

Unit 1. Light Travels

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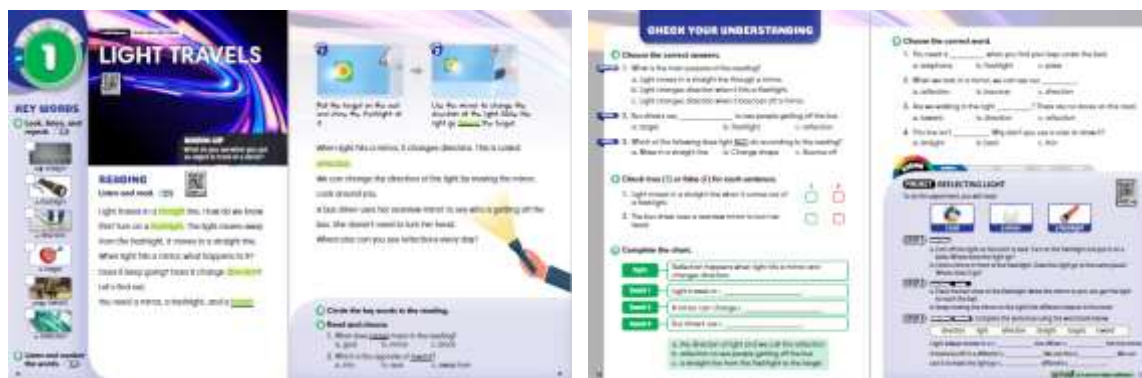
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Academic Objective	Learn about how light moves
Vocabulary	straight, flashlight, direction, target, toward, reflection
STEAM Project	Reflecting Light
	21st Century Skills: Critical Thinking, Creativity, Collaboration



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: I see the reflection of the object.

[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, 5, 1, 2, 4, 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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. b
- B. Check true (T) or false (F) for each sentence. 1. T 2. F
- C. Complete the chart. 1. c 2. a 3. b
- D. Choose the correct word. 1. b 2. a 3. b 4. a

[STEAM PROJECT]

- Have students do the experiment and answer the question.
- Have them share the results of the experiment 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 and with reasons based on PROJECT REFERENCE.
- Answer: 1. straight 2. light 3. direction 4. reflection 5. toward 6. targets

Unit 2. The Bus Driver

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Academic Objective	Learn more about reflection
Vocabulary	get on, crowded, get off, rearview mirror, front, stop
STEAM Project	Concave and Convex Mirrors
	21st Century Skills: Critical Thinking

The collage shows three pages of educational content. The left page is a worksheet titled 'THE BUS DRIVER' with a photo of a bus driver and a 'KEY WORDS' section. The middle page is a 'CHECK YOUR UNDERSTANDING' section with multiple-choice questions about the bus driver's perspective. The right page is a 'CONCAVE AND CONVEX MIRRORS' section with diagrams and text explaining how mirrors work.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: They can see the passengers on the bus. They can see cars and people outside the bus, too.

[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, 1, 5, 2, 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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. c 2. b

[WOW! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know about convex mirrors. Help them understand the principle of convex mirrors.
- Refer to Background Knowledge for more about concave and convex mirrors. Based on answers in Warm-Up, explain how concave and convex mirrors work and where they are used.

[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. Check true (T) or false (F) for each sentence. 1. F 2. T
 - C. Complete the chart.
 - Who: Tom and Jenny
 - What: How the bus driver uses the rearview mirror to let people off the bus
 - Where: They are on a crowded bus.
 - When: After Jenny told him the bus driver could see them in the rearview mirror
 - Why: He could see everything through the rearview mirror.
 - D. Choose the best definition. 1. a 2. b 3. b 4. a

[STEAM PROJECT]

- Have students follow the steps and do the activity.
- Have them share the answers of steps 1 and 2 with their partner or group. Ask different pairs of groups to represent their design to the class.
- Answer:
 - Step 1
 - b. The face on the spoon is larger than the face in the mirror.
 - c. The face on the spoon is smaller than the face in the mirror.
 - Step 2
 - Concave mirrors make images look larger. Convex mirrors make images look smaller.

Unit 3. The Water Cycle

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Academic Objective	Learn about the water cycle
Vocabulary	evaporate, condense, cycle, seal, decrease, increase
STEAM Project	The Water Cycle in a Bottle 21st Century Skills: Creativity, Critical Thinking



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: No. I think the amount of water on Earth stays the same.

[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, 5, 1, 2, 6, 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.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. c 3. b
- B. Check true (T) or false (F) for each sentence. 1. T 2. F
- C. Complete the chart. 1. decreases 2. increases 3. change 4. evaporates
- D. Choose the correct word. 1. a 2. c 3. a 4. a

[STEAM PROJECT]

- Have students do the experiment and complete the chart.
- Have them share the results of the experiment 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 and with reasons based on PROJECT REFERENCE.
- Answer:
- 1. evaporates 2. vapor 3. condenses 4. drops 5. rain 6. cycle

Unit 4. Disappeared Water

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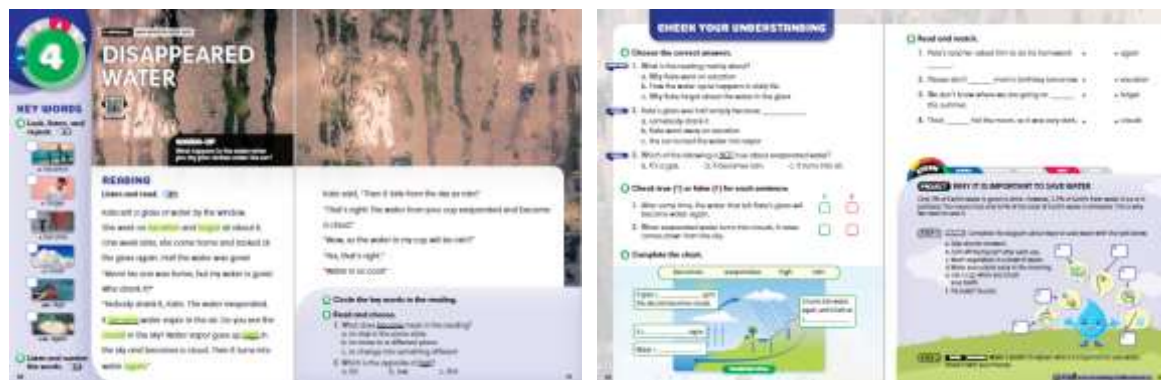
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Academic Objective	Learn more about the water cycle
Vocabulary	vacation, forget, become, cloud, high, again
STEAM Project	Why It Is Important to Save Water
	21st Century Skills: Critical Thinking, Creativity, Collaboration



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The water evaporates into the air.

[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, 1, 4, 6, 3, 5

[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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. b 2. c 3. c
- B. Check true (T) or false (F) for each sentence. 1. T 2. F
- C. Complete the chart. 1. evaporates 2. becomes 3. high 4. rain
- D. Read and match. 1. again 2. forget 3. vacation 4. clouds

[STEAM PROJECT]

- Have students complete the diagram with ways to save water.
- Have them share the results of step 1 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer: 1. f 2. d 3. c 4. a 5. b 6. e

Unit 5. A Raft of Straws

S T E A M

Academic Objective	Learn why things float or sink
Vocabulary	coin, raft, design, blueprint, buoyancy, upward
STEAM Project	Make a Plastic Bottle Raft
	21st Century Skills: Creativity, Critical Thinking, Collaboration, Communication



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: I float when I get into the swimming pool.

[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, 6, 3, 5, 1, 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.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. Check true (T) or false (F) for each sentence. 1. F 2. F
- C. Complete the chart. 1. Buoyancy 2. high 3. low 4. floats 5. sinks
- D. Read and match. 1. buoyancy 2. raft 3. designs 4. coins

[STEAM PROJECT]

- Have students do the experiment.
- Have them share the results of the experiment 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 reasons why the raft floats based on PROJECT REFERENCE.

Unit 6. How Does a Ship Float?



Academic Objective	Learn more about buoyancy
Vocabulary	ship, Internet, search, force, be made of, huge
STEAM Project	Build a Better Vehicle
	21st Century Skills: Critical Thinking, Collaboration, Creativity

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The force that pulls things down is called gravity.

[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, 2, 4, 6, 5, 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.)

[SHORT ACTIVITIES]

- Have students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. a
 - B. Check true (T) or false (F) for each sentence. 1. T 2. T
 - C. Complete the chart.
 - Who: Brian and Clara
 - What: How big ships float
 - Where: They are at the beach
 - When: After they saw a big ship floating in the water
 - Why: The buoyancy in the water and the air in ships make them float.
 - D. Choose the best definition. 1. b 2. a 3. b 4. a

[STEAM PROJECT]

- Have students answer the question and design their own ship.
- Have them share the results of steps 1 and 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Have them share their ship designs of step 3 with their partner or group.
- Answer: 1. c 2. a

Unit 7. Ice Fishing

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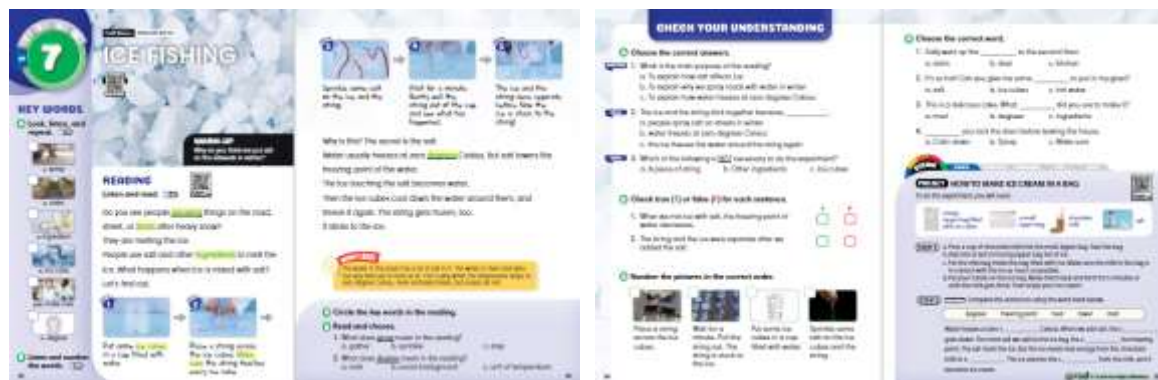
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Academic Objective	Learn about salt and ice
Vocabulary	spray, stairs, ingredient, ice cube, make sure, degree
STEAM Project	How to Make Ice Cream in a Bag
	21st Century Skills: Critical Thinking



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The salt melts the snow and ice on the sidewalk which makes it safer for people who walk on it.

[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, 6, 2, 1, 5

[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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. b 2. c

[WOW! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the freezing point of sea water. Help them understand the different freezing point of pure water and sea water.
- Refer to Background Knowledge for more details about oceans' freezing. Briefly discuss the students' answer in Warm-Up and connect it with ocean's lower freezing point.

[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. Check true (T) or false (F) for each sentence. 1. T 2. F
- C. Number the pictures in the correct order. 2, 4, 1, 3
- D. Choose the correct word. 1. a 2. b 3. c 4. c
-

[STEAM PROJECT]

- Have students do the experiment and complete the blanks.
- 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.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer and with reasons based on PROJECT REFERENCE.
- Answer: 1. degrees 2. freezing point 3. lower 4. melt 5. heat

Unit 8. Frozen

Academic Objective	Learn more about the freezing point of water
Vocabulary	aunt, even, reply, ask, because, lower
STEAM Project	An Ice-Melting Experiment
	21st Century Skills: Creativity, Collaboration



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The water in oceans can freeze, but it must be very cold for that to happen.

[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, 5, 3, 6, 2, 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.)

[SHORT ACTIVITIES]

- Have students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. a 3. b
- B. Check true (T) or false (F) for each sentence. 1. F 2. F
- C. Complete the chart. 1. b 2. a 3. d 4. c
- D. Choose the best definition. 1. b 2. a 3. b 4. a

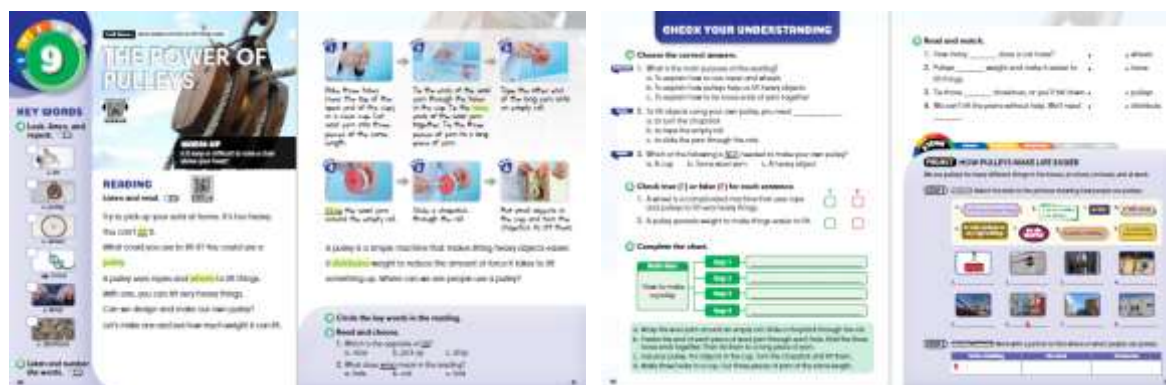
[STEAM PROJECT]

- Have students do the experiment and complete the blanks.
- 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.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer and with reasons based on PROJECT REFERENCE.
- Answer: 1. Salt 2. lowers 3. melt 4. faster

Unit 9. The Power of Pulleys

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Academic Objective	Learn about pulleys and how to lift things easily
Vocabulary	lift, pulley, wheel, loose, wrap, distribute
STEAM Project	How Pulleys Make Life Easier
	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: It is easy to lift a plastic chair, but it is difficult to raise a big sofa chair or recliner.

[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, 5, 2, 4, 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.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. b 2. a 3. c
- B. Check true (T) or false (F) for each sentence. 1. F 2. T
- C. Complete the chart. 1. d 2. b 3. a 4. c
- D. Read and match. 1. wheels 2. distribute 3. loose 4. pulleys

[STEAM PROJECT]

- Have students match the texts with photos how people use pulleys.
- Have them share the results 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. a 2. e 3. f 4. c 5. h 6. b 7. d 8. g
- Step 2:
In/On a building: g, e, a, d, b
On a boat: c, h
To have fun: c, f

Unit 10. Inventions of the Past

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Academic Objective	Learn more about pulleys
Vocabulary	fortress, electricity, easily, work, carry, need
STEAM Project	More about Pulleys
	21st Century Skills: Critical Thinking

The first screenshot shows the 'READING' section of a lesson plan. It features a large image of a fortress and a text box titled 'READING' with a sub-header 'What do you need to build a pulley?'. The text describes how pulleys were used in ancient times to lift heavy loads. The second screenshot shows the 'CHECK YOUR UNDERSTANDING' section, which includes multiple-choice questions and a matching exercise. The third screenshot shows the 'READ ABOUT PULLEYS' section, which includes a diagram of a pulley system and a matching exercise.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: I need a rope and a wheel.

[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, 5, 1, 2, 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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. c 2. a

[WOW! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the types of pulleys. Help them understand what fixed and compound pulley are.
- Refer to Background Knowledge for more details about pulleys. Share what students answered in Warm-Up, and discuss ways of making each type of pulleys.

[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. Check true (T) or false (F) for each sentence. 1. F 2. T
- C. Complete the chart. 1. works 2. lift 3. easily 4. wheels 5. weight 6. need
- D. Choose the best definition. 1. a 2. a 3. b 4. a

[STEAM PROJECT]

- Have students answer the questions about pulleys.
- Have them share the answers of the questions with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
- Step 1: 1. c 2. b 3. a
- Step 2: 1. force 2. pulley 3. fixed 4. direction 5. lift 6. down 7. weight

Unit 11. A Volcanic Eruption

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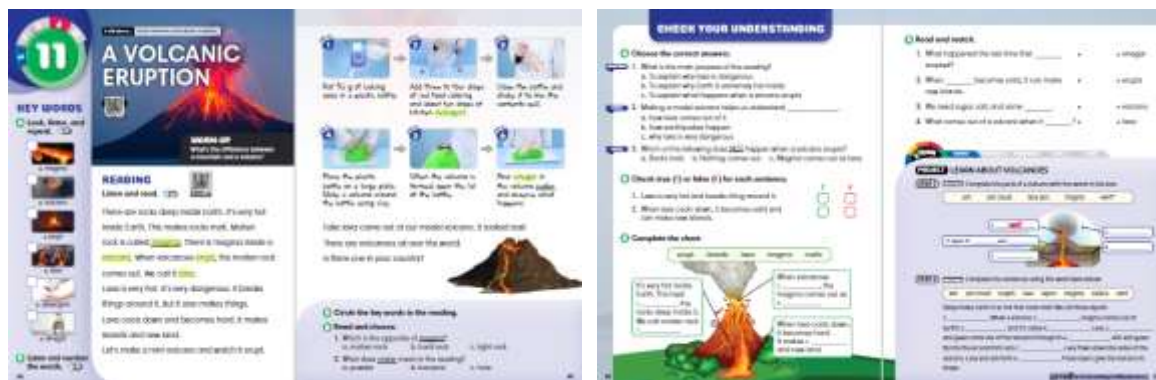
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Academic Objective	Learn about volcanoes and volcanic eruptions
Vocabulary	magma, volcano, erupt, lava, detergent, vinegar
STEAM Project	Learn About Volcanoes
	21st Century Skills: Critical Thinking



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: A volcano has magma inside it and can erupt. A mountain does not have magma and will not erupt.

[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, 1, 5, 2, 3, 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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. a 3. b
- B. Check true (T) or false (F) for each sentence. 1. T 2. T
- C. Complete the chart. 1. melts 2. magma 3. erupt 4. lava 5. islands
- D. Read and match. 1. volcano 2. lava 3. vinegar 4. erupts

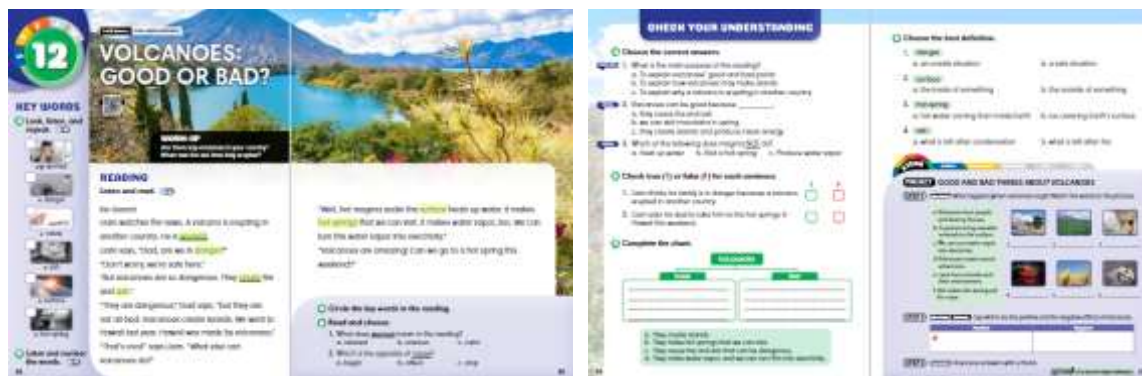
[STEAM PROJECT]

- Have students complete the diagram and paragraph.
- Have them share the results 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. vent 2. ash cloud 3. ash, lava 4. lava 5. magma
- Step 2: 1. magma 2. erupts 3. surface 4. lava 5. ash 6. vent 7. ash cloud 8. layers

Unit 12. Volcanoes: Good or Bad?

S T E A M

Academic Objective	Learn more about volcanoes
Vocabulary	worried, danger, cause, ash, surface, hot spring
STEAM Project	Good and Bad Things About Volcanoes
	21st Century Skills: Critical Thinking, Collaboration, Communication



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, there are many volcanoes in my country. Mt. St. Helens is in Washington State. The biggest eruption was on May 18, 1980. The last time it erupted was in 2005.

[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, 2, 6, 5, 4, 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.)

[SHORT ACTIVITIES]

- Have students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. c 3. b
 - B. Check true (T) or false (F) for each sentence. 1. T 2. F
 - C. Complete the chart.
Good: a, b, d
Bad: c
- Choose the best definition. 1. a 2. b 3. a 4. b

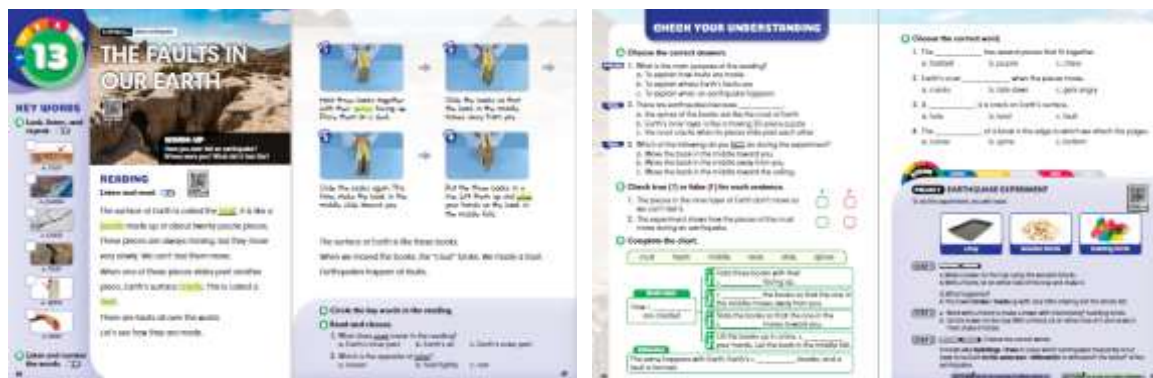
[STEAM PROJECT]

- Have students answer the questions.
- 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 more aspects of volcanoes.
- Answer:
 - Step 1: 1. c 2. f 3. d 4. e 5. b 6. a
 - Step 2:
Positive: d, b, c, f
Negative: a, e

Unit 13. The Faults in Our Earth

S T E A M

Academic Objective	Learn about earthquakes
Vocabulary	crust, puzzle, crack, fault, spine, relax
STEAM Project	Earthquake Experiment
	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: Yes, I have. I was in Los Angeles in a high-rise apartment building. The whole building swayed back and forth.

[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, 1, 2, 3, 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.)
- Scan the QR code to view the experiment.

[SHORT ACTIVITIES]

- Have students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. a 2. c 3. c
- B. Check true (T) or false (F) for each sentence. 1. F 2. F
- C. Complete the chart. 1. faults 2. spines 3. Slide 4. middle 5. Relax 6. crust
- D. Choose the correct word. 1. b 2. a 3. c 4. b
-

[STEAM PROJECT]

- Have students do the experiment and circle the answers.
- Have them share the results of the experiment 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 and with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1:
- The tower broke up with very little shaking and the blocks fell.
- Step 3:
- It shows why buildings in areas which earthquakes frequently occur need to be built differently to withstand the fallout of the earthquakes.

Unit 14. Earthquake Safety

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Academic Objective	Learn more about earthquakes
Vocabulary	grab, news report, fall down, turn off, power, elevator
STEAM Project	Do During an Earthquake
	21st Century Skills: Critical Thinking, Collaboration, Communication



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, I do. You should get under a table and protect your head. If you can, leave your house and go to an open area away from buildings.

[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, 5, 2, 6, 3, 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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. Check true (T) or false (F) for each sentence. 1. T 2. F
 - C. Complete the chart.
 - Who: Dina and her dad
 - What: This story is about an earthquake safety
 - Where: They are in their house
 - When: After he checked his phone for news reports
 - Why: Because they knew what to do in an earthquake
 - D. Read and match. 1. elevator 2. power 3. fell down 4. news report

[STEAM PROJECT]

- Have students decide what we should or should not do during an earthquake.
- Have them share the results of step 1 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
 - 1. Do it 2. Don't do it 3. Don't do it 4. Do it 5. Don't do it

Unit 15. Machines All Around

S T E A M

Academic Objective	Learn about machines and mechanical engineers
Vocabulary	complicated, mechanical, industry, turn on, switch, fridge
STEAM Project	Let's Make Our Own Lift 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: I use a washing machine, a refrigerator, a computer, and a car every day.

[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, 1, 2, 3, 6, 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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. 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. c 3. a
- B. Check true (T) or false (F) for each sentence. 1. F 2. T
- C. Complete the chart. 1. design 2. industries 3. computers 4. build
- D. Choose the best definition. 1. a 2. b 3. a 4. b

[STEAM PROJECT]

- Have students do the experiment and complete the text in step 2.
- Have them share the results of step 1 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 and with reasons based on PROJECT REFERENCE.
- Answer:
- 1. pull 2. away 3. shorter 4. push 5. together 6. longer

Unit 16. Underwater Explorers

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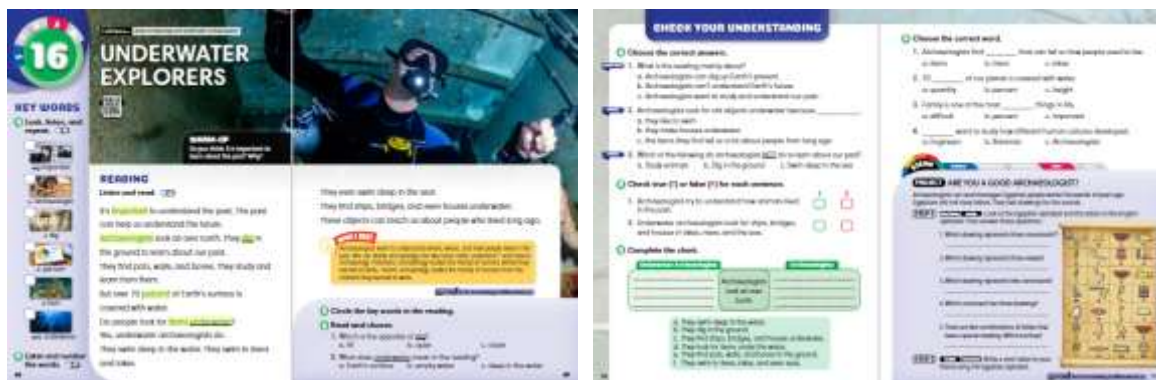
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Academic Objective	Learn about archaeology and underwater archaeologists
Vocabulary	important, archaeologist, dig, percent, item, underwater
STEAM Project	Are You a Good Archaeologist? 21st Century Skills: Critical Thinking, Creativity, Communication



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, I do. It is important to learn about the past so we can make better choices for the future.

[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, 1, 4, 2, 6, 5

[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 students circle the key words to help them understand their meaning.
- Have them individually answer question D. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. a 2. c

[WOW! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know fields of archaeology. Help them understand the difference between two basic archaeology fields.
- Refer to Background Knowledge for more about two kinds of archaeology. Explain them the characteristics of classic (historic) archaeology and anthropological (prehistoric) archaeology.

[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. Check true (T) or false (F) for each sentence. 1. F 2. T
- C. Complete the chart.
- Underwater Archaeologists: a, c, d, f
- Archaeologists: b, e
- D. Choose the correct word. 1. a 2. b 3. c 4. c

[STEAM PROJECT]

- Have students look at the Egyptian alphabet and answer the questions.
- 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 write their own letters in step 2 and share it with their partner or group.
- Answer:
- Step 1:

- 1.  2.  3.  4. H 5. CH, KH