
Or: **Before** you go to bed, you should brush your teeth.
4. Billy can have ice cream for dessert **only if** he eats all his carrots.
Or: **Only if** he eats all his carrots can Billy have ice cream for dessert.
5. **Since** you insist on helping me with housework, you can vacuum the rugs.
Or: You can vacuum the rugs **since** you insist on helping me with housework.
6. Henry admired the architecture around him **as** he walked along the street.
Or: **As** he walked along the street, Henry admired the architecture around him.
7. **Even though** Mr. Wright is 84 years old, he still enjoys downhill skiing.
Or: Mr. Wright still enjoys downhill skiing **even though** he is 84 years old.
8. **In the event that** you cannot reach me at work during the day, please call me at home.
Or: Please call me at home **in the event that** you cannot reach me at work during the day.

Unit 3: Health Care in Space (pages 34–46)**Key Words (page 35)**

1. Other nutritional supplements could include various vitamins (B, C, E, K, etc.); minerals (calcium, iron, etc.); cod-liver oil; protein
2. Parts of the body that atrophy from diabetes: toes, kidneys
Organs that atrophy from excessive alcohol: liver, cerebellum (part of the brain)
3. Possible answers include volunteering to participate in studies of new medical procedures or drugs.
4. Sources of protein include fish, meat (beef, chicken, pork, lamb), tofu, cheese, beans, shellfish.
5. Other hormones include adrenalin, growth hormone, sex hormones (estrogen, testosterone).

6 Answer Key

What's the Point? (page 39)

Part I (page 39)

1. d 2. d 3. c 4. a 5. d 6. b 7. c

Part II (page 40)

1. Amino acids are raw, or basic, materials from which proteins are made.
2. A placebo is a substance, like a pill or drink, that looks like medicine but does not contain any active medicine.
3. Cortisol is a natural stress hormone. It is produced by the body under stress.
4. The tracer is attached to the amino acids and acts like an identification tag. It can be detected by the scientists and thus allows them to identify and count the amino acids.
5. Researchers remove a small piece of muscle in order to see exactly how many amino acids have been made into new proteins. Over time, they can see how much protein in the muscle breaks down, and how much new protein is made.
6. For more information contact the National Space Biomedical Research Institute (NSBRI), www.nsbri.org.

Understanding Words and Phrases (page 41)

Part I (page 41)

Answers will vary.

Part II (page 41)

1. You determine the area of a rectangle by multiplying L by W ($\text{Area} = L \times W$).
2. Harmless pets may include cats, fish, turtles, hamsters, rabbits.
3. Examples include air and water pollution, smoke, car exhaust, chemical pesticides, radiation.
4. Possible materials include wood, brick, glass, metal, concrete, stone, tar.
5. Canada, Mexico, the United States.
6. Fever, runny nose, headache, body aches, sore throat, coughing.
7. Researchers collaborate to share ideas; to share and reduce the funding (money) needed for a project; to share facilities and equipment; to complete more work sooner.
8. Not speaking the same language; not understanding each other's culture; misunderstanding parts of the conversation; anger; impatience; broken telephone or e-mail server.

Part III (page 42)

1. synthesis 2. incorporate 3. samples 4. attempted; attempt
5. breakdown 6. confinement 7. mimic 8. synthesizing

Grammar Check (page 43)*Part I (page 44)*

1. interprets
2. sings
3. bakes
4. organize
5. manages
6. drives
7. cooks slowly

Part II (page 44)

1. speaker
2. player
3. eraser
4. trader
5. computer
6. winner
7. cooker

Part III (page 44)

- | | |
|---------------------------|---------------------------|
| 1. a New Englander (noun) | 6. campers (noun) |
| 2. New Yorkers (noun) | 7. a foreigner (modifier) |
| 3. an islander (noun) | 8. an insider (modifier) |
| 4. a trouper (noun) | 9. outsiders (modifier) |
| 5. a trooper (noun) | 10. a teenager (modifier) |

Let's Talk about It (page 45)

1. Possible characteristics of medical methods and equipment include small size; light weight; easy to use; safe to use; can be used by ordinary people (not only specialists like doctors, surgeons, technologists); etc.
2. Possible special situations on earth: people who live in rural areas; soldiers in the field; people vacationing on a luxury cruise; etc.
3. Answers will vary.

Unit 4: Wind Power (pages 47–67)**Search Your Knowledge (page 47)**

1. A wind turbine is a machine that uses wind power to produce electricity. The wind pushes and spins the blades, and the energy of motion is converted into electric energy. A wind turbine looks similar to an old-fashioned windmill, which uses wind energy to turn a millstone to mill flour or to operate a saw to saw wood.
2. A wind turbine is like a reverse fan. In both, the blades are attached to an electric device. In a fan, electricity runs a motor, which spins the blades, which push the air. In a wind turbine, the air pushes and spins the blades, which run a generator, which makes electricity.
3. Not as widely as other forms of energy. It is not available or not practical in many places.
4. Fossil fuels (coal, natural gas, petroleum), nuclear fuel, running water (hydroelectricity).

8 Answer Key

5. Advantages: clean, renewable. Disadvantages: unsteady, hard to control, expensive.

6. Answers will vary. The article discusses some solutions to this challenge.

What's the Point? (page 56)

Part I (page 56)

1. a 2. b 3. a 4. b 5. c 6. c 7. b 8. a 9. a 10. c 11. c 12. a

Part II (page 58)

- | | |
|--|---|
| 1. four | 5. fossil fuels |
| 2. it is more expensive than other forms of energy; also, it is inconsistent | 6. high taxes to cover related environmental and health costs |
| 3. Denmark | 7. 60 meters |
| 4. produce as much power as conventional power plants | 8. 600 |

Understanding Words and Phrases (page 58)

Part I (page 58)

- | | |
|----------------------------|------------------|
| 1. universal | 7. prone |
| 2. intermittent | 8. out of sync |
| 3. weathered | 9. unequivocally |
| 4. shifted | 10. crucial |
| 5. departure; conventional | 11. breakthrough |
| 6. envisioned | 12. synchronize |

Part II (page 60)

- | | |
|---------------------|------------------------------------|
| 1. the scrap heap | 4. give them a run for their money |
| 2. wear and tear | 5. a black cloud |
| 3. a proving ground | 6. on the horizon |

Grammar Check (page 61)

Example 2 on page 61 rewritten with an adverb clause:

Perhaps **because they reflected** national inclinations, these sturdy Danish **designs** had little of the aerodynamic flash of the earlier U.S. wind turbines.

Exercise 1 (page 64)

1. While **Jeremy** was taking a shower, **he** sang his favorite songs.
 While taking a shower, Jeremy sang his favorite songs.
 Or: Jeremy sang his favorite songs while taking a shower.
 Or: Taking a shower, Jeremy sang his favorite songs. (must begin with adv. phrase)
2. Because previous **methods** were unsuccessful, **the mathematician** tried something new.
 Cannot be changed.
3. (**You**) Always look both ways when **you** cross the street.
 Always look both ways when crossing the street.
 Or: When crossing the street, always look both ways.
4. **The lawyers** prepared their case very carefully before **they** defended their client in court.
 The lawyers prepared their case very carefully before defending their client in court. Or: Before defending their client in court, the lawyers prepared their case very carefully.
5. After **he** (had) finished his second piece of apple pie, **Clarence** took a third piece.
 After finishing his second piece of apple pie, Clarence took a third piece.
 Or: After having finished his second piece of apple pie, Clarence took a third piece. (Beginning or end is possible in both cases, but beginning sounds more logical.)
6. Because **I**'ve never been to Hawaii before, **I** really look forward to going there this winter.
 Having never been to Hawaii before, **I** really look forward to going there this winter.
 (Sentence must begin with adverbial phrase.)
7. **Peter** has been taking care of his mother at home since **she** became ill.
 Cannot be changed.
8. **Sally** is frequently invited to parties because **she** can perform magic tricks.
 Being able to perform magic tricks, Sally is frequently invited to parties.
 Or: Able to perform magic tricks, Sally is frequently invited to parties.
 (Sentence must begin with adverbial phrase.)

Exercise 2 (page 65)

1. time = when
2. cause and effect
3. dangling participle: **Being able to explain concepts very clearly.**
 Because he/she is able to explain concepts very clearly, all the students want to be in Professor Moore's science class.

10 Answer Key

Or: Because he/she can explain concepts very clearly, all the students want to be in Professor Moore's science class.

(adverb clause; idea of cause and effect)

Being able to explain concepts very clearly, Professor Moore is popular with all the science students.

(adverb phrase; idea of cause and effect)

4. time = while; cause and effect

5. time = after

6. dangling participle: **While raining outside**

While it was raining outside, the birds hid under the bridge. (adverb clause; idea of time)

Avoiding the rain outside, the birds hid under the bridge. (adverb phrase; idea of cause and effect)

7. cause and effect

8. time = while

9. dangling participle: **Since visiting Barbara a year ago**

Since Ben visited Barbara a year ago, she hasn't called or written to him.

(adverb clause; idea of time = since)

Since visiting Barbara a year ago, Ben has not heard from her. (adverb phrase; idea of time = since)

10. cause and effect

11. time = while

12. time = while; cause and effect = rural vs. urban area (i.e., Traveling through **urban** New England, we **didn't see any** farms.)

Exercise 3 (page 66)

1. (While) Taking a stroll in the city, Jim ran into two old acquaintances.

Or: Jim ran into two old acquaintances while taking a stroll in the city.

(relationship = while)

2. Having several torn and missing pages, the book should be discarded from the library. (relationship = cause and effect)

3. Crossing the street with two small children, the man held onto them very tightly. (relationship = while, cause and effect)

Also: The man held onto two small children very tightly while crossing the street with them. (relationship = while)

4. Cannot be combined.

5. Having made significant discoveries in physics, Albert Einstein won a Nobel Prize. (relationship = cause and effect)

6. (Being) Small, clean, and unaggressive, cats make good house pets. (relationship = cause and effect)

7. After retiring from his job, Jacob became even busier with his hobbies and volunteer work.
Or: After having retired from his job, Jacob became even busier with his hobbies and volunteer work.
(relationship = time)
8. Cannot be combined.

Unit 5: High-Tech Lizards (pages 68–85)

Search Your Knowledge (page 68)

1. A lizard is a kind of animal, a reptile. A gecko is a kind of lizard.
2. Answers will vary.
3. Answers will vary.
4. A molecule is the smallest particle (or structure) of a particular material. A molecule is made up of two or more atoms. An electron is a small particle in an atom; it has a negative charge and spins around the center (or nucleus) of an atom.
5. Answers will vary.

Key Words (page 69)

Adhesive materials include liquid glue, stick glue, duct tape, scotch tape, others.

Part 1: “Getting a Grip” (page 70)

What’s the Point? (page 71)

1. T 2. F 3. F 4. T 5. F 6. T 7. F 8. F

Understanding Words and Phrases (page 72)

Part I (page 72)

1. c 2. a 3. d 4. b

Part II (page 72)

1. c 2. f 3. b 4. h 5. g 6. a 7. j 8. d 9. e 10. i

Part III (page 73)

Answers will vary.

12 Answer Key

Grammar Check (page 74)

Part I (page 75)

- | | |
|-----------------------------------|-----------------------------------|
| 1. went; had been; had never been | 7. has completed; has not written |
| 2. have visited | 8. had just started |
| 3. went; had not hiked | 9. ate; was able; had had |
| 4. moved; has lived | 10. had not tasted |
| 5. had known | 11. have not figured out |
| 6. have already had | 12. felt; had not realized |

Part II (page 76)

Answer: perfect tenses. Sentences will vary.

Part 2: "Caught on Tape" (page 77)

What's the Point? (page 78)

1. T 2. F 3. T 4. T 5. F 6. F 7. T 8. F

Understanding Words and Phrases (page 79)

Part I (page 79)

1. A hydrophilic material attracts water; a hydrophobic material repels water.
2. Hydrophilic: paper, cotton, flour. Hydrophobic: oil, rubber
3. *hydro* = water; *phil* = love; *phob* = fear
4. An *Anglophile* is someone who loves English things, such as English people, language, culture, literature, history, etc.
5. *hydrophobia* = abnormal fear of water

Part II (page 80)

1. g 2. a 3. h 4. e 5. d 6. j 7. i 8. f 9. c 10. b

Part III (page 80)

1. c 2. a 3. e 4. d 5. b

Part IV (page 81)

Answers will vary.

Grammar Check (page 82)

Answers will vary.

Unit 6: Time and the Brain (pages 86–103)

What's the Point? (page 92)

Part I (page 92)

1. F 2. T 3. F 4. T 5. F 6. F 7. F 8. T 9. T 10. F

Part II (page 93)

1. c 2. e 3. f 4. d 5. a 6. b

Understanding Words and Phrases (page 93)

Part I (page 93)

Answers will vary.

Part II (page 94)

Answers will vary.

Grammar Check (page 95)

Exercise 1 (page 98)

1. Exercising regularly is good for you.
2. Climbing mountains is dangerous, especially in the winter.
3. Learning to ride a bicycle takes a long time. Once you learn, riding it is easy.
4. Is asking a lot of personal questions impolite if you don't know the person very well?
5. Figure-skating beautifully is not as easy as it looks.
6. Is learning a foreign language more difficult for an adult than for a child?
- 7.–12. Answers will vary.

Exercise 2 (page 99)

- | | |
|--|--|
| 1. to get on | 9. going shopping; going sightseeing |
| 2. describing | 10. taking care of |
| 3. to go bowling | 11. enrolling; investing |
| 4. hiking (<i>or</i> to hike); swimming | 12. sleeping |
| 5. to see | 13. laughing |
| 6. solving | 14. driving; seeing |
| 7. staying; traveling | 15. reaching; following; asking |
| 8. swimming; learning; to catch | 16. spending <i>or</i> to spend; watching; playing |

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Exercise 3 (page 100)

1. gerund
2. gerund or infinitive
3. infinitive
4. gerund
5. gerund
6. gerund (doing something)
7. gerund
8. gerund or infinitive
9. gerund
10. gerund

Exercise 4 (page 101)

2. stand (somewhere) + watching
3. decide between + (gerund and gerund)
4. spend an hour + explaining
5. avoid + going dancing
6. have trouble + understanding
7. catch (someone or something) + hiding
8. hate + going camping *or* to go camping
9. delay + doing laundry
10. continue + playing *or* to play

Unit 7: Engineering Achievements (pages 104–18)

Search Your Knowledge (page 104)

Answers for 1, 3, 4, and 5 will vary.

2. Answers will vary but could include the following: Engineers use math and science to solve technological problems. They design and build cars, bridges, buildings, computers, power plants, TVs, etc.; they make drugs, foods, materials, etc.

What's the Point? (page 111)

Part I (page 111)

1. Neil Armstrong is an astronaut (the first person to walk on the moon, in 1969) and an engineer.
2. In February, around George Washington's birthday. In 1951.
3. Because it is used in almost everything we do in modern society.
4. The number of nominated achievements was 105.
5. 32 (29 engineering societies, plus the National Academy of Engineering, the American Association of Engineering Societies, and National Engineers Week).
6. To honor outstanding engineers, to advise the federal government, to encourage education and research.

Part II (page 111)

1. a
2. b
3. d
4. a
5. c

Understanding Words and Phrases (page 113)

- | | |
|------------------|----------------|
| 1. underlie | 7. delighted |
| 2. enormous | 8. pursuit |
| 3. struggle | 9. unbiased |
| 4. hospitable | 10. autonomous |
| 5. profound | 11. sweltering |
| 6. deliberations | |

Mr. Eiffel's profession: engineering

Grammar Check (page 114)

Part I (page 114)

Answers will vary.

Exercise 1 (page 115)

Answers will vary.

Exercise 2 (page 115)

Answers will vary.

Part II (page 115)

Exercise 1 (page 117)

2. The children shouted happily that they wanted cake.
3. The teacher announced that today the class would end early.
4. Maria asked quietly whether I was sure.
5. He told the doctor that his son had been sick for five days and (that) he was very worried about him.

Exercise 2 (page 117)

Answers will vary.

Expansion Activities (page 118)

Words that can be made from commonplace:

a, ace, acne, ale, am, amp, ample, an, ape, calm, cam, came, camel, camp, can, cane, cap, cape, capon, clam, clamp, clan, clap, clean, clone, coma, come, comma, cone, cool, coop, cop, cope, lace, lame, lamp, lance, lane, lap, lean, leap, lemon, loan, lone, loom, loon, loop, lop, lope, mace, male, man, map, me, meal, mean, melon, men, moan, moon, mope, name, nap, nape, no, on, one, opal, pace, pal, pale, palm, pan, pane, panel, peal, pen, poem, pole, pool

Unit 8: Science News and Fun (pages 119–47)

Search Your Knowledge (page 119)

Answers to 1, 2, and 4, will vary.

3. Answers will vary but could include the following: ask your teacher; ask a librarian in a public or college library; look in a local newspaper; call the local radio or TV station; search the Internet.

Part 1: Story Summary 1—“Smell” (page 121)

What’s the Point? (page 122)

1. T
2. T
3. F
4. F

Understanding Words and Phrases (page 123)

Part I (page 123)

1. c
2. b
3. a
4. a
5. b
6. c

Part II (page 123)

1. A nose. To sniff means to smell, especially to suck air through the nose in order to smell. Dogs are well-known for sniffing.
2. anosmic = unable to smell at all; odor blindness = inability to smell certain scents that others can smell.
3. Color blindness is the inability to see or distinguish certain colors.

Grammar Check (page 124)

Example (page 124):

Father: Mmm, it smells great! Is Mom baking a cake?

Son: Yeah (*or* Yes)! It’s for my birthday!

Exercise 1 (page 125)

1. What’s that noise? Do you see anything outside?
2. When I count to three, start running. Are you ready?
3. A: Hey, it’s almost one o’clock. Are you hungry?
B: I’m starving! Are you (hungry)?
4. Good luck on your test! I hope you get an A.
5. A: Where’s Mary? Is she coming?
B: Yeah (*or* Yes), she is late as usual.

Exercise 2 (page 125)

1. Where's Gina? (She) Not feeling well?
2. (You) Tired?
3. See you tomorrow. Hope your friend can come too!
4. (Looks) Beautiful. (You) Make it yourself?
5. A: Cute card. Maggie write it?
B: Yeah (*or* Yes), at school.
6. A: Whose turn? Mine?
B: No, Pete's.

Part 2: Story Summary 2—"Global Climate Change" (page 127)

What's the Point? (page 128)

1. b 2. c 3. a 4. b

Understanding Words and Phrases (page 129)

1. Examples of fossil fuels: natural gas, heating oil, coal, gasoline. They are called fossil fuels because they come from remains of ancient plants and animals.
2. Words that contain the root *therm*: *thermometer*, *thermostat*, *thermos*
3. Examples of mandated things: laws in society, company policies, school rules, etc. They can be mandated by governments, company managers, university presidents, etc.
4. Massive things: a huge building, a mountain, a redwood tree, Earth, etc.

Grammar Check (page 130)

Exercise 1 (page 132)

Adjective phrases are underlined.

1. The car parked in front of the automobile dealership is a hybrid electric car.
2. Our neighbor's dog barks at everyone walking by the house.
3. Do you like the restaurant on the corner of Salem Street and Prince Street?
4. Oh no! The train just leaving the station was ours!
5. Mr. and Mrs. Dean, my neighbors, are kind and generous people.
6. The criminal guilty of the armed robbery, committed two years ago, is now in jail. (*two adjective phrases*)
7. The Ledyard Bridge, which we are crossing now, was rebuilt several years ago.
→ the adjective clause cannot be changed to a phrase
8. The Connecticut River, separating New Hampshire and Vermont, is full of wildlife.
9. All the children waiting in line to see Santa Claus get a lollypop.

18 Answer Key

10. Yes, this is the museum (which) I visited two years ago.
→ the adjective clause cannot be changed to a phrase
11. The patients staying in this hospital, a teaching hospital established 200 years ago, are treated by both senior physicians and residents in training. (*four adjective phrases*)
12. Our cat, which we got five years ago, is good at hunting mice getting into the attic.
→ the first adjective clause cannot be changed to a phrase

Exercise 2 (page 133)

Adjective clauses are underlined.

1. The woman who is wearing a straw hat and carrying a briefcase is my chemistry professor.
2. The flowers that are in our garden, which is a small and sunny spot that is in the backyard, are native to this region.
3. The articles that are published in this magazine were thoroughly reviewed by independent scientists, who do similar research.
4. The athletes, who were eager to begin the competition, were waiting in the small locker room which is reserved for visiting teams.
5. Anyone who wishes to travel during the busy holiday season should allow extra time which is needed for security checks.

Exercise 3 (page 134)

Adjective phrases and clauses are underlined.

1. Robertson Davies, a well-known Canadian writer, is one of my favorite authors.
2. For breakfast, we ate a few pieces of cake containing dry fruit and nuts.
3. Paul, wanting to impress his girlfriend, took her to a very expensive restaurant in a beautiful part of town. (two phrases)
4. I still haven't finished reading the book that I started reading two months ago.
→ the adjective clause cannot be changed to a phrase.
5. This summer, I'm going to drive my new car, which I haven't bought yet, to visit my cousins on the west coast.
(→ the first adjective clause cannot be changed to a phrase.)

What's the Point? (page 138)

1. a. Potato starch is used to replace vinyl and acrylic.
b. It is cheap and environmentally safe.
c. Yes.

2. a. enzymes
 - b. in fungi and buttermilk
 - c. Department of Energy, Pacific Northwest Laboratory

Grammar Check (page 140)

Exercise 1 (page 142)

1. Type 1, after certain verbs; verb *cause*
2. Type 2, expression of purpose—*in order to*
3. Type 1, after certain verbs; verb *hope*
4. Type 3, *it* as the subject of a sentence. (It is tough **to pry** one of these things off a rock.)
5. Type 2, expression of purpose—*in order to*
6. Type 1, after certain verbs; verb *try*
7. Type 2, expression of purpose—*in order to*
8. Type 4, after a relative pronoun that has a particular purpose

Exercise 2 (page 143)

- | | |
|----------------------------------|---|
| 1. to hear <i>or</i> hearing | 9. to drive |
| 2. to believe | 10. to win; working; to help |
| 3. to do | 11. to look up; to understand |
| 4. to exercise; to gain | 12. to avoid; driving |
| 5. seeing; to discuss; expanding | 13. to get caught <i>or</i> getting caught; to take |
| 6. to take | 14. to visit |
| 7. deciding; to quit | 15. to sing <i>or</i> singing; to sing <i>or</i> singing; to stop |
| 8. to teach; to play | 16. to watch |

Unit 9: Our Future (pages 148–79)

Section 1: Injectable Tissue Engineering (page 154)

What’s the Point? Section 1 (page 164)

1. T 2. T 3. F 4. F 5. T 6. T 7. F 8. T 9. T 10. F

Understanding Words and Phrases, Section 1 (page 165)

- | | |
|---------------|----------------|
| 1. underwent | 7. exploit |
| 2. implanted | 8. bounds |
| 3. transplant | 9. frontier |
| 4. scaffold | 10. feasible |
| 5. invasive | 11. infused |
| 6. treatment | 12. to enhance |

Section 2: Nano Solar Cells (page 156)

What's the Point? Section 2 (page 166)

1. b 2. d 3. d 4. a 5. c 6. a 7. c

Understanding Words and Phrases, Section 2 (page 168)

1. a 2. d 3. d 4. a 5. b 6. d 7. b 8. a

Section 3: Grid Computing (page 158)

What's the Point? Section 3 (page 170)

1. *internetworking protocols*, which created a network of networks
2. any two computers, using internetworking protocols
3. any two documents could be linked, using hypertext transfer protocols
4. different databases, computing programs, simulation tools, etc.
5. similarity with the electric grid, which distributes electric power
6. Argonne National Laboratory and the University of Southern California
7. find, access, and use various computer resources
8. of secret log-in procedures and incompatible software
9. genetics research, earthquake engineering, emergency response, etc.
10. industry—private companies like IBM, Sun Microsystems, Microsoft
11. peer-to-peer computing (to activate desktop computers that are not in use)
[and] Web services (to access distant computer resources)

Understanding Words and Phrases, Section 3 (page 171)

Part I (page 171)

1. d 2. a 3. e 4. b 5. c

Part II (page 172)

1. b 2. a 3. a 4. c 5. b 6. b 7. c 8. a 9. c 10. b 11. a 12. c

Section 4: Software Assurance (page 160)

What's the Point? Section 4 (page 172)

1. A software bug can be dangerous when the program runs a complex system, with several large and important components, as in a hospital or at an airport.
2. No.
3. They are developing a computer language and programming tools for creating software without errors.
4. They work at MIT (Laboratory for Computer Science).

5. Yes. For example, IBM, Microsoft, Sun Microsystems; also see chart in Section 4 (Bell Labs, Mitre, others).
6. An abstraction is an overall summary of a computer program, particularly its goals.
7. They all begin with an abstraction and end with more specific program steps.
8. They developed a mathematical model to test an abstraction, and they created a special computer language to write temporary pseudocode.
9. No, some believe that it is not possible.
10. If we can reduce human interaction, we can reduce software errors and make systems more reliable.

Understanding Words and Phrases, Section 4 (page 173)

Part II (page 174)

1. d 2. c 3. e 4. a 5. b 6. f (also b)

Section 5: Quantum Cryptography (page 162)

What's the Point? Section 5 (page 174)

1. T 2. F 3. F 4. T 5. T 6. F 7. T 8. F 9. T

Understanding Words and Phrases, Section 5 (page 175)

1. c 2. e 3. a 4. f 5. g 6. b 7. h 8. d

Grammar Check (page 176)

3. Italian language student: (a) a language student from Italy; (b) a student of Italian language
4. large family car: (a) a large car for the whole family; (b) a car for a large family
5. French bread baker: (a) a bread baker from France; (b) a baker of French bread
6. beef and vegetable soup: (a) two dishes: (1) beef, (2) vegetable soup; (b) one dish: a soup made from beef and vegetables
7. old furniture store: (a) an old store that sells furniture (furniture may be new or old); (b) a store that sells old furniture (the store may be new or old)
8. two family houses: (a) two houses, each house for a family; (b) multiple (2 or more) houses, each house for two families