

UNIT 1 IMAGES OF LIFE

WARM UP

Possible answer(s):

1. I usually take selfies, and photos of my friends and the places we visit.
2. A photograph gives an accurate portrayal of a scene. It shows details, colors, and expressions on people's faces and their actions.

READING 1A THE VISUAL VILLAGE

Before You Read

A. 1. document; 2. amateur; 3. photojournalist

B. b

Reading Comprehension

A. 1. d (Para D); 2. a (Para E); 3. c; 4. b; 5. d

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

Reading Skill

A. 1. a; 2. a; 3. b; 4. b; 5. a; 6. b

B. 1. a; 2. a; 3. a; 4. b

Critical Thinking

Possible answer(s): **Pros:** Filters can show a more dramatic image to evoke a stronger reaction. **Cons:** Filters can show a false reality. **Your opinion:** I think photojournalists should be allowed to use filters to an extent. I think dramatic images should be fact checked, or there should be some type of system in place where photographers are held accountable for fake images.

Vocabulary Practice

A. 1. dramatic; 2. embrace; 3. instantly; 4. obsessed; 5. controversial

B. 1. b; 2. a; 3. a; 4. b; 5. a; 6. b

C. 1. athletic, genetic; 2. democratic; 3. dramatic

READING 1B MY JOURNEY IN PHOTOGRAPHS

Before You Read

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

B. Possible answer(s): It is difficult to get the "right" photo so you'd have to be very patient and work odd hours. You might have to endure long journeys to find subjects to photograph.

Reading Comprehension

A. 1. b; 2. c (Para B); 3. a (Para C); 4. c (Para H); 5. d (Para J)

B. 1. b; 2. a; 3. a; 4. b; 5. b; 6. b

Reading Skill

A. 1. a; 2. c; 3. c; 4. b; 5. c

B. 1. a camera; 2. two years; 3. director of photography; 4. Bermuda; 5. She wanted her pictures to make a real difference in people's lives.

Critical Thinking

- Possible answer(s): I think this means that women are an integral part of society. They are just as important as men. Without them, life couldn't exist.
- Possible answer(s): Women take care of many things inside and outside of the home. They are smart and innovative. Women bear children and take care of them. They also have big ideas and are determined to improve their lives and their family's.

Vocabulary Practice

A. 1. project; 2. enrich; 3. portrait; 4. turns out; 5. thus

B. 1. overcome; 2. expectation; 3. sincere; 4. tuition; 5. teamwork; 6. enrich

C. Possible answer(s): hence, consequently, for this reason, therefore, so.

VIDEO A PHOTOGRAPHER'S LIFE

Before You Watch

A. Possible answer(s): **1.** I think Griffiths likes to take photos of people around the world enjoying their everyday lives. **2.** I think Griffiths wants to show people's unique lives, but also show that people all over the world are similar.

B. 1. different; **2.** people; **3.** listen; **4.** connections; **5.** opportunity; **6.** better

While You Watch

A. See answers in Before You Watch B.

B. 1. a; **2.** b; **3.** b; **4.** a

Critical Thinking

- Possible answer(s): world history
- Possible answer(s): I was inspired to study archeology when I learned about the ancient world.

UNIT 2 NATURAL ATTRACTION

WARM UP

Possible answer(s):

1. chameleons, poison dart frogs, blue morpho butterfly, scarlet macaw, toucan, lionfish, mandrill
2. The characteristics can help the animals survive through camouflage, or by scaring predators away.

READING 2A LIVING LIGHT

Before You Read

- A. Possible answer(s): fireflies, jellyfish, squid, some types of worms
B. Possible answer(s): for protection, to find prey, to attract a mate

Reading Comprehension

A. 1. b (Para A); 2. c; 3. c; 4. b; 5. d (Para G)

B. 1. NG; 2. T; 3. F (shrimp eat dinoflagellates); 4. F (the canoe movement causes dinoflagellates to light up); 5. NG

Reading Skill

A. 1. mate; 2. upper; 3. bellies; 4. startle; 5. escape; 6. predator; 7. dinoflagellates

Critical Thinking

Possible answer(s): I think puffin beaks might glow in the dark to attract prey. / I think puffins beaks glow to attract a mate in the breeding season. / I think the parent puffins have glowing beaks to direct the young chicks to the food in their beaks.

Vocabulary Practice

- A. 1. astonishing; 2. flash; 3. predators; 4. disturbed
B. 1. down; 2. can; 3. high; 4. affects a result; 5. warmer; 6. cannot
C. 1. descend; 2. ascend; 3. crescendo; 4. transcend

READING 2B FEATHERS OF LOVE

Before You Read

- A. It is very colorful, with interesting patterns. It also has a very funny-looking tail!
B. a, b, d

Reading Comprehension

A. 1. b; 2. c; 3. a (Para K); 4. c (Para K); 5. d

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

Reading Skill

A. 1. P, M; 2. S; 3. M, P; 4. S; 5. P, M

B. 1. as black as the night sky; 2. some even have a dimmer switch; 3. it would be like trying to swim through syrup; 4. looking like meteors; 5. the water is part of the sky, and you are paddling through the stars

Critical Thinking

- Possible answer(s): The writer is emphasizing 1. how dark the lower layers of the ocean are; 2. how the creatures can adjust the brightness of their light; 3. How difficult it is for dinoflagellates to swim quickly; 4. How beautiful the streak of light from the fish is; 5. that the dark sea looks like the night sky above, and the bioluminescent creatures in the water look like stars in the sky
- Possible answer(s): as wise as an owl, as bright as a lightbulb, like a whirlwind of energy, as fast as a lightning bolt

Vocabulary Practice

- A. 1. ritual; 2. prominent; 3. bounces; 4. absurd
B. 1. breed; 2. commence; 3. undergo; 4. harsh; 5. noble; 6. evolution
C. 1. stability; 2. reliable; 3. hostile; 4. mobility

VIDEO JELLYFISH

Before You Watch

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

While You Watch

A. a, c, e

B. 1. sea jellies; 2. polyp; 3. venomous; 4. water; 5. evaporate; 6. beaches

Critical Thinking

Possible answer(s): I think bioluminescence can help jellyfish attract prey. Since jellyfish are mostly transparent, I don't think they would need to use light as a form of camouflage.

UNIT 3 FOOD AND HEALTH

WARM UP

Possible answer(s):

1. food that isn't cleaned or prepared properly; foods that are high in fat and sugar
2. by finding ways to grow crops in more diverse areas; by teaching more people to farm their land; by genetically modifying more crops to be disease-resistant

READING 3A HOW SAFE IS OUR FOOD?

Before You Read

A. 1. sanitary; 2. bacteria; 3. immune systems; 4. foodborne

B. Possible answer(s): Food and water contaminated with bad bacteria such as *E.coli* and *salmonella* cause food poisoning. To avoid this, we can wash all fruit and vegetables, cook food enough to kill bacteria, and keep food preparation areas clean.

Reading Comprehension

A. 1. c; 2. d; 3. a (Para F); 4. a (Para H); 5. b (Para I)

B. 1. NG; 2. T; 3. T; 4. F (the mangoes were washed in contaminated water); 5. T

Reading Skill

A. I forgot about the appointment; 2. The medicine in our cabinet was old; 3. I had a stomachache; 4. new health guidelines; 5. improper hand washing

B. 1. c (Para C); 2. e (Para D); 3. b (Para G); 4. d (Para H); 5. a (Para I and Para J)

Critical Thinking

- fruits and vegetables; chickens
- Possible answer(s): employing these methods might be expensive; farmers need to be taught about these methods, and there might be cultural and language barriers that prevent them from understanding the information.

Vocabulary Practice

A. 1. compulsory; 2. integral; 3. nationwide; 4. determined; 5. contaminated; 6. infection

B. 1. a; 2. b; 3. a; 4. b

C. 1. nation; 2. city; 3. world

READING 3B THE BATTLE FOR BIOTECH

Before You Read

A. Possible answer(s): biotech foods might cause health issues in humans and dangers to the environment

B. 1. biotech foods appear to be safe or even safer than conventional varieties; 2. People have mixed opinions; 3. although there are skeptics, many scientists think so

Reading Comprehension

A. 1. b; 2. d (Para C); 3. a (Para D); 4. d; 5. a

B. 1. b; 2. d; 3. c

Reading Skill

A. Possible answer(s): **Arguments for:** good history, safe for humans, environmental benefits, increased crops;

Arguments against: unexpected consequences, environmental risks, unproven benefits

B. 1. thousands; 2. higher risk; 3. natural; 4. chemical; 5. unexpected health effects; 6. adequately tested

Critical Thinking

- Possible answer(s): **Evidence for:** good history: problems have been few; safe for humans: potential to improve the quality and nutritional value, safer than conventional varieties; environmental benefits: may actually be good for the land; increased crops: can help address the urgent problems of food shortage and hunger; **Evidence against:** unexpected consequences: rushed to market, harmful proteins; environmental risks: developed too quickly and released before they've been adequately tested; unproven benefits: the benefits of golden rice have been exaggerated
- Possible answer(s): I eat genetically modified food in the conventional sense. For example, I choose the biggest, juiciest tomatoes at the market, and I know these have been genetically modified over thousands of years. But I don't like the idea of genetically modified food in which rat genes are inserted into vegetables, for example, because I don't feel the health effects are fully known.

Vocabulary Practice

A. 1. modified; 2. revolution; 3. allergic; 4. notwithstanding

B. 1. good; 2. a choice; 3. little; 4. the usual; 5. size; 6. smaller

C. 1. decline; 2. lessen; 3. reduce; 4. fade

VIDEO IS OUR FOOD SAFE?

Before You Watch

A. Possible answer(s): Food can be contaminated when it's being grown; for example, if dirty water is used or if the conditions aren't sanitary. Food can also be contaminated when it's being prepared if the kitchen isn't clean or if the food isn't heated or stored properly. Contaminated food can make us vomit or cause a fever.

B. 1. globalization; 2. hard to tell; 3. unreported

While You Watch

A. a, c

B. 1. 128,000; 2. 3,000; 3. 3,000; 4. sprouts; 5. 53; 6. 15

Critical Thinking

Possible answer(s): **1.** 3 (some chemical pesticides are necessary to rid crops of toxins); **2.** 5 (this could hold restaurants more accountable); **3.** 3 (the risks might be similar in both environments)

UNIT 4 DESIGN AND ENGINEERING

WARM UP

Possible answer(s):

1. Sydney Opera House, Taj Mahal, Burj Khalifa, The Guggenheim, the Pompidou Center, The Gherkin, One World Trade Center, Casa Milà; the architects might have been inspired by nature, height, or vastness.
2. a water filter based on rocks, a wind turbine based on humpback whales, Velcro, a device for harvesting water based on a beetle

READING 4A DESIGN BY NATURE: BIOMIMETICS

Before You Read

- A.** 1. draw inspiration; 2. incredibly complex; 3. have the potential; 4. specific purpose
B. 1. a biologist who studied the thorny devil; 2. The thorny devil lizard has the ability to get water to travel from its foot across its body and into its mouth to drink. 3. make a device to help people collect water in the desert

Reading Comprehension

A. 1. b (Para A); 2. c (Para E); 3. a; 4. a (Para G); 5. d

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

Reading Skill

A. 1. b; 2. c; 3. a

B. 1. B; 2. F; 3. G; 4. H

Critical Thinking

Possible answer(s): beavers that have waterproof fur: a type of coat that can keep you dry and warm in freezing waters.

Vocabulary Practice

A. 1. nonetheless; 2. insight; 3. gaps; 4. vertical; 5. gradually

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

C. 1. importance; 2. absolutely; 3. role

READING 4B WEAVING THE FUTURE

Before You Read

A. 1. Textiles; 2. fiber; 3. Synthetic

B. Possible answer(s): waterproof clothing, wearable electronics, invisibility uniforms

Reading Comprehension

A. 1. b; 2. c (Para D); 3. a; 4. c; 5. a

B. 1. E; 2. B; 3. K; 4. F; 5. A

Reading Skill

A. 1. A; 2. SU; 3. RF; 4. A; 5. RP

B. 1. active; 2. smart; 3. smart apron; 4. invisible; 5. innovators

Critical Thinking

Possible answer(s): to monitor your blood sugar if you have diabetes; to measure calories; to check your vital signs

Vocabulary Practice

A. 1. thereby; 2. suspended; 3. rigid; 4. fantasy

B. 1. portable; 2. fraction; 3. appliance; 4. foresee; 5. forthcoming; 6. manufacturing

C. 1. cast; 2. sight; 3. front

VIDEO ROBOTIC HANDS

Before You Watch

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

B. Possible answer(s): This robot looks much softer. The bristles are curved, which would cause less damage to marine life.

While You Watch

A. a, b

B. 1. T; 2. T; 3. F; 4. F; 5. T

Critical Thinking

- Possible answer(s): a worm can regenerate when it gets cut in half; a chameleon can change color to show its mood; a seahorse's tail can grasp objects with amazing strength
- Possible answer(s): scientists could study how a seahorse's tail works to invent a prosthetic arm for humans

UNIT 5 HUMAN JOURNEY

WARM UP

Possible answer(s):

1. All humans today can be traced back to Africa; they migrated in waves throughout the world over many thousands of years.
2. DNA; archeological evidence such as bones and man-made items such as tools; mummified bodies preserved in snow.

READING 5A THE DNA TRAIL

Before You Read

- A.** 1. Africa; 2. South America; 3. Asia; 4. Europe
B. genetic mutations; archeological evidence; genetic traces in the DNA of indigenous people

Reading Comprehension

- A.** 1. c; 2. a; 3. b (Para G); 4. a; 5. d
B. 1. d; 2. c; 3. e; 4. b; 5. a

Reading Skill

- A.** 1. arrow pointing toward the migration date of *200,000 years ago*; 2. arrow pointing toward the migration date of *70,000–50,000 years ago*; 3. arrow pointing to the migration route heading toward Australia; 4. arrow pointing toward *Lake Mungo*, Australia; 5. Arrow pointing toward the migration date of *20,000–15,000 years ago*
B. 1. It gives an alternative theory by stating that Europe might have been settled by an inland migration from India instead of directly from the Middle East. 2. The “broad human prehistoric framework” that Forster refers to is the same thing as the “basic outlines of a story of human migration” mentioned in paragraph K. 3. Possible answer(s): Genetic traces of the group that made the 13,000-kilometer migration from Africa to Australia exist in the DNA of indigenous peoples of Malaysia, Papua New Guinea, and nearly all Australian aborigines. Archeological evidence has also been found at Lake Mungo, Australia, supporting this genetic link.

Critical Thinking

- Possible answer(s): jobs, love, education
- Possible answer(s): **Positive effects:** people bring money and diversity to the new economy; **Negative effects:** the job market in the new economy becomes more competitive, and local people have a harder time finding work

Vocabulary Practice

- A.** 1. roughly; 2. calculate; 3. scattered; 4. immense; 5. bulk; 6. vanished
B. 1. bulk; 2. identical; 3. trace; 4. descendant; 5. rate
C. 1. unemployment; 2. success; 3. steady; 4. alarming

READING 5B FANTASTIC VOYAGE

Before You Read

- A.** Possible answer(s): 1. They may have been searching for food. They may have been adventurers. 2. They might have followed stars or sea creatures, or seen smoke from distant lands.
B. Students’ own answers

Reading Comprehension

- A.** 1. a; 2. b; 3. c (Para H); 4. b (Para H); 5. a
B. 1. T; 2. F (The Lapita sailed as far east as Samoa and Tonga); 3. T; 4. NG; 5. F (They reached South America by A.D. 1000)

Reading Skill

- A.** 1. F; 2. F; 3. S; 4. S; 5. S
B. 1. S (It is also possible ...); 2. F; 3. S (Scientists believe ...); 4. F

Critical Thinking

- Possible answer(s): Astronauts want to explore space. Divers want to explore the oceans.
- Possible answer(s): No, I don’t think I would like to join an expedition to another planet. I think the risks are too high, and there’s enough to see here on Earth!

Vocabulary Practice

A. 1. stretched; 2. intervals; 3. navigated; 4. clues; 5. disrupts

B. 1. is observable; 2. similar; 3. complete; 4. earth and sky; 5. difficult

C. 1. famous; 2. continuous; 3. courageous

VIDEO CAVE ARTISTS**Before You Watch**

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

B. Possible answer(s): to tell stories; to create art; for religious purposes

While You Watch

A. a, b, d, f

B. 1. Spain; 2. 40,000; 3. Ice; 4. black; 5. communication

Critical Thinking

Yes, I think it's worth the time and effort because it teaches us more about our ancestors. By learning about them, we can understand more about ourselves.

UNIT 6 MONEY AND TRADE

WARM UP

Possible answer(s):

1. I usually pay for things by card. I don't usually carry cash around.
2. It depends on the amount, but I usually pay by card. I think it's more convenient, and there's always a paper trail in case you need to refer to the transaction. I don't carry a lot of cash because I don't want to lose it. It's easier to replace a lost credit card.

READING 6A HOW MONEY MADE US MODERN

Before You Read

- A.** 1. Inflation; 2. Foreign exchange; 3. credit card; 4. bill
B. Possible answer(s): I think people used coins and objects like shells and bird feathers in ancient times. They also bartered and exchanged goods.

Reading Comprehension

A. 1. b; 2. d (Para A); 3. c (Para H); 4. c (Para J); 5. a (Para M)

B. Commodity Money: a, c, e, f; **Fiat Money:** b, d, g

Reading Skill

A. 1. Naming; 2. Quoting; 3. Defining; 4. Reporting; 5. Cause-Effect; 6. Condition

B. Naming: In 2009, yet another high-tech successor to money emerged: Bitcoin. **Defining:** Bitcoins are a sort of unofficial virtual Internet currency. **Quoting:** Parag Khanna, a financial policy expert, explains: "The real future is technology as money. That's what Bitcoin is about."

Critical Thinking

- Possible answer(s): **Pros:** all transactions can be traceable; there is less risk of losing money; **Cons:** people might run up debt more easily; there might be more cases of identity theft.
- Possible answer(s): I think the types of transactions to go cashless first will be in places like busy sandwich shops with a high volume of customers. Payments made with cards or phones could speed-up transactions and reduce queues.

Vocabulary Practice

- A.** 1. payment; 2. convenience; 3. transactions; 4. policy; 5. judged; 6. trigger
B. 1. fairly constant; 2. oil and natural gas; 3. nodding your head; 4. basically
C. 1. strict; 2. insurance; 3. company; 4. public

READING 6B THE RISE OF VIRTUAL MONEY

Before You Read

A. 1. years; 2. trillion; 3. 11

B. Possible answer(s): Virtual currency is a type of digital currency that is accepted electronically; it can be very unstable, but it's easy to make international money transfers for lower fees

Reading Comprehension

A. 1. c; 2. b; 3. c; 4. c; 5. a

B. 1. T; 2. NG; 3. F (One Satoshi is a fraction of a Bitcoin.); 4. T; 5. T; 6. NG

Reading Skill

A. 1. bank; 2. electronically; 3. coding; 4. blockchain; 5. 2009; 6. drugs; 7. Silk Road

B. Possible answer(s): **What is Bitcoin?:** eight decimal places → smallest is "Satoshi"; users solve math problems to "mine" → get paid → trade mined Bitcoins; **What are benefits of Bitcoin?:** speedy transactions, no payment delays; can make payment without PayPal or credit card; no need for bank account; **What are the drawbacks?:** lack of stability

Critical Thinking

Possible answer(s): No, I wouldn't. I would be too concerned about the fluctuation and stability of the currency.

Vocabulary Practice

- A.** 1. sophisticated; 2. principles; 3. scarce; 4. verify; 5. drawback
B. 1. in their body; 2. may have; 3. go to jail; 4. own; 5. part of a company
C. 1. principal; 2. principle; 3. principal

VIDEO TAKE THE MONEY... AND RUN?

Before You Watch

A. **1.** catch; **2.** in a flash; **3.** innate; **4.** no-strings-attached

While You Watch

A. c

B. Possible answer(s): **1.** offered people free money; **2.** took the money; **3.** booth / cash / money; **4.** took the money very quickly; **5.** a giant pair of eyes; **6.** Most people did not take the money.

Critical Thinking

- Possible answer(s): I think I would have reacted the same way the majority of people in the video did.
- Possible answer(s): Yes, I think so, because different cultures have different ideas about community. For example, some cultures expect to share their wealth more evenly, so the idea of “free” money might not be so strange.

UNIT 7 GROUP BEHAVIOR

WARM UP

Possible answer(s):

1. at festivals in my town, birthday parties, national events, concerts
2. Yes, I think we are kinder to people we meet in real life. Also, non-verbal communication is important, and you can't have eye contact or get other social cues online.

READING 7A POWERING THE PLANET

Before You Read

A. 1. Pilgrims; 2. overcrowded; 3. bathe

B. Possible answer(s): I think people who take part in this festival feel part of a bigger community, which has a positive effect on their health and well-being.

Reading Comprehension

A. 1. c; 2. d (Para C); 3. c; 4. a (Para F); 5. d

B. 1. long afterward; 2. shared identity; 3. psychological crowd; 4. station safer

Reading Skill

A. 1. b; 2. c; 3. a; 4. c; 5. c

B. 1. holy / sacred / devout; 2. push, around; 3. breaks down; 4. deter

Critical Thinking

- Possible answer(s): The pilgrims reported a 10 percent improvement in their health; less pain; less anxiety; higher energy levels.
- Possible answer(s): The effects of taking time off work or school can be very positive. Work and school are very demanding, and any break from a stressful situation will improve your health.

Vocabulary Practice

A. 1. organized; 2. participants; 3. sacred; 4. prospective

B. 1. moves onward; 2. clear; 3. community; 4. connect; 5. believe; 6. great

C. 1. Participants; 2. occupant(s); 3. servants; 4. descendants

READING 7B OUR ONLINE BEHAVIOR

Before You Read

A. Possible answer(s): 1. Yes, but only on my friends' posts. I comment on their photos and on their opinions. 2. Yes, I've seen a lot more bullying online in the past few years.

B. Possible answer(s): I think the best thing to do is delete a negative comment on something I posted. If someone else has posted something negative, I usually just ignore it.

Reading Comprehension

A. 1. b; 2. c (Para C); 3. b; 4. d; 5. b

B. 1. anonymity; 2. cooperation; 3. neurobiology; 4. online sources; 5. online aggression

Reading Skill

A. **Prefix only:** unfriend, unlock, Internet; **Suffix only:** apelike, successful, bitterness, global; **Both prefix and suffix:** interaction, expression, transformation; **Neither prefix nor suffix:** solo, argue

B. 1. nat, e; 2. tain, d; 3. equ, a; 4. vis, b; 5. temp, c

Critical Thinking

- Possible answer(s): make your friend aware that his or her online behavior seems aggressive; calmly discuss your different views with your colleague; block the stranger from having access to your accounts
- Possible answer(s): Yes, e.g., a group of people could all report the stranger to the social media site and get that person's account deleted.

Vocabulary Practice

A. 1. insulted; 2. harassment; 3. confront; 4. aggressive; 5. humanity

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

C. 1. financial; 2. coming under; 3. get away from; 4. constant

VIDEO SOCIAL CONFORMITY

Before You Watch

A. 1. b; 2. a; 3. c

B. Possible answer(s): Sometimes when one of my friends changes her hairstyle, other people change theirs as well; I noticed that a few of my co-workers became vegetarians, and soon many other people followed the trend.

While You Watch

A. b

B. 1. eye doctor; 2. stand up; 3. doesn't ask; 4. three; 5. continues to conform; 6. shows; 7. conform to the rules of the previous group

Critical Thinking

- Possible answer(s): I think I would have asked someone why they were standing up. I don't think I would have conformed.
- I'm surprised that the woman stood up even after the other people left the room! I can't believe that people would conform so quickly and easily.

UNIT 8 INVESTIGATIONS

WARM UP

Possible answer(s):

1. DNA testing, blood splatter patterns, fingerprint analysis, crime reports
2. Two girls disappeared in my town about 30 years ago, and the case has never been solved. They were walking home from school one afternoon and were never seen again.

READING 8A WHO KILLED THE EMPEROR?

Before You Read

A. 1. present; 2. Cancer; 3. prisoner

B. Possible answer(s): **Political Murder?:** Was Napoleon killed by the British and the French royalists? **Poisoned by His Wallpaper?:** Did the wallpaper in his house contain arsenic? **Doctors' Mistake?:** Did the doctor give him too large a dose of medicine? **Disease?:** Did Napoleon have cancer? **A Case of Revenge?:** Was he murdered due to his actions?

Reading Comprehension

A. 1. d; 2. a (Para C); 3. c (Para D); 4. b (Paras D and F); 5. d (Para H)

B. 1. F; 2. S (Para C: *In his view*); 3. F; 4. S (Para E: *it is likely*); 5. S (Para F: *Karch theorizes*); 6. S (Para H: *there were rumors*); 7. F

Reading Skill

A. 1. a; 2. a, b; 3. a; 4. a; 5. a, b

B. Possible answer(s): I think Napoleon must have been murdered, but the circumstances surrounding the murder are too vague to be sure. I read that there was arsenic found in his hair sample, but as we read in other paragraphs, the arsenic could have come from the wallpaper or from the seafood he ate. / Although some of the evidence is speculation, I think Napoleon was accidentally poisoned by arsenic. It's a known fact that his wallpaper contained arsenic.

Critical Thinking

- Possible answer(s): He means that because people like the stories so much, they would probably ignore any new facts found in a new investigation.
- Possible answer(s): think; we could possibly learn more about history if we used modern techniques to analyze the remains.

Vocabulary Practice

A. 1. poisonous; 2. cease; 3. Symptoms; 4. compelling; 5. dispute

B. 1. large and impressive; 2. not clear; 3. in secret; 4. never seems to stop; 5. wronged

C. 1. bitter disputes; 2. A dispute over; 3. in dispute; 4. beyond dispute

READING 8B IN THE CRIME LAB

Before You Read

A. 1. b; 2. c; 3. a

B. b, c, d

Reading Comprehension

A. 1. a; 2. d (Para B); 3. b (Para D); 4. c (Para F); 5. d (Para G)

B. 1. c; 2. b; 3. d; 4. f; 5. a

Reading Skill

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

B. 1. a; 2. c; 3. c; 4. a; 5. b

Critical Thinking

- Possible answer(s): He did not think they were good people. He called them *controlling, sneaky, scary, manipulative*, and said they have no conscience, sorrow, or remorse. These are all very negative traits.
- Possible answer(s): I agree with Poklis because a person who poisons someone has to think about it for a long time, then plan out how to do it.

Vocabulary Practice

- A.** 1. candidate; 2. manipulative; 3. alleged; 4. suspicions
B. 1. evaluate; 2. weird; 3. remorse; 4. deprived of; 5. frankly; 6. in terms of
C. 1. legal; 2. allege; 3. legislature

VIDEO BEATING A LIE DETECTOR

Before You Watch

- A.** 1. baseline; 2. interrogation; 3. spike
B. Possible answer(s): take deep calming breaths, take blood pressure medication, use mental imaging tactics to convince themselves that the lie is true

While You Watch

- A.** b, c
B. 1. F (you breathe faster); 2. T; 3. F (Aldrich Ames was super relaxed.); 4. T; 5. F (He failed the test.)

Critical Thinking

- Possible answer(s): 3
- Possible answer(s): Yes, I think so because there is scientific proof about the way the results are analyzed.

UNIT 9 REDISCOVERING THE PAST

WARM UP

Possible answer(s):

1. 3-D imaging, drones, carbon dating, DNA testing
2. Discoveries from the past teach us about our ancestors, which helps us understand more about who we are.

READING 9A VIRTUALLY IMMORTAL

Before You Read

A. Possible answer(s): **1.** There is an old historic building that used to be a stadium. The old post office has been rebuilt. **2.** Technology can be used to simulate how the buildings were originally built, and help engineers decide how to best complete restoration work. It can show images of what is inside sealed tombs without disturbing the ancient artifacts.

B. Possible answer(s): The building looks like it could be a temple or a home for an emperor.

Actual answer: It is a well.

Reading Comprehension

A. **1.** a; **2.** c (Para C); **3.** d; **4.** a (Para K); **5.** b

B. **1.** K; **2.** G; **3.** I; **4.** H; **5.** E

Reading Skill

A. **1.** ...*it is* a well; **2.** ...*the water seeps down*; **3.** ...the most magnificent *works of art*; **4.** ...*putting on* earrings; **5.** ...*leads into* the well itself

B. **1.** "Wise men speak because they have something to say; fools *speak* because they have to say something." **2.** "To err is human, to forgive *is* divine." **3.** "If you don't love something, you're not going to go the extra mile, *you're not going to* work the extra weekend, *you're not going to* challenge the status quo as much."

Critical Thinking

- Possible answer(s): the Taj Mahal; Machu Picchu; Stonehenge; the statues on Easter Island; the Pyramids; the Colosseum
- Possible answer(s): I think the Taj Mahal, the Pyramids, and the Colosseum because the history behind these three buildings is immense, and the time and cost of human life that went into building them should never be lost.

Vocabulary Practice

A. **1.** firsthand; **2.** gazed; **3.** stunned; **4.** garments; **5.** virtual

B. **1.** returns to you; **2.** after a friend dies; **3.** cutting into; **4.** put the pieces together; **5.** floor to ceiling

C. **1.** tour; **2.** reality; **3.** classroom

READING 9B LURE OF THE LOST CITY

Before You Read

A. Possible answer(s): Atlantis is a city rumored to have existed before it sank into the ocean. No one knows exactly where it was, or if it was actually a real place at all. People have been looking for Atlantis for centuries, and many theories exist about it today.

B. Possible answer(s): Researchers could use drones and GPS to try and map out this area. The main challenges would be overland travel through the dense jungle and finding clues they'd need to help guide them to the ancient city. There would also be wild animals.

Reading Comprehension

A. **1.** c; **2.** d (Para G); **3.** b; **4.** a (Para J); **5.** c

B. **1.** F (The Lost City of the Monkey God is also known as Ciudad Blanca. La Mosquitia is a region.); **2.** T; **3.** NG; **4.** T; **5.** F (Fisher's team didn't touch or remove anything.)

Reading Skill

A. **1.** legend; **2.** explorers; **3.** rain forest; **4.** items; **5.** divulge

B. **1.** reports; **2.** photographs; **3.** jungle canopy; **4.** laser beams; **5.** astonishing

Critical Thinking

Possible answer(s): No, I don't think they should use invasive techniques. **For:** to learn more about the history; museums could house the artifacts and they'd be well preserved; people could make a lot of money; **Against:** the environment would be ruined; the artifacts could be damaged; technology today can document the lost city without disturbing the land

Vocabulary Practice

A. 1. fascinated; 2. inhabitants; 3. legend; 4. uncover; 5. satellite; 6. extensive

B. 1. side; 2. a forest; 3. plants, trees, and flowers; 4. triangle

C. 1. folktale; 2. myth; 3. legend

VIDEO ARCHEOLOGY FROM SPACE

Before You Watch

A. 1. figure out; 2. pinpoint; 3. subtle; 4. state-of-the-art

While You Watch

A. a, b, c

B. 1. NG; 2. T; 3. F (within a few meters); 4. NG

Critical Thinking

- Possible answer(s): Citizens might be able to identify and locate sites that aren't obvious. They could have a different perspective on what the images actually show. By identifying potential sites quickly, this may stop sites from being looted and help archeologists to preserve these sites for the future.
- Possible answer(s): Yes, I would. I think satellite imagery is interesting, and I'd like to help contribute to archeological research in some small way.

UNIT 10 HEALTHY LIVING

WARM UP

Possible answer(s):

1. Maybe parts of South America and Scandinavia countries with easy access to nature and free or affordable healthcare
2. I think my lifestyle is healthier than that of my grandparents because of modern advances in medicine and better nutrition.

READING 10A LIVING LONGER

Before You Read

- A.** 1. gene; 2. centenarians; 3. diabetes
B. Students' own answers. Giuseppe Passarino's estimate: 25%.

Reading Comprehension

- A.** 1. a; 2. b (Para D); 3. c; 4. b (Para F); 5. d (Para J and Para K)
B. 1. their; 2. Indeed; 3. As

Reading Skill

- A.** 1. When asked about (the reasons) for his long life, he said he avoided drinking, smoking, and women, that he'd eaten mostly figs and beans while growing up and hardly ever any red meat; 2. (owing to) a gene that affects their sense of taste, and this gene gives them a taste for healthy bitter foods; 3. (because of) a gene that causes a condition called Laron syndrome; 4. (because of) a lack of roads, phones, and electricity; 5. (because) he knows he is immune to cancer and diabetes
B. 1. the reasons; 2. owing to; 3. because of; 4. because of; 5. because

Critical Thinking

Possible answer(s): How often do you exercise? What do you typically eat each day? What time do you go to sleep? What time do you wake up? Do you do group activities?

Vocabulary Practice

- A.** 1. passed down; 2. slight; 3. lifespan; 4. elderly
B. 1. large; 2. have; 3. the same kind; 4. won't; 5. long; 6. move to a new
C. 1. lifespan; 2. lifestyle; 3. lifelong; 4. lifelike

READING 10B IN SEARCH OF LONGEVITY

Before You Read

- A.** Possible answer(s): They have low-calorie, plant-based diets.
B. Students' own answers

Reading Comprehension

- A.** 1. c; 2. a; 3. b; 4. c; 5. c
B. 1. a, e; 2. d, g; 3. c, f

Reading Skill

- A.** 1. family; 2. twice; 3. homegrown; 4. alcohol; 5. 4; 6. Californian; 7. 87; 8. climate; 9. network
B. Quantitative data: **Sardinians:** 91 of 17,865 people born between 1880 and 1900 have lived to 100; rate is more than twice as high as national average; genetics— 80% directly related to first Sardinians; **Adventists:** drinking 5 glasses of water a day and eating 4 servings of nuts each week; live 4–10 years longer than the average Californian; **Okinawans:** average lifespan of 81 (men) and 87 (women); lower rates of cancer and heart disease than Americans. Remaining data is qualitative.

Critical Thinking

- Possible answer(s): I don't smoke. I exercise every day, and don't eat red meat. I have a lot of good friends, and I see my family regularly.
- Possible answer(s): I think it would be hard for me to grow all my own food, and I like to have a few glasses of wine every week. I don't think I could follow all of the advice here.

Vocabulary Practice

- A.** 1. longevity; 2. lean; 3. barely; 4. guideline; 5. ironic
B. 1. mustn't; 2. shouldn't; 3. hardworking; 4. special advantage; 5. free them from
C. 1. sense of; 2. disaster; 3. provide

VIDEO YOU ARE WHAT YOU EAT

Before You Watch

A. 1. c; 2. a; 3. b

B. Possible answer(s): olive oil, red wine, salad, pasta, nuts, figs, dates

While You Watch

A. c

B. b, c, e, f

Critical Thinking

Possible answer(s): I would consider living in Sardinia. I love the Mediterranean climate and food. I would love a more slow-paced lifestyle too, where I could have long relaxing meals with family and friends.

UNIT 11 GREEN SOLUTIONS

WARM UP

Possible answer(s):

1. I think I use more water because I usually take two showers every day.
2. I think it means that if you use things sparingly, you'll never be without them. In other words, you should conserve what you have. / I think it means don't waste anything because you might need it in the future.

READING 11A SAVING WATER

Before You Read

- A.** 1. 3; 2. farming; 3. 5,000; 4. the same amount of
B. Spain, India, and South Africa; water shortages due to wells being dug; lack of rain; lack of dams; broken water pipes and poor plumbing

Reading Comprehension

- A.** 1. c; 2. b; 3. a (Para G); 4. b; 5. b
B. 1. farming; 2. wells; 3. water; 4. dam; 5. raise / replenish; 6. wasted; 7. consumption / use; 8. dams

Reading Skill

- A.** 1. Julio Escudero; 2. Neil Macleod; 3. Sandra Postel
B. 1. b; 2. c; 3. b; 4. a; 5. b

Critical Thinking

Possible answer(s): **a firsthand account from a farmer:** Pro: he knows what the problems are; Con: he's biased; **research from a scientific journal:** Pro: trustworthy research; Con: not a firsthand account; **statistics from a government department:** Pro: well researched; Con: numbers could be skewed to suit the government's agenda; **a report from an environmental organization:** Pro: they probably know the subject well; Con: results could be biased to fit their agenda.

Vocabulary Practice

- A.** 1. surpass; 2. shortages; 3. crisis; 4. extent; 5. consumption; 6. diverted
B. 1. whereby; 2. related to; 3. inherit; 4. dedication
C. 1. revealed; 2. acknowledge; 3. know

READING 11B TECHNOLOGY AS TRASH

Before You Read

- A.** Possible answer(s): 1. I usually give it to an older family member or donate it. 2. They end up in a landfill somewhere; parts might be recycled and reused to make new devices.
B. Possible answer(s): too much waste in landfills, poisons the environment, causes health problems

Reading Comprehension

- A.** 1. c; 2. b (Para A); 3. d; 4. a; 5. b
B. 1. e; 2. d; 3. f; 4. c; 5. g; 6. a

Reading Skill

- A. Positive:** attractive, fortunately, ideal, valuable; **Neutral:** secretly, typical, ultimately; **Negative:** arrogantly, sadly, selfish
B. 1. – (sadly); 2. + (ideal); 3. – (the problem is); 4. – (distressing)

Critical Thinking

Possible answer(s): I don't think the writer is critical of the people in Ghana. I think the writer blames the people in developed countries for producing so much e-waste in the first place.

Vocabulary Practice

- A.** 1. infrastructure; 2. piles; 3. discarded; 4. substances; 5. toxic; 6. hazardous
B. 1. problems; 2. changes gradually; 3. told; 4. no longer useful
C. 1. toxic; 2. natural; 3. banned

VIDEO YOUR WATER FOOTPRINT

Before You Watch

- A.** Possible answer(s): **1.** T-shirt, socks, underpants; **2.** it is lightweight and easy to wash; **3.** towels, sheets, paper
B. Possible answer(s): Very large amounts of water and energy are used in the manufacturing, distribution, and care of cotton clothing. This has a negative impact on the environment.

While You Watch

- A.** See Before You Watch B.
B. 1. 2,700; **2.** 900; **3.** 5; **4.** 40; **5.** $\frac{1}{3}$

Critical Thinking

Possible answer(s): The government could insist on a water ban to help conserve water, and all families could use rain barrels instead of water hoses and sprinklers in the short term. In the longer term, dams and reservoirs could be built. Individuals could also spend less time in the shower and only use the washing machine when there is a full load.

UNIT 12 EARTH AND BEYOND

WARM UP

Possible answer(s):

1. We can learn more about how Earth was formed; we might find innovative ways to conserve our natural resources.
2. There are many interesting news stories about plans to travel to Mars. I also recently read an article about a large object that is not from our solar system traveling quickly past our Sun.

READING 12A PLANET HUNTERS

Before You Read

A. Possible answer(s): They might want to find out whether the exoplanets are similar to Earth. They want to see if there's any possibility of alien life.

B. a, b

Reading Comprehension

A. 1. c; 2. c (Para B); 3. d; 4. b; 5. a (Para L)

B. 1. F; 2. F; 3. F; 4. S ("may"); 5. F; 6. S ("would almost certainly")

Reading Skill

A. 1. a; 2. g; 3. c; 4. b; 5. e; 6. d

Critical Thinking

Possible answer(s): I think it's important to invest in space exploration, but only within our own solar system. We are destroying the environment on our planet, so humans need to find alternatives to our current climate crisis. Maybe we can find ways to inhabit Mars.

Vocabulary Practice

A. 1. To date; 2. atmosphere; 3. scope; 4. hence

B. 1. nuclear; 2. around and around; 3. similar to; 4. really; 5. not part; 6. the parts it is made of

C. 1. composed; 2. combine; 3. compared

READING 12B THE THREAT FROM SPACE

Before You Read

A. 1. crater; 2. meteorite; 3. diameter

B. 1. b (Para A); 2. d (Para C); 3. a (Para I); 4. c (Para K)

Reading Comprehension

A. 1. a; 2. c (Para B); 3. b (Para E); 4. b; 5. d (Para I)

B. 1. the Egyptian god of evil; 2. a bruised hip and wrist; 3. 85 kilometers wide; 4. Read newspapers outdoors; 5. one in 45,000

Reading Skill

A. 1. b; 2. a; 3. a; 4. a

B. 6. bigger than a sports arena; 3. grapefruit-sized; 4. the length of a car; 2. the size of an apple; 1. the size of grains of sand; 5. as big as a 15-story building

Critical Thinking

Possible answer(s): **Warn the public:** Pro: People could take steps to protect themselves. Con: If the public knew about it, they might panic and cause mass panic. **Consult experts while keeping it a secret:** Pro: People wouldn't know to panic, and hopefully the experts could divert the course of the asteroid. Con: The government might not hire the best "experts" to solve the problem. I think it would be best to keep it secret and hopefully find a way to change the course of the asteroid.

Vocabulary Practice

A. 1. Numerous; 2. smashed; 3. scenario; 4. catastrophic; 5. deflected

B. 1. rotates; 2. engage; 3. dilemma; 4. motor; 5. nuclear

C. 1. divided; 2. Dialog; 3. dilemma

VIDEO SHOOTING STARS

Before You Watch

A. Possible answer(s): they happen regularly; they're also called shooting stars; they are pieces of rock; they are brilliant and bright.

B. 1. b; **2.** c; **3.** a

While You Watch

A. b, c, d

B. 1. T; **2.** F (It heats up.); **3.** T; **4.** NG; **5.** T; **6.** NG

Critical Thinking

Possible answer(s): 2, 3, 1; I think asteroids present a real danger to the future of our planet. If Earth were to be hit with a large enough asteroid, we would become extinct like the dinosaurs, so I think it's the most important issue to concentrate on.