

Unit 1. Broken Chopstick

S T E A M

Academic Objective	Learn about light refraction
Vocabulary	lawn, pass, slow down, enter, refract, slightly, position, focused
STEAM Project	Changing Arrows
	21st Century Skills: Critical Thinking, Communication, Creativity

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: It looks like the pencil is bent and wider.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 2, 5, 8, 4, 3, 6, 1, 7

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. a

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. c 3. b
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; Light slows down when it enters water because it is denser than air.
- 2. F; When you put a chopstick in water, it looks bent and slightly wider.
- C. Number the pictures in the correct order. 4, 2, 3, 1
- D. Unscramble the letters and write them in the blanks.
- 1. pass 2. slow down 3. enter 4. lawn 5. slightly 6. refract

[STEAM PROJECT]

- Have students do the experiment and answer the question.
- Have them share the answers with their partner or group.
- Have them do the further experiment following step 3 and share the results with their partner or group.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1: A. The arrow changes direction.
- Step 2
- Refraction is the bending of light as it passes from one transparent substance into another. When light enters the water in the glass, it bends. It bends again when it leaves the water and the glass. As a result, the light paths cross, and the image appears to be flipped horizontally.

Unit 2. Tall Boy, Short Legs

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Academic Objective	Learn more about light refraction
Vocabulary	entire, swimming pool, dive, funny, refraction, brain, line, come in
STEAM Project	The Reappearing Coin
	21st Century Skills: Critical Thinking

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Light slows down and changes direction when it passes through water. This makes the things look bent.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 8, 7, 5, 2, 4, 1, 6, 3

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. c 2. b

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. c 3. c
- B. Circle T for true or F for false. Correct the false statements.
- 1. T 2. F; Amy wanted to keep talking, but Rick pulled her into the pool.
- C. Complete the chart.
- Who: Rick, Ted, and Amy
- What: How the brain sees light refraction in water
- Where: They are at the swimming pool.
- When: He realized it after he dove into the water.
- Why: The refracted light makes the legs look curved and shorter.
- D. Match the word with its definition.
- 1. dive 2. swimming pool 3. line 4. come in 5. funny 6. refraction

[STEAM PROJECT]

- Have students do the experiment and answer the question.
- Have them share the answers with their partner or group.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1
- I see the coin.
- Step 2
- When there is no water, the light reflecting off the coin doesn't refract. It travels in a straight line. The wall of the cup hides the coin from you. When we pour water into the cup, the light reflecting off the coin refracts. It comes out of the water and bends. This curved light reaches your eyes, so you can see the coin. This is called refraction of light.

Unit 3. Pressure Changes, Volume Changes

S T E A M

Academic Objective	Learn about the volume changes of gases
Vocabulary	certain, apply, plunger, lightly, change, repeat, base on, no matter
STEAM Project	Fountain Bottle Experiment 21st Century Skills: Critical Thinking

KEY WORDS
Look, listen, and repeat.
a. certain
b. plunger
c. apply
d. change
e. repeat
f. base on
g. no matter
h. volume
i. pressure
j. gas
k. water
l. air
m. force
n. amount
o. certain area
p. change the volume of things
q. it is
r. apply pressure to water
s. will it
t. volume changes
u. What about the volume of a gas?
v. Yes, pressure changes the volume of a gas.
w. When you apply gentle pressure to a gas, the volume gets a little smaller. And when you apply high pressure to it, it gets a lot smaller.
x. Let's watch it happen.
y. Put 40 ml of water in a syringe without a needle. Cover the end with your finger.
z. What happens when you take air into a paper bag and then blow it?

READING
Listen and read.
Pressure is the amount of force air makes on a certain area. Can pressure change the volume of things? It is. Apply pressure to water, will its volume change? What about the volume of a gas? Yes, pressure changes the volume of a gas. When you apply gentle pressure to a gas, the volume gets a little smaller. And when you apply high pressure to it, it gets a lot smaller.
Put 40 ml of water in a syringe without a needle. Cover the end with your finger.
What happened?
The volume of water in the syringe didn't change. No matter the pressure you put on it, it stayed at 40 ml.
What about when you put air in the syringe? Did the volume stay the same? It didn't. When you pressed the plunger lightly, the volume got a little smaller. It was lower than 40 ml.
When you pressed the plunger hard, the volume of the air got a lot smaller. The harder you pressed the plunger, the smaller the volume of the air got. Now you know that pressure can easily change the volume of a gas.
Read and choose.
1. Which is the opposite of **plunger**?
a. empty b. strongly c. finally
2. What does **mean** in the reading?
a. the syringe b. the plunger c. the volume of air

CHECK YOUR UNDERSTANDING
1. Choose the correct answers.
1. What is the reading mainly about?
a. how to fill a syringe
b. how pressure affects the volume of a gas
c. how the volume of a solid changes when you apply pressure
2. The volume of water didn't change no matter...
a. how much it was heated
b. how much pressure was applied
c. how much gas was put into the syringe
3. Which of the following didn't happen during the experiment?
a. The volume of water changed.
b. The volume of water stayed the same.
c. The volume of air became smaller when you pressed the plunger hard.
4. Circle T for true or F for false. Correct the false statements.
1. Pressure is the amount of force air makes on a certain area. T F
2. No matter the amount of pressure you put on it, the volume of a gas doesn't change. T F
5. Complete the chart.

change	harder	pressure	smaller
Press the plunger hard.		The volume of water didn't...	
Press the plunger hard.		The volume of the air got a... The... you pressed the plunger, the smaller the volume of the air got.	
Liquids and gases react to a... In different ways.			

PROJECT: FOUNTAIN BOTTLE EXPERIMENT
To do this experiment, you will need:
a. bottle
b. straw
c. water
d. paper
e. tape
f. scissors
g. glue
h. string
i. balloon
j. needle
k. syringe
l. plunger
m. water
n. air
o. pressure
p. volume
q. change
r. force
s. amount
t. certain area
u. change the volume of things
v. it is
w. apply pressure to water
x. will it
y. volume changes
z. What about the volume of a gas?
aa. Yes, pressure changes the volume of a gas.
ab. When you apply gentle pressure to a gas, the volume gets a little smaller. And when you apply high pressure to it, it gets a lot smaller.
ac. Let's watch it happen.
ad. Put 40 ml of water in a syringe without a needle. Cover the end with your finger.
ae. What happened?
af. The volume of water in the syringe didn't change. No matter the pressure you put on it, it stayed at 40 ml.
ag. What about when you put air in the syringe? Did the volume stay the same?
ah. It didn't. When you pressed the plunger lightly, the volume got a little smaller. It was lower than 40 ml.
ai. When you pressed the plunger hard, the volume of the air got a lot smaller. The harder you pressed the plunger, the smaller the volume of the air got. Now you know that pressure can easily change the volume of a gas.
aj. Read and choose.
ak. 1. Which is the opposite of **plunger**?
al. a. empty b. strongly c. finally
am. 2. What does **mean** in the reading?
an. a. the syringe b. the plunger c. the volume of air

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The bag will pop.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 4, 8, 6, 3, 5, 1, 2, 7

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. b 2. c

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. b 3. a
- B. Circle T for true or F for false. Correct the false statements.
- 1. T 2. F; No matter the amount of pressure you put on it, the volume of water doesn't change. / The more pressure you put on a gas, the smaller the volume will get.
- C. Complete the chart.
- 1. change 2. smaller 3. harder 4. pressure
- D. Complete the sentences.
- 1. repeat 2. changes 3. certain 4. based on 5. apply 6. No matter

[STEAM PROJECT]

- Have students follow the steps to do the experiment.
- Have them share the answers of steps 1 and 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1
- Water comes out of the straw.
- Step 2
- When you blow into the bottle, the air pressure inside the sealed bottle increases. This higher air pressure pushes on the water and forces it up and out of the straw.

Unit 4. A Bag of Chips

S T E A M

Academic Objective	Learn more about air pressure
Vocabulary	pack, chip, in case, proud, swell, burst, inflated, suspicious
STEAM Project	Atmospheric Pressure and Altitude
	21st Century Skills: Critical Thinking

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, I climbed a tall mountain with my mom last year.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 7, 3, 5, 1, 2, 6, 4, 8

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. c 2. a

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. c 3. a
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; Irene sat down to take a rest after reaching the top of the mountain.
- 2. F; Irene's mom told her the chips were safe to eat.
- C. Number the pictures in the correct order. 2, 4, 3, 1
- D. Unscramble the letters and write them in the blanks.
- 1. suspicious 2. pack 3. proud 4. swell 5. burst 6. in case

[STEAM PROJECT]

- Have students read the explanation about Earth's atmosphere with the diagram and answer the question.
- Have them share the answers of step 1 and 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
- Step 1
- 1. They fly in the troposphere.
- 2. No, they don't.
- 3. Planes
- Step 2
- Air pressure depends on the quantity of air molecules in the atmosphere. The more air molecules, the stronger the pressure. The greatest pressure is at ground level, because this is where there are the most air molecules. When you climb a mountain, you find it difficult to breathe because there are fewer air molecules. The higher you move up into Earth's atmosphere, the fewer air molecules there are.

Unit 5. Two Different Lenses

S T E A M

Academic Objective	Learn about different types of lenses
Vocabulary	lens, bend, convex, concave, on the other hand, transparent, laser pointer, beam
STEAM Project	What Can a Magnifying Glass Do? 21st Century Skills: Critical Thinking, Collaboration

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The magnifying glass will focus the light on one spot on the paper, and it will start a fire.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 3, 4, 7, 1, 8, 5, 2, 6

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. c

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. b 3. c
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; If you point a laser beam toward the edge of a convex lens, the beam will bend inward. 2. T
- C. Complete the chart.
- 1. convex lens 2. laser beams 3. focus 4. bend inward 5. don't bend 6. look bigger
- D. Match the word with its definition.
- 1. on the other hand 2. concave 3. bend 4. laser pointer 5. transparent 6. lens

[STEAM PROJECT]

- Have students fill in the blanks with correct words.
- Have them share the answers of step 1 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Have them go outside with their parents or guardians and follow the instruction on step 2.
- Have them share the results of the step 2 with their partner of group.
- Answer: 1. convex 2. bigger 3. refracted 4. beams 5. focuses 6. heat

Unit 6. Telescopes, Microscopes, and More!

S T E A M

Academic Objective	Learn more about lenses and how they are used
Vocabulary	observatory, space, telescope, explain, gather, in detail, binoculars, microscope
STEAM Project	Uses of Lenses 21st Century Skills: Critical Thinking

6
KEY WORDS
Look, listen, and repeat.

TELESCOPES, MICROSCOPES, AND MORE!

WARM-UP
Do you use convex or concave lenses?

READING
Listen and read.
From went on a field trip to the observatory. She learned about stars and planets. She saw radio from space. She saw many cool telescopes there, too. From was very excited. "Wow, it's my first time seeing a real telescope! It's so big!"
"These are Keplerian telescopes," explained the teacher.
"How do they work?" asked Fran.
"Well, they use two lenses. A convex lens gathers and focuses light from far away, makes faraway things look bigger or closer. We can see stars and planets in more detail. Then a concave lens takes this light, and it spreads into your eye."
"So that," said Fran, "cameras use convex and concave lenses, too, right?"
"That's right," the teacher answered. "Cameras use convex and concave lenses. Binoculars use them, too. Convex lenses help us see far away and make small things look bigger and closer. This is why microscopes use convex lenses. Concave lenses spread the light and give us a clearer image."

CHECK YOUR UNDERSTANDING

1. Choose the correct answer.
1. What is the reading mainly about?
a. Why telescopes need on observatory.
b. Why microscopes need concave lenses.
c. Why telescopes need concave and convex lenses.
2. Convex lenses make things that are far away look
a. bigger or closer.
b. smaller and closer.
c. smaller and farther away.
3. Which of the following is NOT true about concave lenses?
a. They gather light. b. Things seem closer. c. Things seem smaller.

2. Circle T for true or F for false. Correct the false statements.
1. From saw many cool telescopes at the laboratory. T F
2. Concave lenses help us see small and far away things by making them look bigger and closer. T F

3. Complete the chart.

Convex Lenses	Concave Lenses
a. They gather light from far away.	b. They give a clearer image.
c. They make things look bigger or closer.	d. They spread light into your eyes.

USES OF LENSES

Match the objects to the type of lenses they use.

Convex Lenses	Concave Lenses
1. _____ help us see who's outside.	2. _____ help people who cannot see things near them clearly.
3. _____ help us see things in dark places.	4. _____ help us see our favorite singer at a concert.
5. _____ help us see when we take pictures.	

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, I do. I use both convex and concave lens in my camera.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 7, 6, 4, 1, 2, 5, 8, 3

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. c

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. a 3. c
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; Fran saw many cool telescopes at the observatory.
- 2. F; Convex lenses help us see far away and small things by making them look bigger and closer.
- C. Complete the chart.
- Convex Lenses: a, c Concave Lenses: b, d
- D. Unscramble the letters and write them in the blanks.
- 1. gather 2. microscope 3. space 4. in detail 5. observatory 6. telescope

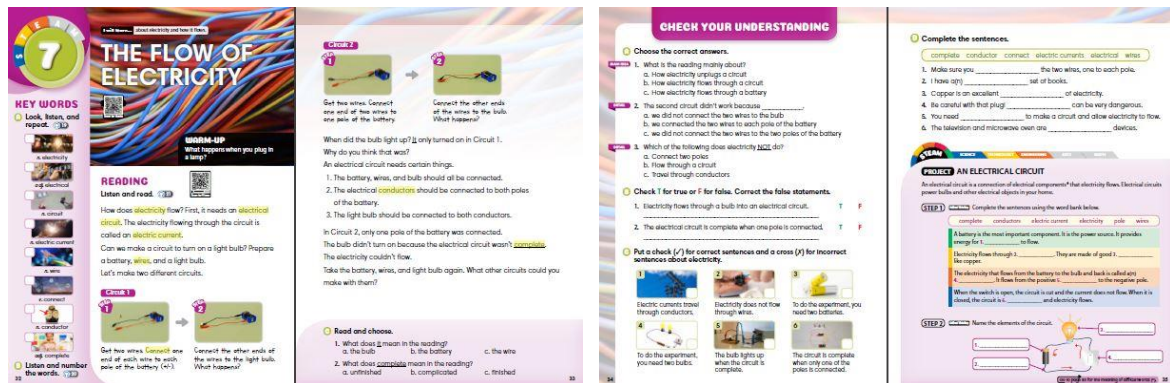
[STEAM PROJECT]

- Have students match the words to the pictures that use lenses in step 1.
- Have them fill in the blanks with the correct words in step 2.
- Have them share the answers of steps 1 and 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
- Step 1
- 1. microscope 2. camera 3. magnifying glass 4. binoculars 5. glasses 6. peephole 7. telescope 8. flashlight
- Step 2
- 1. peephole 2. flashlight 3. glasses 4. magnifying glass 5. telescope 6. binoculars 7. camera

Unit 7. The Flow of Electricity



Academic Objective	Learn about electricity and how it flows
Vocabulary	electricity, electrical, circuit, electric current, wire, connect, conductor, complete
STEAM Project	An Electrical Circuit
	21st Century Skills: Critical Thinking



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: When you plug in a lamp, electricity creates light and the lamp is turned on.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 5, 3, 4, 8, 2, 6, 1, 7

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. c

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. c 3. a
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; Electricity flows through an electrical circuit into a bulb.
- 2. F; The electrical circuit is complete when both poles are connected.
- C. Put a check (✓) for correct sentences and a cross (X) for incorrect sentences about electricity. 1. ✓ 2. X 3. X 4. X 5. ✓ 6. X
- D. Complete the sentences.
- 1. connect 2. complete 3. conductor 4. Electric currents 5. wires 6. electrical

[STEAM PROJECT]

- Have students complete the sentences and fill in the blanks about electricity and electrical components.
- Have them share the answers of steps 1 and 2 with their partner or group.
- Answer:
- Step 1
- 1. electricity 2. wires 3. conductors 4. electric current 5. pole 6. complete
- Step 2
- 1. battery 2. wire 3. light bulb 4. switch

Unit 8. All of the Lights



Academic Objective	Learn more about how electricity flows
Vocabulary	get ready, thread, light up, join, conduct, positive, negative, already
STEAM Project	Electrical Conductors and Insulators
	21st Century Skills: Critical Thinking

8 ALL OF THE LIGHTS

KEY WORDS
Look, listen, and repeat.
get ready, thread, light up, join, conduct, positive, negative, already

WARM-UP
How can you make a string of lights longer?

READING
Listen and read.
Liam and his dad were getting ready for New Year's Day. They were going to have a party. Liam was putting up a string of lights.
"Dad, these lights are too short. Can I cut the wire in half? Then I can add some thread to make the lights longer."
"No," said Dad. "You need to connect the bulbs to conductors. Otherwise they won't light up. They're joined with copper wires which conduct electricity. Thread isn't a conductor, so the lights won't light up."
"Okay, Dad. Is there anything else I need to know?"

CHECK YOUR UNDERSTANDING
Choose the correct answers.
1. What is the main purpose of the reading?
a. to explain how a string of lights can light up
b. to explain how to extend strings of lights using some thread
c. to explain how to put up a string of lights for New Year's Day
2. The bulbs need to be connected to conductors, otherwise...
a. they won't turn off
b. they won't light up
c. they won't conduct
3. Which of the following is NOT true about conductors?
a. They are joined with copper wires.
b. They are joined to the positive pole of the battery.
c. They are joined to the negative pole of the battery.
Circle T for true or F for false. Correct the false statements.
1. Liam was putting up a string of lights because his family was going to have a party. T F
2. Liam was sure the wires were not joined to the two poles of the battery. T F
Complete the chart.
Who are the characters in the story?
What is the story about?
Where are the characters?
When did Liam realize he couldn't extend the lights with thread?
Why can't Liam extend the lights with thread?

Match the word with its definition.
1. to allow heat or electricity to go through
2. having the electrical charge of a proton
3. to become bright
4. happening earlier
5. to prepare to do something
6. to connect things
• join
• light up
• already
• get ready
• positive
• conduct

EXERCISE ELECTRICAL CONDUCTORS AND INSULATORS
STEP 1 Read the definitions. Then classify the materials whether they are conductors or insulators.
Electrical conductors allow energy to flow through them. Electrical insulators do not allow energy to flow through them.
STEP 2 Complete the sentences using the words from the box.
copper gold plastic rubber silver
The best electrical conductors are metals. The best conductors are 1. _____, 2. _____, 3. _____, 4. _____, 5. _____, 6. _____, 7. _____, 8. _____, 9. _____, 10. _____.
The most common conductors are 1. _____, 2. _____, 3. _____, 4. _____, 5. _____, 6. _____, 7. _____, 8. _____, 9. _____, 10. _____.
The best electrical insulators are 1. _____, 2. _____, 3. _____, 4. _____, 5. _____, 6. _____, 7. _____, 8. _____, 9. _____, 10. _____.
The most common insulators are 1. _____, 2. _____, 3. _____, 4. _____, 5. _____, 6. _____, 7. _____, 8. _____, 9. _____, 10. _____.
We use insulators to protect us from the danger of electricity. We use 1. _____ and 2. _____ to cover the copper in wires.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Usually, you can make a string of lights longer by plugging a second strand into the end of the first strand. If you can't do that, you can cut open the wires from one end of each strand and twist them together so electricity can flow from one strand to the next.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 1, 8, 4, 2, 7, 3, 5, 6

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. b 2. c

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. b 3. a
- B. Circle T for true or F for false. Correct the false statements.
1. T 2. F; Liam was sure the wires were joined to the two poles of the battery.
- C. Complete the chart.
Who: Liam and his dad
What: How a string of lights lights up
Where: At their house
When: When his dad told him he couldn't
Why: Because thread is not a conductor.
- D. Match the word with its definition.
1. conduct 2. positive 3. light up 4. already 5. get ready 6. join

[STEAM PROJECT]

- Have students read the definitions of the conductor and insulator. Ask them to fill in the blanks and clarify the difference between conductors and insulators.
- Have them complete the sentences using the given words.
- Have them share the answers of the blanks with their partner or group. Ask different pairs of groups to represent their answers to the class.
- Answer:
- Step 1
Electrical Conductors: gold, seawater, copper, silver
Electrical Insulators: oil, glass, plastic, rubber
- Step 2
1. silver / gold 2. gold / silver 3. copper 4. plastic / rubber 5. rubber / plastic

Unit 9. More Batteries

S T E A M

Academic Objective	Learn more about electrical circuits and batteries
Vocabulary	series, connection, parallel, remaining, brightness, voltage, strong, last
STEAM Project	How Can We Make Holiday Lights? 21st Century Skills: Critical Thinking, Communication

The image shows four pages from a student workbook. The first page is titled '9 MORE BATTERIES' and includes 'KEY WORDS' (battery, connection, parallel, self-remaining, light, voltage, last, strong) and a 'READING' section with a QR code and text about series and parallel connections. The second page has a 'CHECK YOUR UNDERSTANDING' section with multiple choice and true/false questions. The third page continues the 'CHECK YOUR UNDERSTANDING' section with more multiple choice and true/false questions. The fourth page is titled 'HOW CAN WE MAKE HOLIDAY LIGHTS?' and includes a diagram of a circuit with a battery, a switch, and two light bulbs in parallel.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The television remote control and my flashlight use batteries.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 7, 5, 3, 6, 4, 2, 8, 1

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. a

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. c 3. a
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; The bulb with the series connection was brighter than the bulb with the parallel connection.
- 2. F; Parallel connections last longer than series connections.
- C. Complete the chart.
- 1. connections 2. Series 3. voltage 4. last 5. Parallel 6. strong
- D. Complete the sentences.
- 1. remaining 2. strong 3. brightness 4. voltage 5. connection 6. last

[STEAM PROJECT]

- Have students understand the different types of circuits and fill in the blanks.
- Have them share the answers of step 1 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
- 1. light bulb 2. wire 3. switch 4. battery 5. positive pole 6. negative pole

Unit 10. Electricity Everywhere



Academic Objective	Learn more about things that use electricity
Vocabulary	heater, run, plug, outlet, throw, grocery store, electronics, overheat
STEAM Project	Why and How Should We Save Electricity? 21st Century Skills: Critical Thinking, Creativity, Communication

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The outlet can get overheated and cause a fire.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 3, 6, 4, 8, 7, 1, 5, 2

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. c

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. a 3. a
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; Sophia's phone battery was low, so she plugged her phone into the same outlet as the TV. 2. T
- C. Number the pictures in the correct order. 2, 3, 1, 4
- D. Match the word with its definition.
- 1. heater 2. electronics 3. grocery store 4. overheat 5. run 6. outlet

[STEAM PROJECT]

- Have students match the ways to save electricity to the pictures and share the answers with their friends.
- Have them make a poster about saving electricity.
- Have them share their posters with the class.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Answer: 1. f 2. d 3. b 4. a 5. e 6. c

Unit 11. Sea Breeze and Land Breeze

S T E A M

Academic Objective	Learn about the difference between a land breeze and a sea breeze
Vocabulary	daytime, sea breeze, land breeze, lamp, heated, movement, heat up, create
STEAM Project	Flowing Air 21st Century Skills: Critical Thinking

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Wind is made when air moves from high pressure areas to low pressure areas.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 6, 8, 3, 4, 7, 1, 5, 2

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. b 2. c

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. b 3. c
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; A sea breeze blows from the sea during the day.
- 2. F; Wind is the movement of air from high-pressure to low-pressure area.
- C. Put a check (✓) for correct sentences and a cross (X) for incorrect sentences about breezes. 1. ✓ 2. ✓ 3. X 4. ✓ 5. X 6. X
- D. Complete the sentences.
- 1. movements 2. heats up 3. creates 4. daytime 5. lamp 6. land breeze


[STEAM PROJECT]

- Have students complete the diagram and the sentences about the sea breeze and the land breeze.
- Have them share the answers of step 1 and 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
- Step 1
- 1. sea 2. low pressure 3. cool air 4. high pressure 5. land
- Step 2
- 1. land breeze 2. land 3. sea 4. warm air 5. low pressure 6. cool air

Unit 12. Flying a Kite

S T E A M

Academic Objective	Learn more about a land breeze and a sea breeze
Vocabulary	take a trip, kite, above, from A to B, check out, dinner, go out, flow
STEAM Project	Make a Kite
	21st Century Skills: Creativity, Communication



FLYING A KITE

KEY WORDS

- Look, listen and repeat.
- Listen and number the words.

READING

Listen and read.

One sunny weekend, Daniel **likes to go** to the beach with his family.

He **likes to swim** with his kids.

"Dad, why is the kite flying toward us? I thought it would fly **above** the sea."

"Well, Daniel, the wind blows **from the sea** to the land in this direction."

"Will this kite blow from **left to right**, too?"

"Why don't we **check it out** after eating **dinner**?"

They **went out** to the beach again the next day. Daniel flew his kite again. Now it flew in the opposite direction.

12

Learn about conditions and use a verb tense

1. What is the main purpose of the author?

- to explain why it's better to fly a kite in the evening
- to explain why the weather at the beach is clearly changing
- to explain why the morning breeze is different from the evening breeze
- to explain the direction of the evening breeze

2. The wind changes from higher to lower pressure

- or changes down from higher to lower pressure
- the water's coast down more quickly from the sand
- wind changes lower from a warmer to a cooler place
- the water is warmer than the sand

3. What did Daniel happen when Daniel flew his kite in the evening?

- the kite flew toward the sea
- the wind blew toward the sea
- the water was warmer than the sand

READING

Listen and read.

One sunny weekend, Daniel likes to go to the beach with his family.

He likes to swim with his kids.

"Dad, why is the kite flying toward us? I thought it would fly above the sea."

"Well, Daniel, the wind blows from the sea to the land in this direction."

"Will this kite blow from left to right, too?"

"Why don't we check it out after eating dinner?"

They went out to the beach again the next day. Daniel flew his kite again. Now it flew in the opposite direction.

2. Match the word with its definition.

<ul style="list-style-type: none"> to examine something the evening meal to travel continuous movement in one direction to be in a higher position to fly up like that pushed by a strong 	<ul style="list-style-type: none"> to flow to check out above kite dinner take a trip
---	---

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Listen and read.

One sunny weekend, Daniel likes to go to the beach with his family.

He likes to swim with his kids.

"Dad, why is the kite flying toward us? I thought it would fly above the sea."

"Well, Daniel, the wind blows from the sea to the land in this direction."

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Listen and read.

One sunny weekend, Daniel likes to go to the beach with his family.

He likes to swim with his kids.

"Dad, why is the kite flying toward us? I thought it would fly above the sea."

"Well, Daniel, the wind blows from the sea to the land in this direction."

"Will this kite blow from left to right, too?"

"Why don't we check it out after eating dinner?"

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- the wind blew toward the sea
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READING

Listen and read.

One sunny weekend, Daniel likes to go to the beach with his family.

He likes to swim with his kids.

"Dad, why is the kite flying toward us? I thought it would fly above the sea."

"Well, Daniel, the wind blows from the sea to the land in this direction."

"Will this kite blow from left to right, too?"

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They went out to the beach again the next day. Daniel flew his kite again. Now it flew in the opposite direction.

2. Match the word with its definition.

<ul style="list-style-type: none"> to examine something the evening meal to travel continuous movement in one direction to be in a higher position to fly up like that pushed by a strong 	<ul style="list-style-type: none"> to flow to check out above kite dinner take a trip
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- the wind blew toward the sea
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READING

Listen and read.

One sunny weekend, Daniel likes to go to the beach with his family.

He likes to swim with his kids.

"Dad, why is the kite flying toward us? I thought it would fly above the sea."

"Well, Daniel, the wind blows from the sea to the land in this direction."

"Will this kite blow from left to right, too?"

"Why don't we check it out after eating dinner?"

They went out to the beach again the next day. Daniel flew his kite again. Now it flew in the opposite direction.

2. Match the word with its definition.

<ul style="list-style-type: none"> to examine something the evening meal to travel continuous movement in one direction to be in a higher position to fly up like that pushed by a strong 	<ul style="list-style-type: none"> to flow to check out above kite dinner take a trip
---	---

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: I think it's best to fly a kite at the park.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 6, 5, 3, 1, 2, 7, 8, 4

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. b 2. a

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. a 3. a
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; Daniel was surprised because the kite flew above the land in the morning.
- 2. F; In the evening, the sand's temperature is lower than the water's temperature.
- C. Complete the chart.
- Sea Breeze: b, c Land Breeze: a, d
- D. Match the word with its definition.
- 1. check out 2. dinner 3. take a trip 4. flow 5. above 6. kite

[STEAM PROJECT]

- Have students make their own kite following the instructions on step 1.
- Have them show their kites to a friend and fly them outside.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.

Unit 13. The Height of the Sun

S T E A M

Academic Objective	Learn about the height of the sun and the seasons
Vocabulary	differ, season, steep, angle, shallow, once, heat energy, rise
STEAM Project	The Sun and the Seasons 21st Century Skills: Critical Thinking, Communication

13 THE HEIGHT OF THE SUN

KEY WORDS
Look, listen, and repeat.

READING
Listen and read.

COMPREHENSION
1. What is the reading mainly about?
a. how the height of the sun affects the seasons
b. why the temperature of sand is higher in winter
c. how to set the height of a lamp to do an experiment

CHECK YOUR UNDERSTANDING
1. Choose the correct answers.
2. When the sun is at its highest, it shines on a narrower area.
3. Which of the following is NOT true about the sun?
a. its height changes
b. its height is always the same
c. its height affects the temperature.

Complete the sentences.
1. This is why _____, the children can play safely.
2. There are four _____ they depend on the height of the sun.
3. The two cars _____ One runs on electricity and the other on fuel.
4. The bridge makes a very _____ angle with the road.
5. Suzie cleans her car _____ a week.
6. The sun always _____ in the east and sets in the west.

THE SUN AND THE SEASONS
The Earth's tilt is at an angle. When the North Pole points toward the sun, the Northern Hemisphere gets more sunlight than the Southern Hemisphere. It gets its warmest season—summer. The Southern Hemisphere gets the least sunlight. It gets its coldest season—winter. The seasons in the two hemispheres are always opposite.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: It's hot in summer because the tilt of Earth makes us closer to the sun. It's cold in winter because we are tilted farther away from the sun.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 4, 8, 5, 7, 2, 6, 1, 3

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. a

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. c 3. b
- B. Circle T for true or F for false. Correct the false statements.
- 1. T 2. F; The sand's temperature was highest when the lamp was highest.
- C. Complete the chart. 1. differs 2. length 3. steep 4. heat energy 5. rises
- D. Complete the sentences. 1. shallow 2. seasons 3. differ 4. steep 5. once 6. rises
-

[STEAM PROJECT]

- Explain the relationship between the Earth's axis and the seasons referring to the image on step 1.
- Have students answer the questions with a friend.
- Have them share the answers of step 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
- a. The Northern Hemisphere
- b. The Southern Hemisphere
- c. Africa

Unit 14. The Length of the Day



Academic Objective	Learn about solar altitude
Vocabulary	set, bright, solar altitude, during, at an angle, revolve, maximum, minimum
STEAM Project	How to Read a Climate Graph 21st Century Skills: Critical Thinking

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: No, it's not. The position of the sun is always different because Earth is rotating while orbiting around the sun.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 4, 2, 8, 6, 3, 5, 1, 7

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. c

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. c 3. c
- B. Circle T for true or F for false. Correct the false statements.
- 1. F; Emily realizes that in winter the days are shorter than in summer.
- 2. F; In winter, the days are shorter because solar altitude is at its minimum.
- C. Complete the chart.
- Who: Emily
- What: How solar altitude affects the seasons and the length of days
- Where: At home
- When: She notices it when it gets dark at 5 p.m.
- Why: Days are shorter in winter because solar altitude is at its minimum. Days are longer in summer because solar altitude is at its maximum.
- D. Match the word with its definition.
- 1. bright 2. minimum 3. during 4. revolve 5. set 6. at an angle

[STEAM PROJECT]

- Have students look at the graph and understand what each graph tells them.
- Have them share the answers of steps 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer: a. 31°C b. 17°C c. 100 mm

Unit 15. Electricity from the Sun



Academic Objective	Learn about changing sunlight into electricity
Vocabulary	imagine, coal, climate change, solar, effective, plan, implement, essential
STEAM Project	How Solar Panels Work 21st Century Skills: Critical Thinking, Communication

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: If you put water with a teabag under the sun, the sun will slowly make a cup of tea.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 4, 7, 3, 2, 8, 5, 1, 6

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. c 2. b

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. c 3. b
- B. Circle T for true or F for false. Correct the false statements.
1. F; The cost for using solar power is expensive. 2. T
- C. Put a check (✓) for correct sentences and a cross (X) for incorrect sentences about solar power. 1. ✓ 2. ✓ 3. X 4. ✓ 5. ✓
- D. Complete the sentences.
1. effective 2. implement 3. imagine 4. climate change 5. coal 6. essential

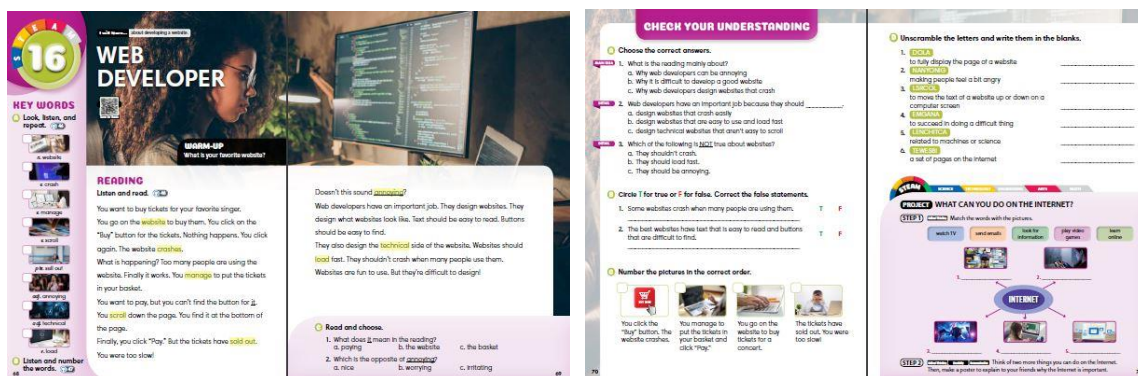
[STEAM PROJECT]

- Have students fill in the blanks and understand how solar panels work.
- Have them share the answers of steps 1 with their partner or group.
- Have them think more about other energy sources that are eco-friendly. Ask different pairs of groups to represent their ideas to the class.
- Answer:
1. solar panels 2. electricity 3. inverter 4. suitable 5. passes 6. home appliances

Unit 16. Web Developer



Academic Objective	Learn about developing a website
Vocabulary	website, crash, manage, scroll, sell out, annoying, technical, load
STEAM Project	What Can You Do on the Internet? 21st Century Skills: Critical Thinking, Creativity, Communication



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: My favorite website is the online shopping mall where I usually get my clothes.

[KEY WORDS]

- Have students look at the picture and play the audio. Have them repeat each word while looking at the picture to match the photograph and sound. Give simple explanations and examples when necessary.
- After practicing each word, play the audio again.
- Give students time to complete the exercise. Then have them check their answers in pairs or as a class.
- Answer: 4, 3, 8, 1, 5, 7, 2, 6

[READING]

- Play the audio once. After playing the audio, do choral reading and ask the students to repeat after you. Ask the students to point at each word as they read it.
- If necessary, have them read the text one more time by doing popcorn reading. (Have students take turns reading one line from the story. After they read one line, they call on another classmate to read the next line.)

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. a

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. b 3. c
- B. Circle T for true or F for false. Correct the false statements.
- 1. T 2. F; The best websites have text that is easy to read and buttons that are easy to find.
- C. Number the pictures in the correct order. 3, 2, 1, 4
- D. Unscramble the letters and write them in the blanks.
- 1. load 2. annoying 3. scroll 4. manage 5. technical 6. website

[STEAM PROJECT]

- Have students match the words with the pictures.
- Have them share the answers of step 1 with their partner or group.
- Have them think more about things that they can do on the Internet and make a poster about the importance of the Internet.
- Have them share their posters and explain about them to class.
- Answer: 1. look for information 2. watch TV 3. play video games 4. learn online 5. send emails