

Unit 1. Bubbling Air

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Academic Objective	Learn about air
Vocabulary	air, touch, fill, plastic, syringe, bubble
STEAM Project	Testing for Air
	21st Century Skills: Critical Thinking, Collaboration

BUBBLING AIR

KEY WORDS
Look, listen, and repeat.
a. air
b. touch
c. fill
d. plastic
e. syringe
f. bubble

WARM-UP
What can you feel when you use a fan?

READING
Listen and read.
Can we see air? Can we touch it? We cannot see air. We cannot touch it either. But air is all around us. Let's do a simple experiment.

What happened in this experiment?
Bubbles came out from the bottle and the syringe. They made a bubbling sound. Bubbles are made of air. Look around you. Where can you find air?

Check your understanding
1. Choose the correct answers.
1. What is the main purpose of the experiment?
a. To fill a bowl with water.
b. To fill a bottle with air.
c. To show the air around us.
2. _____ are made of air.
a. Plastic
b. Bottles
c. Bubbles
3. Which is TRUE?
a. We cannot see air.
b. We cannot touch air.
c. We can touch air.

Look, read, and check.
1. ☐ a. When you press down on the top of the empty syringe in the water, bubbles come out.
☐ b. When you press down on the top of the empty syringe in the water, plastic comes out.
2. ☐ a. Air is all around us.
☐ b. Air is not around us.

Number the pictures in the correct order.
1. ☐ Bubbles come out of the syringe into the water.
2. ☐ Push down on the top of the syringe.
3. ☐ Fill a large bowl with water.
4. ☐ Put a syringe into the water.

TESTING FOR AIR
To do this experiment, you need:
a large bowl full of water
an empty soda can

STEP 1
First, put the can bottom first into the bowl of water.
To do this experiment, you need:
a. The can floats in the water. It goes / doesn't go down into the water.
Now, turn the can on its side and push it into the water.
b. What happens?
A. The water doesn't go / goes into the can.
There are / aren't bubbles coming out of the can.
c. Why does this happen?
A. The water in the bowl pushes out / in the air from inside the can. Things that look empty are really full of water / air.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: I can feel cool air blowing on my face.

[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, 2, 3, 6, 4, 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. air 2. bubble

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know air is around us. Help them understand about air.
- Refer to Background Knowledge for more explanation of air and its characteristics. Pick some answers that students have answered in Warm-Up, and briefly discuss it as time allows.

[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. Look, read, and check. 1. a 2. a
- C. Number the pictures in the correct order. 4, 3, 1, 2
- D. Look, match, and write. 1. touch 2. bubble 3. plastic 4. air 5. fill 6. syringe

[STEAM PROJECT]

- Have students do the experiment.
- 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.
- 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 can floats in the water. It doesn't go down into the water.
- Step 2
- The water goes into the can.
- There are bubbles coming out of the can.
- The water in the bowl pushes out the air from inside the can. Things that look empty are really full of air.

Unit 2. Tony's Balloon

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Academic Objective	Learn about the properties of air
Vocabulary	balloon, untie, try, feel, wind, around
STEAM Project	The Dry Paper Experiment
	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: I can move my arms. I can make a fan with a piece of paper and move it in front of my face.

[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, 6, 3, 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. wind 2. untie

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know they can hear and feel the air. Help them understand properties of air.
- Refer to Background Knowledge for more explanation about air and its characteristics. Pick some answers that students have answered in Warm-Up, and briefly discuss it as time allows.

[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. Look, read, and check. 1. a 2. a
 - C. Complete the chart.
 - Tony had a balloon. → He untied the balloon. →
 - The air came out of the balloon. →
 - The balloon got smaller. → Tony felt the air.
 - D. Unscramble and write. 1. try 2. feel 3. balloon 4. untie 5. wind 6. around

[STEAM PROJECT]

- Have students do the experiment.
- Have them share the results of step 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 and with reasons based on PROJECT REFERENCE.
- Answer:
 - Step 2
 - The paper is dry.
 - The air inside the glass stops the water from going into the glass.

Unit 3. Magnets Push and Pull

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Academic Objective	Learn about magnets and their poles
Vocabulary	pole, north, south, opposite, build, tower
STEAM Project	Exploring Magnets
	21st Century Skills: Critical Thinking

WARM-UP
Do you like playing with magnets?

KEY WORDS
Look, listen, and repeat.
a. pole
b. north
c. south
d. opposite
e. build
f. tower

READING
Listen and read.
A magnet has two poles. They are the north and south poles.
Let's look at them.
Take two magnets.
Put the same poles together.
Put the opposite poles together.

WHAT I SEE
Earth is a big magnet. It has a north pole and a south pole. The north pole of a magnet points to the north pole of Earth. The south pole of a magnet points to the south pole of Earth. When you put a bar magnet in two, you get two magnets. Each magnet has a north and a south pole.

CHECK YOUR UNDERSTANDING
1. Choose the correct answers.
1. What is the main idea of the reading?
a. To see what magnetic poles do
b. To learn how to make a tower
c. To see when two magnets don't move
2. To build a tower with ring magnets, you need to put _____
a. the same poles facing each other
b. the opposite poles facing each other
c. the poles in any direction you want
3. A magnet has _____ poles.
a. zero b. one c. two
4. Look, read, and check.
1. ☐ a. When you put the same poles of two magnets together, they push away.
☐ b. When you put the same poles of two magnets together, they pull together.
2. ☐ a. Bar magnets have two poles: red and blue.
☐ b. Bar magnets have two poles: north and south.
3. Complete the chart.

Color	Shape
Earth is a big _____.	A common magnet has _____ poles. Two. The _____ pole of a magnet points to the north pole of the Earth.
_____ a long magnet in two.	You get two _____. There are two poles in each magnet.

4. Choose the correct word.
1. The north / south pole points to the north pole of Earth.
2. Plus and minus are poles / opposite.
3. I build / push a tower at the beach.
4. This tower / pole is tall.
5. The south pole points to the south / north pole of Earth.
6. Earth has a north and a south tower / pole.

PROJECT EXPLORING MAGNETS
Let's look at magnets.
STEP 1 Draw a magnet (+ + - -) to show what happens.

N	S	N	S
S	N	S	N

STEP 2 Complete the sentences using the word bank below.
put push poles north south
Magnets have two _____. One is called the _____ pole. When opposite poles are near one another, they _____ together. When two of the same poles are near one another, they _____ away from one another.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, I do. I like to see what things will stick to magnets.

[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, 1, 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.)
- 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. pole 2. tower

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know mechanism of the magnets. Help them understand magnets and their poles.
- Refer to Background Knowledge for different uses of magnets. Pick some magnets that students have used before, and briefly discuss it as time allows.

[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. c
- B. Look, read, and check. 1. a 2. b
- C. Complete the chart.
- Cause: Earth is a big magnet.
- → Effect: A common magnet has two poles, too. The north pole of a magnet points to the north pole of Earth.
- Cause: Cut a long magnet in two.
- → Effect: You get two magnets. There are two poles in each magnet.
- D. Choose the correct word. 1. north 2. opposite 3. build 4. tower 5. south 6. pole

[STEAM PROJECT]

- Have students follow the directions.
- 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 2
- Magnets have two poles. One is called the north pole, and the other is the south pole. When opposite poles are near one another, they pull together. When two of the same poles are near one another, they push away from one another.

Unit 4. New Pencil Case

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Academic Objective	Learn about the uses of magnets
Vocabulary	zip, pencil case, drop, shake, close, tightly
STEAM Project	Find the Words 21st Century Skills: Critical Thinking

NEW PENCIL CASE

KEY WORDS

- zip
- pencil case
- drop
- shake
- close
- zip tightly

READING

Listen and read.

Emma didn't zip her pencil case. All her pens dropped from it. Emma was sad. Dad gave her a new pencil case. She didn't need to zip the new pencil case. She turned it over. She shook it. It didn't open. "How does it stay closed?" Emma asked. "There are two magnets in the pencil case," her dad answered.

WARM-UP

What can you use to stick things to your fridge?

"When you close it, the two opposite poles touch. The pencil case closes tightly."

"Wow! This pencil case is great!"

WARM-UP

Choose one thing to "stick" to your fridge by using fridge magnets. There are many things that use magnets at home. Do you have any? Stick them with a magnet! Can you think of any more things that use magnets? What else can you stick to it?

CHECK YOUR UNDERSTANDING

1. Choose the correct answer.

1. What are they mainly talking about?

- Two magnets
- Emma's new pencil case
- Two opposite poles

2. Emma's new pencil case has _____.

- a zipper
- a magnet
- two magnets

3. How did Emma's new pencil case close?

- The same poles of a magnet pulled each other.
- The opposite poles of a magnet pulled each other.
- Plastic things stuck to the magnet.

2. Look, read, and check.

1. ☐ a. When you don't close your pencil case tightly, your pencils drop out.

2. ☐ b. When you close your pencil case tightly, your pencils drop out.

3. ☐ c. You can use magnets to close a door.

4. ☐ d. You can use magnets to zip a door.

3. Complete the chart.

ZIPPER PENCIL CASE	BOTH	MAGNETIC PENCIL CASE
When you don't _____, your pens and pencils _____ from it.	You can put your pens and pencils in them.	The magnets _____ it. Your pens and pencils don't _____ from it.

UNSCRAMBLE AND WRITE.

1. c / i / i / p / n / i / i
a / s / e / s

2. a / i / p / d

3. i / z / p

4. a / s / k / h / a

5. i / s / o / s / a

6. h / i / s / y / g / i / t

SS40 FIND THE WORDS

Find the words in the box.

button eraser hairpin lather metal paperclip wood

STEP 1

How, write:

Things that stick to a magnet _____

Things that don't stick to a magnet _____

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: I can use magnets and tape to stick things to my fridge.

[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, 3, 1, 6, 4, 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. close 2. shake

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the two magnets close the pencil case. Help them understand different uses of magnets.
- Refer to Background Knowledge for more uses of magnets. Pick some magnets at home, and briefly discuss it as time allows.

[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. Look, read, and check. 1. a 2. a
 - C. Complete the chart.
When you don't zip it, your pens and pencils drop from it.
The magnets close it. Your pens and pencils don't drop from it.
 - D. Unscramble and write. 1. pencil case 2. drop 3. zip 4. shake 5. close 6. tightly

[STEAM PROJECT]

- Have students find the words and classify.
- 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:



- a. Things that stick to a magnet: hairpin, metal, paper clip
- b. Things that don't stick to a magnet: button, eraser, leather, wood

Unit 5. Growing Seeds

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Academic Objective	Learn about seeds and how they grow
Vocabulary	kidney bean, cotton, place, temperature, bud, soil
STEAM Project	Life Cycle of a Plant
	21st Century Skills: Critical Thinking, Communication, Creativity

KEY WORDS
Look, listen, and repeat.
a kidney bean
a cotton
a place
a temperature
a bud
a soil

READING
Listen and read.
What do seeds need to grow?
Let's take a look.
You need kidney beans, water, and two dishes.

WARM-UP
What do you think plants need to grow?

CHECK YOUR UNDERSTANDING
1. Choose the correct answers.
1. What is the main purpose of this experiment?
a. To show what temperature is good to grow seeds
b. To see which seeds need light to grow
c. To see which seeds need water to grow
2. Why do we put the kidney beans in different bowls?
a. To see which beans grow
b. To wait for seven days
c. To pour water on the two bowls
3. A plant does NOT need _____ to grow.
a. water b. light c. cotton
4. Look, read, and check.
1. a. Place the seeds on cotton, and pour water on them.
b. Place the seeds in the soil, and don't pour water on them.
2. a. Seven days after you pour water on the seeds, you can see buds.
b. Seven days after you pour water on the seeds, you can't see buds.
5. Number the pictures in the correct order:
a. Pour some water into one of the dishes.
b. The seeds in the wet bowl have buds.
c. Put some kidney beans on cotton in the two dishes.
d. Put some cotton buds on cotton at the bottom of the two dishes.

LIFE CYCLE OF A PLANT
Plan on living things. Let's learn about the plant life cycle.
flower fruit plant seed sunlight water
1. seed 2. seedling 3. plant 4. flower 5. fruit 6. back to seed

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Plants need water, light, and air to grow.

[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. kidney bean 2. temperature

[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. Look, read, and check. 1. a 2. a
- C. Number the pictures in the correct order. 3, 4, 2, 1
- D. Look, match, and write.
1. cotton 2. soil 3. kidney bean 4. place 5. temperature 6. bud

[STEAM PROJECT]

- Have students label the pictures and fill out the chart.
- 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
seed → plant → water → sunlight → flower → fruit

Unit 6. Growing Tomatoes

S T E A M

Academic Objective	Learn more about how seeds grow into plants
Vocabulary	cherry tomato, taste, buy, plant, sunlight, water
STEAM Project	Parts of a Plant
	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 like to grow plants. / No, I don't like to grow plants.

[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, 3, 6, 4, 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. sunlight 2. water

[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. Look, read, and check. 1. a 2. a
- C. Complete the chart.
- Sarah's dad bought some cherry tomato seeds. → Sarah planted and watered the seeds.
- After a week, leaves grew. → Sarah watered them some more.
- Cherry tomatoes grew. → Sarah ate them.
- D. 1. buy 2. plant 3. cherry tomato 4. taste 5. sunlight 6. water

[STEAM PROJECT]

- Have students fill in the parts. Use the word box if needed.
- Have them share the results with their partner or group. Ask different pairs of groups to present their results to the class.
- Answer:
- Step 1.
- 1. fruits 2. leaves 3. stem 4. flowers 5. seeds 6. roots
- Step 2.
- 1. flowers 2. seeds 3. leaves 4. roots 5. stem 6. fruits

Unit 7. How Rocks Become Soil

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Academic Objective	Learn about how soil is formed
Vocabulary	mountain, rock, large, sharp, edge, powder
STEAM Project	The Soil Layers
	21st Century Skills: Critical Thinking

7 HOW ROCKS BECOME SOIL

KEY WORDS
Look, listen, and repeat.

READING
Listen and read.

In the mountains, you can see rocks and soil. Rocks can turn into soil. How does this happen? Let's do an experiment!

UNRAVEL UP
When do you think soil comes from?

Put a piece of rock on a sheet of paper. Look at the edges of the rock. It is sharp. It has sharp edges, and there is little powder around it.

KEY WORDS
a. mountain
b. rock
c. edge
d. powder

LISTEN AND REPEAT

Put the rock sugar in a plastic container and close it.

Shake the plastic container hard.

Did anything happen? Yes, it did. The rock sugar broke into smaller pieces. This is how soil is made. Rocks and stones break down in nature. They become soil.

WHAT I SEE!
Rocks and stones up in the mountains become soil when they break down into small pieces. Changes in temperature, weather, wind, rain, and snow break down the rocks, and they become soil.

CIRCLE THE KEY WORDS IN THE READING.

Read and choose.

1. I am large. I am hard. I have sharp edges. What am I? ☐ rock ☐ powder

2. I am tall. You can climb me. What am I? ☐ edge ☐ mountain

CHECK YOUR UNDERSTANDING

1. Choose the correct answers.

1. What is the purpose of the experiment?
a. To put rock sugar in a container.
b. To show how soil is formed.
c. To show how rock is formed.

2. Why do you need to shake the container with the rock sugar?
a. To break the sugar into powder.
b. To hear the sound.
c. To break the container.

3. Rocks do NOT
a. turn into soil. b. become powder. c. shake a container.

2. Look, read, and check.

1. ☐ a. In the mountains, you can see rocks, but you can't see soil.
☐ b. In the mountains, you can see rocks and soil.

2. ☐ a. When you break down rock sugar, it becomes powder.
☐ b. When you break down rock sugar, it becomes soil.

3. Number the pictures in the correct order.

Put the rock sugar in a plastic container. The rock sugar breaks into small pieces. Get a large piece of rock sugar. Close the container and shake it hard.

4. Unscramble and write.

1. a / c / i / k
2. g / e / d / s
3. a / g / i / e / t
4. p / a / s / i / h
5. s / i / p / w / o / d
6. t / o / s / i / m / n / a

5. THE SOIL LAYERS
Observe the layers! Throughout the soil, and the bedrock. The topsoil is the soil on top of the bedrock. It is the soil you can see. You can plant seeds here. The subsoil is in the middle. It contains sand, rocks, and food for your plants. The bedrock is at the bottom. It is made of rock. It contains water.

STEP 1 Look at the diagram. Label the three layers.

STEP 2 Now, answer the questions.

1. How many layers does soil have?
a. 1 b. 3 c. 4

2. What do we call the topmost layer of soil?
a. Topsoil b. Bedrock c. Subsoil d. Water

3. On what layer do plants and animals live?
a. Subsoil b. Soil c. Topsoil d. Bedrock

4. What layer is made of rock?
a. Bedrock b. Soil c. Subsoil d. Topsoil

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: I think soil comes from rocks.

[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, 2, 6, 1, 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. rock 2. mountain

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the rocks break down and become soil. Help them understand how soil is formed.
- Refer to Background Knowledge for more explanation. Pick some answers that students have answered in Warm-Up, and briefly discuss it as time allows.

[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. Look, read, and check. 1. b 2. a
- C. Number the pictures in the correct order. 2, 4, 1, 3
- D. Unscramble and write. 1. rock 2. edge 3. large 4. sharp 5. powder 6. mountain

[STEAM PROJECT]

- Have students label the diagram and answer the questions.
- 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. topsoil 2. subsoil 3. bedrock
- Step 2
1. b 2. b 3. c 4. a

Unit 8. The Magic of Nature

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Academic Objective	Learn more about the characteristics of soil
Vocabulary	go hiking, hurt, rest, nature, break, piece
STEAM Project	Soil Formation
	21st Century Skills: Critical Thinking

THE MAGIC OF NATURE

WARM-UP
Can a plant grow through a rock? How?

READING
Listen and read.
Peter goes hiking with his uncle. Peter's legs hurt. He needs to rest. He lies down on a big rock. He sees a tree growing on the rock. He's surprised. "How can this tree grow here?" he asks. "That's nature. The tree grows through the rock. The tree breaks the rock," his uncle says. "Wow, trees can break rocks!"

CHECK YOUR UNDERSTANDING

1. What is the purpose of the reading?
a. To show how rocks can be broken down to make soil.
b. To show you nature when you go hiking.
c. To show that rest is a good thing.

2. Why is Peter surprised?
a. He wants to rest.
b. He learns that trees can break rocks.
c. His legs hurt.

3. What does nature NOT do?
a. Break rocks into pieces.
b. Cause trees to grow into rocks.
c. Lie down on a rock.

Look, read, and check.

1. ☐ a. Weather can affect soils and rocks.
☐ b. Weather cannot affect soils and rocks.

2. ☐ a. Peter is resting because his legs hurt.
☐ b. Peter is resting because he is surprised.

Complete the chart.

Soil
A tree can grow through a rock and it into small pieces.
The cold can also break rocks into small and form.

PROJECT SOIL FORMATION

STEP 1 Use the keywords in the box and the images in the diagram to explain how soil is formed.

STEP 2 Now complete the passage with the words from the box.

Rocks need a long time to become soil. Rocks hit other rocks and break into small pieces. The cold breaks rocks. Along time ago, rocks made and are now made them, also break rocks when they grow through them.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, a plant can grow through a rock. It can grow in a crack in the rock.

[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, 4, 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.)

[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. nature 2. rest

[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. Look, read, and check. 1. a 2. a
 - C. Complete the chart.
Nature forms soil.
→A tree can grow through a rock and break it into small pieces.
→The cold weather can also break rocks into small and form soil.
 - D. Look, match, and write. 1. rest 2. break 3. go hiking 4. piece 5. nature 6. hurt

[STEAM PROJECT]

- Have students fill in the diagram and the passage.
- 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. rocks 2. weather 3. time
4. plants 5. animals 6. soil
 - Step 2
Rocks need a long time to become soil. Rocks hit other rocks and break into small pieces. The cold weather breaks rocks. A long time ago animals broke rocks and are now inside them. Plants also break rocks when they grow through them.

Unit 9. The Shaking Drum

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Academic Objective	Learn about different kinds of sounds
Vocabulary	hear, believe, drum, hit, jump, move
STEAM Project	Is the Sound You Hear Big or Small?
	21st Century Skills: Critical Thinking, Communication

KEY WORDS
Look, listen, and repeat.
+ hear
+ believe
+ drum
+ hit
+ jump
+ move
Listen and number the words.

WARM-UP
Close your eyes. What sounds can you hear?
Sounds can be big or small. We can hear them. We can also see them. Don't you believe it? Let's do a simple experiment.
Place some grains of rice on the top of a small drum.

READING
Listen and read.
What happened when you hit the drum softly?
The drum made a small sound. It shook a little. The rice jumped a little.
What happened when you hit the drum hard?
The drum made a big sound. It shook a lot. The grains of rice jumped high. Sound made the drum move. It made the grains of rice jump. We saw sound.

CHECK YOUR UNDERSTANDING
1. Choose the correct answers.
1. What is the main purpose of the experiment?
a. To show how to play a drum.
b. To show how to make a drum.
c. To show that we can see sound.
2. What happens when you hit the drum?
a. It doesn't make sound.
b. It makes the grains of rice jump.
c. It doesn't move.
3. What two things do the grains of rice **DO** do when you hit the drum?
a. Jump
b. Believe
c. Hear
2. Look, read, and check.
1. ☐ a. Put some grains of rice on a drum.
☐ b. Put a drum on some grains of rice.
2. ☐ a. When you hit the drum, sound makes the grains of rice move.
☐ b. When you hit the drum, the grains of rice make the drum move.
3. Complete the chart.

Cause	Effect
When you _____ a drum, it vibrates.	The vibrations hit your ear, and you can _____ the sound.
Put some grains of rice on a drum. Then _____ it softly.	The drum makes a soft sound. The grains of rice _____ a little.
Put some grains of rice on a drum. Then hit it hard.	The drum makes a _____ sound. The grains of rice jump _____.

Look, match, and write.
1. ☐ believe
2. ☐ move
3. ☐ hear
4. ☐ drum
5. ☐ hit
6. ☐ jump
IS THE SOUND YOU HEAR BIG OR SMALL?
Look at the pictures below and fill them in the correct boxes.

Sound	Big Sound	Small Sound
Thunder	<input type="checkbox"/>	<input type="checkbox"/>
Whisper	<input type="checkbox"/>	<input type="checkbox"/>
Drum	<input type="checkbox"/>	<input type="checkbox"/>
Jump	<input type="checkbox"/>	<input type="checkbox"/>
Move	<input type="checkbox"/>	<input type="checkbox"/>
Hear	<input type="checkbox"/>	<input type="checkbox"/>
Believe	<input type="checkbox"/>	<input type="checkbox"/>

Now, draw your answer with a friend.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: I can hear my computer. I can hear my fingers on the keyboard. I can hear the TV. I can hear rain hitting the roof of my house.

[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, 3, 6, 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. hear 2. drum

[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. b, c
- B. Look, read, and check. 1. a 2. a
- C. Complete the chart.
- When you hit a drum, it vibrates. → The vibrations hit your ear, and you can hear the sound.
- Put some grains of rice on a drum. Then hit it softly. → The drum makes a soft sound. The grains of rice jump a little.
- Put some grains of rice on a drum. Then hit it hard. → The drum makes a big sound. The grains of rice jump high.
- D. Look, match, and write. 1. move 2. believe 3. hit 4. hear 5. drum 6. jump

[STEAM PROJECT]

- Have students classify the pictures.
- 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:
- Small Sounds: leaves falling, quiet classroom
- Big Sounds: school cafeteria, thunder (near), garbage truck, music concert, a jet flying over a city, girls laughing

Unit 10. Ticking Clock

S T E A M

Academic Objective	Learn more about sound and how to measure it
Vocabulary	living room, clock, tick, laugh, measure, decibel
STEAM Project	How Dangerous Are the Sounds We Hear?
	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: I can hear a dog barking. It is loud.
I can hear water running in the kitchen. It is soft.

[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, 1, 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 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. laugh 2. living room

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know that sounds can be measured with decibels. Help them understand more about sound and how to measure it.
- Refer to Background Knowledge for more sounds and its decibels. Pick some sounds that students have answered in Warm-Up, and briefly discuss it as time allows.

[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. b
- B. Look, read, and check. 1. a 2. b
- C. Complete the chart.

Main Idea: We measure sound in decibels.

Details:

When sounds are loud, decibels are high.

→ Jessica can hear her brother laughing.

When sounds are soft, decibels are low.

→ Jessica can't hear the leaves falling.

- D. Unscramble and write.
1. clock 2. living room 3. laugh 4. decibel 5. tick 6. measure

[STEAM PROJECT]

- Have students answer the questions.
- 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
- Loudest sound: Fireworks
- 88 dB: Motorcycle
- 80 dB: City traffic

Step 2

- People talking, school cafeteria, etc.

Unit 11. Different Shadows

S T E A M

Academic Objective	Learn about light and shadows
Vocabulary	shadow, dark, prepare, next to, different, object
STEAM Project	Let's Make a Sun Clock
	21st Century Skills: Critical Thinking, Communication

KEY WORDS
Look, listen, and repeat.

WARM-UP
Take a water bottle and a book. What do their shadows look like?

READING
Listen and read.

We can see shadows all around us. Sometimes we see dark shadows. Sometimes we see light shadows. Why do you think this? Let's find out.

SHADOWS
Put the clear cup next to a light. Put the dark cup next to a light.

Did the shadows look different? First, the light hit a clear object. The light kept going. It made a light shadow. Then the light hit a dark object. The light stopped. It made a dark shadow.

SMART TIPS
A shadow is the dark shape made when something stops light. You must have a source of light in order to have shadows. The biggest light source is the sun.

CHECK YOUR UNDERSTANDING

1. Choose the correct answers.

1. What is the main purpose of the experiment?
a. To teach us about light and shadows.
b. To teach us to make shadows in the dark.
c. To teach us to put an object in the dark.

2. An object does NOT make a shadow when
a. there is a light and an object.
b. there is no light and no object.
c. there is sunlight.

3. When is the shadow light?
a. When the object isn't see-through.
b. When the object is small.
c. When the object is see-through.

4. Look, read, and check.

1. ☐ a. When you put a glass next to a light, there is no shadow.
☐ b. When you put a glass next to a light, it makes a light shadow.

2. ☐ a. When an object stops the light, there is a dark shadow.
☐ b. When an object lets the light through, there is a dark shadow.

5. Complete the chart.

Clear	Dark
Put a clear cup _____ a light.	A clear cup is see-through, so the shadow is _____.
Put a dark cup next to a _____.	Light can't go through the cup, so the shadow is _____. The two shadows are _____.

LET'S MAKE A SUN CLOCK
To do this, you need:

STEP 1
a. Make a hole in the center of the paper plate.
b. Put the straw into the hole. Tape it straight up.

STEP 2
a. At an exact hour (11 a.m. or 2 p.m.), take the plate outside.
b. Put it to the sun. Make a mark with your marker where the shadow of the straw falls. Write the time. Repeat everywhere.
c. On each the following day. Does the clock keep the time?

STEP 3
a. What is happening?
A. The straw stops light through the light of the sun and makes an object's shadow. The shadow keeps moving because Earth moves.
b. Share your experience with a friend. Do your sun clocks tell the correct time?

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The shadow of the water bottle (assuming it is clear and plastic) is shaped like the water bottle, but it is light in color because light gets through the plastic.

[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, 1, 4, 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. shadow 2. next to

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the different shadows of the objects. Help them understand about light and shadows.
- Refer to Background Knowledge for more information about transparency of the objects and their shadows. Pick some materials at home, and briefly discuss it as time allows.

[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. Look, read, and check. 1. b 2. a
- C. Complete the chart.
- Put a clear cup next to a light. → A clear cup is see-through, so the shadow is light.
- Put a dark cup next to a light. → Light can't go through the cup, so the shadow is dark. The two shadows are different.
- D. Look, match, and write.
- 1. shadow 2. different 3. object 4. dark 5. prepare 6. next to

[STEAM PROJECT]

- Have students make a sun clock.
- 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.
- 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 2
- The straw stops the light of the sun and makes a shadow. The shadow keeps moving because Earth moves.

Unit 12. Stop Following Me!



Academic Objective	Learn more about shadows and light
Vocabulary	lake, follow, help, under, lie down, hide
STEAM Project	Changing Shadow
	21st Century Skills: Critical Thinking

The image shows a preview of the student workbook for Unit 12. It includes a 'KEY WORDS' section with a list of words and their phonetic symbols. The main story is 'STOP FOLLOWING ME!' which is a short narrative about a girl named Jane who is being followed by a shadow. The story is followed by a 'CHECK YOUR UNDERSTANDING' section with multiple-choice questions and a 'PROJECT: CHANGING SHADOW' activity that involves drawing and labeling shadows.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: My shadow is on the opposite side of me from the sun. If the sun is in front of me, my shadow is behind me.

[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, 1, 3, 4, 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. lake 2. under

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the shadows hide and change. Help them understand more about shadows and light.
- Refer to Background Knowledge for more explanation of shadow and its characteristics. Pick some experience that students have seen their shadows change, and briefly discuss it as time allows.

[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. Look, read, and check. 1. b 2. a
- C. Number the pictures in the correct order. 4, 2, 1, 3
- D. Unscramble and write. 1. help 2. follow 3. lie down 4. lake 5. under 6. hide

[STEAM PROJECT]

- Have students do the activity.
- 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.
- Answers may vary

Unit 13. Gravity Pulls

S T E A M

Academic Objective	Learn about gravity
Vocabulary	ground, gravity, bucket, poke, hole, fall
STEAM Project	How Fast Do They Fall? 21st Century Skills: Critical Thinking

The image shows a worksheet for Unit 13, "Gravity Pulls". It includes a "KEY WORDS" section with a list of words and their corresponding pictures: a ground, a gravity, a bucket, a poke, a hole, a fall, and a gravity. The "READING" section contains a short story about a boy named Tom who is playing with a cup and a bucket. The "CHECK YOUR UNDERSTANDING" section has three parts: "Choose the correct answers", "Look, read, and check", and "Complete the chart". The "PROJECT" section is titled "HOW FAST DO THEY FALL?" and includes a list of materials and a procedure for an experiment.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The book falls to the floor and makes a loud sound. Gravity pulls the book to the floor.

[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, 5, 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.)
- 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. ground 2. hole

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the gravity pulls things to the ground at the same speed. Help them understand about gravity.
- Refer to Background Knowledge for more explanation. Briefly discuss the facts about gravity as time allows.

[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. Look, read, and check. 1. a 2. a
- C. Complete the chart.
- Poke a hole in the paper cup. → Put your finger on the hole. Fill up the cup with water.
→ 1. Take your finger off the hole. → The water came out.
- → 2. Take your finger off the hole and drop the cup into the bucket. → The water and the cup fall at the same speed.
- D. Circle the correct word. 1. Gravity 2. Poke 3. hole 4. bucket 5. fall 6. ground

[STEAM PROJECT]

- Have students do the experiment.
- 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.
- 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:
- 1. The ball and the apple arrived at the same time.
- Step 2:
- 1. They arrived at the same time.
- As gravity pulls all objects with the same force, all objects should hit the ground at the same time.

Unit 14. A Fallen Apple

S T E A M

Academic Objective	Learn more about gravity
Vocabulary	head, Earth, pull, fish, swim, pond
STEAM Project	Paper Clip Gravity Experiment
	21st Century Skills: Critical Thinking

Unit 14. A Fallen Apple

KEY WORDS
Look, listen, and repeat.
a. head
b. Earth
c. pull
d. fish
e. swim
f. pond

READING
Listen and read.
Mary was sitting under a tree reading a book.
"Ouch!"
An apple fell on Mary's head.
There was no wind. Why did the apple fall?
Dad said, "Earth did it. Earth's gravity pulled the apple down. Gravity pulls apples to the ground. It pulls your book to the ground, too."
"Gravity is so strong!" Mary said.
"Thanks to gravity, you can sit on the ground."

SHORT STORY
In Isaac Newton's story, he says the first to think gravity was found was "what goes up has to come down." You may think it's true, but at the time, nobody thought about this. This was a great discovery! It helped us understand how Earth and the sun move.

CHECK YOUR UNDERSTANDING
1. Choose the correct answers.
1. What is the main purpose of the reading?
a. To talk about apples.
b. To show how gravity affects each object differently.
c. To explain how gravity works.
2. Why can fish swim in a pond?
a. Gravity is strong.
b. There is no gravity.
c. Gravity is weak.
3. Thanks to gravity, you can sit on the _____.
a. sky b. ground c. wind
2. Look, read, and check.
1. a. Mary was sitting under a tree when an apple fell on her head.
b. Mary was sitting on a tree when an apple fell on her head.
2. a. Earth's gravity pulls things.
b. Earth's gravity pushes things.
3. Complete the chart.
Gravity pulls all things together. It's very _____.
It pulls a _____ on an apple from a tree.
It pulls a _____ to the ground.
It lets fish _____ in the _____ and not in the air.

PROJECT: PAPER CLIP GRAVITY EXPERIMENT
To do this experiment, you need:
1. One end of a piece of string to a paper clip.
2. The other end to the stick. Repeat with the other two paper clips.
3. Hold the stick in the air so the paper clip hangs down.
4. What happens?
A. The gravity pulls / pushes the paper clip straight up / down to the center of Earth. Gravity pulls / doesn't pull the paper clip away when you move the stick up or down.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Gravity pulls things to Earth.

[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, 6, 3, 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. fish 2. pond

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the gravity pulls everything to the ground. Help them understand more about gravity.
- Refer to Background Knowledge for more explanation and characteristics of the gravity. Pick some experience that students have observed gravity pulling things to the ground, and briefly discuss it as time allows.

[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. Look, read, and check. 1. a 2. a
- C. Complete the chart.
- Main Idea: Gravity pulls all things together. It's very strong.
- Details: It pulls an apple from a tree.
- It pulls a book to the ground.
- It lets fish swim in the pond and not in the air.
- D. Choose the correct word. 1. Earth's 2. swims 3. pond 4. pulls 5. Fish 6. head

[STEAM PROJECT]

- Have students do the experiment.
- 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.
- 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 2
- The gravity pulls the paper clips straight down to the center of Earth. Gravity pulls the paper clips even when you move the stick up or down.

Unit 15. Modern Farming



Academic Objective	Learn about farmers and farming in the future
Vocabulary	farmer, feed, animal, machine, computer, robot
STEAM Project	Help Bob
	21st Century Skills: Critical Thinking, Collaboration

Unit 15 MODERN FARMING

KEY WORDS
Look, listen, and repeat.

WARM-UP
Do you know any farmer? What do they raise on their farm?

READING
Listen and read.

Farmers work hard. They plant seeds. They feed animals. They pick fruits and vegetables. Farmers use big machines, but the farmers need to help the machines. In the future, farmers can use computers. The computers can check the seeds. They can see when the seeds need more water or sunlight. Modern farmers can also use small machines.

Small robots can plant seeds. The farmers don't need to help them. Modern farmers can grow more food. They can grow tastier food, too!

Circle the key words in the reading.

Read and choose.
1. I work on a farm. I grow vegetables and feed animals. What am I? farmer machine
2. I am a machine, but I can plant seeds or pick fruit instead of a farmer. What am I? animal robot

CHECK YOUR UNDERSTANDING

Choose the correct answers.

- What is the main purpose of the reading?
a. To talk about modern farming.
b. To talk about how farmers pick vegetables and fruit.
c. To talk about what farmers don't do on a farm.
- What do computers do on a farm?
a. They feed the animals.
b. They check seeds and see when they need water and light.
c. They make machines.
- A robot...
a. makes seeds b. plants seeds c. eats vegetables

Look, read, and check.

- ☐ Modern farmers can't use computers to check seeds.
☐ Modern farmers use computers to check seeds.
- ☐ Robots can plant seeds.
☐ Robots can eat seeds.

Complete the chart.

A modern farmer can grow more food and tastier food because he uses:	_____ to check the seeds.
	_____ to plant the seeds.

Choose the correct word.

- A farmer drives this big machine/ computer.
- This robot/ farmer is feeding the animals.
- This modern farmer is using a computer/ robot.
- Modern farmers use animals/ robots to water the vegetables.
- Farmers feed/ modifying their animals every day.
- There are different kinds of computers/ animals in a farm.

STEAM PROJECT HELP BOB
Bob is a modern farmer. He uses robots and computers. But he's not very good at math.

PROBLEM 1
Yesterday, on Bob's farm, two robots fed 100 animals, watered 200 plants, and checked 300 seeds. Today, three robots each worked. How many robots are working today? How many robots does Bob have in total?

There are _____ robots working today. Bob has _____ in total.

PROBLEM 2
Bob's new robots planted 30 rows of seeds. They planted four seeds in each row. How many seeds did they plant? They planted _____ seeds.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes. My grandpa is a farmer. He has cows and horses on his farm. He also grows crops to feed to his animals.

[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, 1, 4, 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. farmer 2. robot

[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. b
- B. Look, read, and check. 1. b 2. a
- C. Complete the chart.
- A modern farmer can grow more food and tastier food because he uses:
- → computers to check the seeds.
- → robots to plant the seeds.
- D. Choose the correct word.
- 1. machine 2. farmer 3. computer 4. robots 5. feed 6. animals

[STEAM PROJECT]

- Have students solve the problem.
- Have them share the results of problems 1 and 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
- Problem 1
- There are 17 robots working today. Bob has 20 robots in all.
- Problem 2
- They planted 80 seeds.

Unit 16. Robot Pill



Academic Objective	Learn about biotechnology
Vocabulary	picture, smartphone, sick, pill, swallow, fix
STEAM Project	How Biotechnology Can Help Us Grow Healthy & Tasty Food
	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: My mom takes me to the doctor when I am very sick.

[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, 1, 4, 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. smartphone 2. pill

[AHA! I SEE!]

- Direct students' attention for further detail.
- Have them read the context to know the possibility of robot pills in the future. Help them understand about biotechnology.
- Refer to Background Knowledge for more explanation of biotechnology, its characteristics and uses. Pick some answers that students have answered in Warm-Up, and briefly discuss it with the biotechnology as time allows.

[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. Look, read, and check. 1. b 2. a
- C. Number the pictures in the correct order. 2, 4, 3, 1
- D. Unscramble and write. 1. sick 2. swallow 3. fix 4. smartphone 5. pill 6. picture

[STEAM PROJECT]

- Have students fill in the blanks.
- Have them share the notes with their partner or group. Ask different pairs of groups to represent their notes to the class.
- Answer:
- 1. tasty, non-fat potatoes
- 2. golden rice
- 3. super healthy bananas