

# Workbook 4 Answer Key

## Unit 1

- 1 2 screw 3 axe 4 scissors 5 seesaw 6 wheel
- 2 2 axe 3 wheel 4 seesaw 5 can opener  
6 screw
- 3 2 wheels 3 technology 4 complex 5 screw
- 4 2 F 3 F 4 T
- 5 Students' own answers

### Lesson 1

- 1 force; distance
- 2 Students' own answers
- 3 1 design 2 machines 3 simple 4 complex
- 4 2 d 3 a 4 b 5 f 6 c
- 5 2 causes 3 moves 4 pulley 5 lever 6 axle
- 6 2 With a bicycle, you need less force to move than when you are on foot.  
3 The simple machines in a bicycle are wheels, levers, and pulleys.  
4 The levers and pulleys help your feet to move the wheels.  
5 More levers help the brakes to stop the bicycle.
- 7 2 A slide is an inclined plane. We use it to have fun.  
3 Scissors have a lever and a wedge. We use them to cut things.  
4 A wheelbarrow has a wheel, an axle, and a lever. We use it to carry things.

### Lesson 2

- 1 A coffee maker
- 2 2 F 3 F 4 F 5 T 6 T
- 3 2 Design 3 Test 4 Prototype 5 Evaluate  
6 Redesign
- 4 2 Carry Out Research  
3 Develop Possible Solutions  
4 Design and Construct a prototype  
5 Test the Prototype  
6 Communicate Results

- 5 2 was  
3 tested  
4 took  
5 evaluated  
6 applied  
7 redesigned  
8 made  
9 came
- 6 2 changed  
3 needed  
4 bought  
5 had  
6 play
- 7 Students' own answers

## Unit 2

- 1 2 seeds 3 pine cone 4 cactus 5 roots  
6 pollination
- 2 1 pollination 2 stem, seeds, roots 3 roots  
4 cactus
- 3 sun, air, rain, warm weather
- 4 Students' own answers
- 5 Students' own answers

### Lesson 1

- 1 2 a 3 b, d 4 c 5 b
- 2 The stem of a plant...  
has leaves, buds, flowers, and fruit (example)  
usually grows above ground.  
has tubes that move nutrients to and from the leaves.  
supports the leaves, flowers, and fruit.  
The roots of a plant...  
usually grow below ground.  
take in water and minerals from the soil.  
keep the plant stable in the ground.  
store food made by the plant.
- 3 Students' own answers

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- 4 2 nutrients 3 take in 4 minerals 5 soil  
6 store 7 water
- 5 1 The roots take all the nutrients the plant needs from the soil.  
2 from (eating) plants  
3 No, we can't.  
4 Suggested answers: water melon, melon, pumpkin, zucchini, tomatoes, lettuce, cucumber
- 6 Students' own answers
- 7 True
- 8 2 from 3 from 4 along 5 to 6 up
- 9 Students' own answers

## Lesson 2

- 1 1 seeds with parachutes  
2 germinating seed  
3 pollen  
4 pollen cone  
5 seed cone
- 2 2 d 3 b 4 e 5 a
- 3 Stage 2: The seed germinates. A stem grows up and roots grow down.  
Stage 3: A seedling grows into an adult tree with cones. Some of the cones make pollen and some of the cones make seeds.  
Stage 4: The wind pollinates the cones. It carries pollen from the pollen cones to the seed cones.  
Stage 5: The seeds fall to the ground. The seeds can become new trees.
- 4 2 a 3 f 4 e 5 d 6 b
- 5 2 Any 3 many 4 Some 5 Any 6 many
- 6 Suggested answers:  
1 cactus  
2 First, you check if it gets enough light. Also see if it needs more or less water. Make sure that the room isn't too hot or too cold.  
3 Take seeds from an apple from this tree and plant them. Ask what kind of tree it is so you can buy a young tree.

## Unit 3

- 1 2 butterfly 3 kangaroo  
a caterpillar b joey c tadpole
- 2 1 c 2 a 3 b
- 3 1 the frog 2 the kangaroo 3 the butterfly's
- 4 Students' own answers
- 5 b
- 6 1 fewer  
2 don't usually  
3 pouch
- 7 Students' own answers

## Lesson 1

- 1 b
- 2 2 Stage: larva  
What happens: It eats a lot to store energy  
3 Stage: pupa  
What happens: It develops into a butterfly  
4 Stage: adult / butterfly / adult butterfly  
What happens: Adult female finds a mate and lays eggs.
- 3 1 d 2 b 3 a 4 c
- 4 **Butterfly**  
2 lays eggs; plants  
3 7–10 days  
4 larva / caterpillar, pupa
- Frog**  
1 an amphibian  
2 lays eggs; in water  
3 6–21 days  
4 egg, tadpole, adult
- 5 1 b 2 c 3 a

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- 6 1 Next, the baby is born. Finally, the baby grows into an adult.  
2 First, the kitten drinks only milk from its mother. Next, the kitten can eat the food its mother brings. Finally, the kitten grows into an adult and can feed itself.  
3 First, the kitten becomes an adult bobcat. Next, it finds a mate. Finally, it reproduces.

## Lesson 2

- 1 2 e 3 a 4 d 5 f 6 b
- 2 2 invertebrates 3 cold-blooded 4 warm-blooded  
5 have scales 6 lay eggs 7 have live births  
8 arthropods
- 3 1 b (spider)  
2 a (octopus) and b (spider)  
3 c (frog)
- 4 2 Dolphins are playful animals.  
3 Cheetahs are fast runners.  
4 Clams are hard-shelled mollusks.
- 5 Physical: 1, 4  
Behavior: 2, 3
- 6 2 is a hard-shelled  
3 is a warm-blooded  
4 is a soft-bodied  
5 is an egg-laying  
6 is an intelligent
- 7 Students' own answers

## Review 1-3

- 1 1 b 2 c 3 a 4 a 5 b 6 c 7 a 8 a
- 2 1 scales 2 trait 3 reproduce 4 germinate  
5 metamorphosis 6 screw 7 behavior  
8 nutrients
- 3 1 hatch, the design process  
2 amphibian; the different stages in the life of a butterfly  
3 mollusk; plants  
4 fish; invertebrates  
5 to germinate; the design process

## Unit 4

- 1 2 sunlight 3 grassland 4 coral reef 5 soil  
6 marsh
- 2 plants: sunlight, soil  
animals: other animals and plants
- 3 2 soil 3 Coral reefs 4 Rain forests 5 sunlight
- 4 1 giraffe, lion, the grassland  
2 clam, sea star, the coral reef  
3 frog, beetle, the rain forest
- 5 Students' own answers

## Lesson 1

- 1 2 ecosystem 3 habitat 4 population  
5 community 6 depends on
- 2 2 ecosystems 3 populations 4 depend  
5 community 6 interact
- 3 Suggested answers:  
2 living 3 surprising 4 exciting 5 interesting  
6 interacting 7 eating
- 4 2 Around two million plant-eating mammals live in the savannah.  
3 There are different types of plant-eating animals because there are different types of plants.  
4 Some animals, like zebras, eat grass. Others, like giraffes, eat leaves.

## Lesson 2

- 1 Students' own answers
- 2 mushrooms, bacteria, earthworms
- 3 1 T 2 F 3 F 4 T
- 4 Herbivores: prairie dog, gorilla  
Omnivores: dog, turtle  
Carnivores: lion (example), cat

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- 5 grass → prairie dog → coyote  
grass → prairie dog → golden eagle  
grass → mouse → snake → golden eagle  
grass → mouse → golden eagle  
grass → cow
- 6 The grass is a producer. All the rest are consumers.

## Lesson 3

- 1 b
- 2 2 drought 3 adaptations 4 negative 5 effects  
6 positive
- 3 2 often 3 never 4 usually 5 always 6 often
- 4 Suggested answers:  
2 They are always covered with water. The water is always rich in nutrients.  
3 Living organisms have adaptations to help them survive the flooded conditions. For example, plants are usually tall, like grasses and reeds.

## Unit 5

- 1 2 mosquito 3 sneeze 4 bacteria 5 fever  
6 microscope
- 2 b 5 c 2 d 1 e 6 f 4
- 3 c
- 4 2 e 3 f 4 a 5 c 6 d
- 5 Students' own answers

## Lesson 1

- 1 2 allergies 3 a broken arm 4 bacteria 5 viruses  
6 flower pollen 7 toxins 8 sneezing
- 2 Students' own answers
- 3 b
- 4 1 infectious disease 2 virus 3 fever  
4 immune system 5 vaccination

- 5 Suggested answers:  
1 He had an asthma attack. / He has asthma.  
It isn't an infectious disease.  
Yes, it will because air pollution is an allergen for Cedric.  
2 He has malaria.  
He got it from the mosquitoes that bit him.
- 7 2 Some 3 Other 4 Most 5 Some 6 Other  
I think the people who stay at home. People get better sooner when they rest.

- 8 Students' own answers

## Lesson 2

- 1 2 f 3 a 4 e 5 b 6 d
- 2 2 rabies 3 athlete's foot 4 a cold/the flu  
5 malaria 6 *Salmonella*
- 3 2 antibiotics 3 *Salmonella*  
4 symptoms of the disease 5 infected  
6 treated 7 vaccination 8 antibodies  
9 Chronic 10 symptoms
- 4 Students' own answers
- 5 2 You can get infected by touching your nose, eyes, and mouth.  
3 You cannot take antibiotics without asking your doctor first.  
4 You can get a fungal infection if you touch a contaminated object.  
5 You cannot be with other people if you have a highly infectious disease.
- 6 2 Yes, some pathogens can spread without touching the infected person.  
3 No, you cannot treat a disease caused by a virus with antibiotics.  
4 Yes, you can treat a fungal infection with antifungal cream.  
5 Yes, you can have an infectious disease without having symptoms.

# Workbook 4 Answer Key

## Unit 6

- 1 2 landslide 3 earthquake 4 snow 5 clouds  
6 Earth
- 2 1 clouds 2 Snow/Hail 3 hail/snow  
4 Landslides/Earthquakes  
5 earthquakes/landslides
- 3 2 changes 3 earthquake 4 landslide 5 times  
6 Water 7 cloud 8 hail
- 4 Suggested answers:  
1 damages cars and buildings, it causes buildings to collapse, it injures or kills people and animals, and it can destroy towns and villages.  
2 pollutes water, can injure or kill people and animals, and it can destroy towns and villages.  
3 can destroy crops, it can injure people and animals, and it makes road conditions dangerous.

### Lesson 1

- 1 1 evaporation 2 condensation 3 precipitation  
4 storage
- 2 b cools down c Water particles d collects
- 3 b condensation c precipitation d storage
- 4 1 evaporation 2 condensation 3 condensation
- 5 1 newspaper article 2 personal email
- 6 1 c 2 a 3 c

### Lesson 2

- 1 2 melted rock 3 cracks 4 waves 5 mountains  
6 crater 7 erupt 8 lava

	volcanoes	earthquakes
2 They can change the shape of Earth's surface.	✓	✓
3 They cause rapid changes.	✓	✓
4 They are landforms.	✓	✗
5 They can make faults appear in Earth's surface.	✗	✓

- 3 2 on 3 above 4 next to 5 in
- 4 1 on 2 above 3 in 4 next to
- 5 1 A volcano is an opening in Earth's crust.  
2 Hot, melted rock comes out of a volcano when it erupts.  
3 Most earthquakes happen along faults.  
4 The ground shakes during an earthquake.

### Lesson 3

- 1 1 erosion 2 weathering
- 2 2 d 3 c 4 g 5 a 6 b 7 e
- 3 1 slowly, slow 2 final, Finally  
3 constantly, constant
- 4 1 easily 2 Suddenly  
3 slow 4 quickly
- 5 2 Waves cause erosion along the shoreline.  
3 Waves carry away sand from the shoreline.  
4 During a flood, rain and floodwater carry away sand and mud from river banks.

## Review 4-6

- 1 1 c 2 c 3 a 4 c 5 c 6 a
- 2 1 lion; herbivores  
2 cells; pathogens  
3 grass; decomposers  
4 ocean; landforms  
5 tunnel; ecosystems  
6 flu; noninfectious diseases
- 3 1 evaporation  
2 infection  
3 drought  
4 surface  
5 antibiotic  
6 vaccine  
7 earthquake  
8 rain forest  
9 landslide  
10 carnivore

# Workbook 4 Answer Key

## Unit 7

- 1 2 summer 3 fall 4 winter  
5 the phases of the moon 6 daytime  
7 nighttime
- 2 Students' own answers
- 3 the sun
- 4 2 spring 3 summer 4 universe 5 Earth  
6 phases of the moon 7 the sun

### Lesson 1

- 1 2 right 3 shadow 4 length 5 midday  
6 season
- 2 b
- 3 Question 1  
2 left 3 afternoon 4 shadow 5 late  
6 afternoon 7 winter 8 winter 9 sets  
10 3 (P.M.) 11 4 P.M.
- Question 2  
1 summer 2 January 1st 3 winter 4 southern  
5 summer 6 Australia  
7 New Zealand
- 4 Answers can be in any order within each column  
in (the) spring  
in the past / the future  
in the afternoon  
on Monday  
on New Year's Day  
on May 1st  
at sunrise / sunset  
at 4.00 P.M. / 10.30 A.M.
- 5 1 On June 1st, in London (in the northern half of the planet), sunrise was **at** 4.49 A.M. and sunset was **at** 9.08 P.M.. In Sydney (in the southern half of the planet), sunrise was **at** 6.51 A.M. and sunset was **at** 4.54 P.M.  
2 It is usually colder **in** the morning than it is **in** the evening. The hottest time of the day is usually early **in** the afternoon.

- 3 **In** spring and fall, the length of the night and the day are about the same. **On** March 20th and September 22nd, they are exactly the same length.
- 4 On some calendars, seasons begin **on** the first day of the month and end **on** the last day. For example, summer begins **on** June 1st and ends **on** August 31st. On other calendars, the seasons start and end on different dates each year. In 2016, summer started **on** June 20th, which was the longest day of the year in the northern hemisphere. It ended **on** September 22nd, when the nighttime and daytime were equal length.

### Lesson 2

- 1 1 a new moon b first quarter c full moon  
d third quarter  
2 crater  
3 telescope
- 2 1 d 2 c 3 b 4 a
- 3 1 b 2 b 3 a 4 a
- 4 long—longer (example) short—shorter  
high—higher low—lower  
large—larger small—smaller  
near—nearer big—bigger
- 5 2 cooler 3 colder 4 hotter 5 nearer 6 brighter
- 6 2 The sun is brighter than the moon.  
3 Earth is smaller than the sun.  
4 A new moon is darker than a full moon.  
5 The sun is hotter than the moon.  
6 The moon is nearer to Earth than the sun.

## Unit 8

- 1 2 recorder 3 candles 4 smartphone  
5 solar panel 6 sun
- 2 2 solar panel 3 sun 4 smartphone 5 recorder  
6 candles
- 3 Students' own answers
- 4 2 solar panels 3 sun 4 energy 5 light bulbs  
6 recorder

# Workbook 4 Answer Key

- 5 Suggested answers:  
2 Because he is hot and dirty after baseball practice.  
3 He is a clean person.  
4 Because Jake doesn't play very well or they don't like his music.

## Lesson 1

- 1 1 kinetic energy 2 mechanical energy  
3 potential/stored energy 4 electrical energy  
5 sound energy
- 2 1 b 2 d 3 a 4 c
- 3 2 Electrical energy is stored in the car battery as chemical energy.  
3 The car engine also turns mechanical energy into electrical energy to run the heating system and the stereo.  
4 The heating system of the car turns electrical energy into heat/thermal energy.  
5 The car stereo turns electrical energy into sound energy.
- 4 2 Where 3 How 4 Who 5 When 6 What
- 5 2 How 3 What 4 Who 5 Where
- 6 Suggested answers:  
2 How can we use less energy at home?  
3 Where does a snowboarder get potential energy from?  
4 When does a smartphone stop working?  
5 Who is using more energy, a person who is running or a person who is walking?

## Lesson 2

- 1 2 generator 3 burn, heat 4 cooler 5 warmer
- 2 1 c 2 a 3 b 4 a
- 3 2 heat 3 warmer 4 cooler 5 light
- 4 2 The kinetic energy of particles produces heat.  
3 Stored energy is potential energy.  
4 Our bodies use the chemical energy stored in food.  
5 Solar panels collect energy from the sun.
- 5 2 metal object 3 thermal energy 4 natural gas  
5 mechanical energy

- 6 Suggested answers:  
b Solar energy produces thermal energy and heats the particles in the water. Water evaporates, and the clothes dry. Solar energy is free and renewable.  
c Warm air goes out and cold air comes in. You use more energy to turn cold air into warm air. You use less energy to keep air that is already warm at the same temperature.

## Unit 9

- 1 2 magnet 3 slide 4 shopping cart  
5 roller coaster 6 kite
- 2 1 slide 2 shopping cart 3 roller coaster
- 3 1 crane 2 kite 3 magnet
- 4 Students' own answers
- 5 A roller coaster B kite
- 6 1 c 2 b

## Lesson 1

- 1 1 b 2 c 3 a 4 b
- 2 Photo 1: speed  
Photo 2: position  
Photo 3: constant speed
- 3 2 Car 4 3 Car 6 4 Car 3 5 Car 8
- 4 2 on the left 3 on the right 4 between 5 behind  
6 in front of 7 on the left

## Lesson 2

- 1 2 d 3 e 4 f 5 b 6 a
- 2 1 **Magnetism** creates a magnetic field with a north pole and a south pole.  
2 The south pole of a magnet attracts the **north pole** of another magnet.  
3 Magnets **do not attract** wood and plastic.  
4 Mass has **an effect** on motion because you need **more** force to push **more** mass.  
OR Mass has **an effect** on motion because you need **less** force to push **less** mass.

# Workbook 4 Answer Key

- 3 1 fact 2 conclusion
- 4 1 John and Flash are pulling in opposite directions. The **forces** John and Flash are applying are not **equal**. Flash is pulling with **greater** / **more** force than John.
- 2 John and Flash are pulling in **opposite** directions. The **forces** they are applying are **equal** / **balanced**. They are both pulling with **equal force** / **the same force**.
- 5 2 The kite is heavy but the wind is strong and it pulls the kite up.
- 3 Magnets attract metal paper clips because they / metal paper clips are made of steel.
- 4 The car moves with difficulty because the road surface produces a lot of friction.

## Lesson 3

- 1 2 b 3 a 4 b 5 a 6 a
- 2 1 The force that pulls him down, toward Earth, is **gravity**. The force that helps him slow down is the **friction** between his skis and the **snow**.
- 2 They will weigh **less** than on Earth because the moon has **less mass** than Earth, so the pull of gravity is weaker. However, the elephant will still weigh **more than** the mouse.
- 3 Two brothers and their uncle are skydiving. The **brothers'** last name is Miller. Their names are James and John. Their **uncle's** name is Adam. **Adam's** last name is Lewis.
- **Adam's** jumpsuit is red.
  - The **Millers'** jumpsuits are black.
  - **James'/James's** helmet is black.
  - **John's** helmet is white.
- Skydiving is their favorite activity. They like speed and feeling the pull of gravity toward **Earth's** center. Everyone is having a lot of fun!
- 4 1 John 2 James 3 Adam
- 5 Students' own answers

## Review 7-9

- 1 1 b 2 c 3 c 4 b 5 a 6 b 7 c 8 a
- 2 1 telescope 2 particles 3 generator 4 magnet 5 friction 6 gravity 7 nighttime 8 heat 9 steel 10 motion
- 3 1 sun 2 phases 3 candle 4 crane 5 crater 6 noncontact 7 iron 8 matter 9 force 10 rotation

## Reading Skills

### Unit 1

winding (mountain road) = (a road that) goes around (a mountain and leads to the top)

### Unit 2

Information about how to grow plants for my garden by planting seeds and looking after the plants.

### Unit 3

animal, egg, inside, mother's body, gives birth, live young, lays an egg, outside, body, develops inside the egg, hatches, adult, reproduce, dies

### Unit 4

It's a type of wetland.

### Unit 5

It's an information label that we find on most packaged food products.

### Unit 6

Students' own answers

### Unit 7

It rotates around its axis every 24 hours and it revolves around the sun. It makes one revolution in about 365 days.

### Unit 8

We wouldn't be able to live on Earth. Plants wouldn't grow. There wouldn't be any winds and the water cycle would stop.

### Unit 9

Information about a skydiving center



# Workbook 4 Answer Key

## Writing Skills

### Unit 1

I can write about how a complex **machine** works and how it has changed people's **lives**.

I can write about simple and **complex** machines.

### Unit 2

I can write instructions about keeping **plants**.

I can **give advice to solve** about problems that have to do with plants.

### Unit 3

I can write about the life cycle of animals.

I can write detailed descriptions of animals.

### Unit 4

I can write a description of an ecosystem, ~~predict how it will develop in the future~~, say how the plants and animals that live in it interact, and explain how they have adapted to it.

predict how it will develop in the future

### Unit 5

I can write about a type of **disease**, say what causes it, and describe its **symptoms**.

### Unit 6

I can write about how the **changes** on Earth's **surface** affect people's lives.

I can write about how **erosion** by water happens.

### Unit 7

I can write about the seasons, the weather, **daytime**, and nighttime.

### Unit 8

I can explain which types of energy a car uses.

I can write tips for saving energy.

### Unit 9

I can draw conclusions from facts.

I can write about imaginary situations.