

Unit 1. Air Pressure Creates Wind

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| Academic Objective | Learn about air pressure and wind |
| Vocabulary | tiny, particle, blow up, binder clip, thick, remove, all the way, molecule |
| STEAM Project | An Air Pressure 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: Yes, I do. / No, I don't.
Wind is made when air moves from areas of higher pressure to areas of lower pressure.

[KEY WORDS]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. c 3. c
- B. Circle T for true or F for false. Correct the false statements.
 1. F; Air is made of tiny particles that are always moving.
 2. F; The air molecules in the smaller balloon are close together and cause high pressure.
- C. Complete the chart.
 1. thick 2. Blow up 3. binder clip 4. Remove 5. higher 6. lower
- D. Complete the sentences.
 1. particles 2. tiny 3. blow up 4. thick 5. all the way 6. molecule

[STEAM PROJECT]

- Have students do the experiment and answer the question.
- Have them share the answers with their partner or group.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1
 - c. The water stays in the bottle.
 - d. The water comes out through the hole.
 - e. The water comes out through the hole.
- Step 2
- Air is all around us, and it pushes down on us. It pushes against the hole, so the water stays inside the bottle. When we take the cap off, air gets into the bottle, and it pushes the water down. The water comes out through the hole.

Unit 2. The Weather Forecast



| | |
|--------------------|---|
| Academic Objective | Learn about air pressure and weather forecasts |
| Vocabulary | weather forecast, continue, expect, southern, region, business trip, cancel, in advance |
| STEAM Project | Climate and Weather |
| | 21st Century Skills: Critical Thinking, Collaboration, Creativity, Communication |

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: It is important to know the weather in advance so you can plan events and prepare ahead of time.

[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, 7, 5, 4, 1, 8, 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.)

[SHORT ACTIVITIES]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. c 3. c
- B. Circle T for true or F for false. Correct the false statements.
1. T 2. F; Lulu thinks learning about the weather in advance is good.
- C. Complete the chart.
Who: Lulu, her mom, (her dad)
What: Watching weather forecasts and knowing the weather in advance
Where: At home
When: Just before, when her dad called that the flight is canceled
Why: Heavy rain and wind are expected in the region where the flight was traveling from.
- D. Unscramble the letters and write them in the blanks.
1. expect 2. business trip 3. weather forecast 4. in advance 5. southern 6. region

[STEAM PROJECT]

- Have students complete the climate and weather chart.
- 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 make a poster about climate and weather and explain it to their partner.
- Answer:
- Climate: b, d, h, i Weather: a, c, e, f, g

Unit 3. How Does Heat Move Liquids?

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|--------------------|---|
| Academic Objective | Learn about heat and liquids |
| Vocabulary | kettle, heat, finally, water tub, support, dropper, process, convection current |
| STEAM Project | Make a Convection Snake 21st Century Skills: Critical Thinking, Collaboration |

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- **Sample Answer:** The hot water moves to the top and the cold water moves to the bottom until all of the water is boiling.

[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, 8, 4, 1, 6, 5, 7

[READING]

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

[SHORT ACTIVITIES]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. c 3. c
- B. Circle T for true or F for false. Correct the false statements.
1. F; The food coloring starts moving up when it is heated. 2. T
- C. Complete the chart.
1. sinks 2. bottom 3. top 4. rises 5. Convection Currents
- D. Complete the sentences.
1. support 2. kettle 3. finally 4. process 5. dropper 6. heat

[STEAM PROJECT]

- Have students do the experiment and answer the question.
- Have them share the answers with their partner or group.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1: The paper spiral moves round and round.
- Step 2
- The heat from the lamp's light heats up the air above the lamp. Hot air is lighter than cool air. When the air heats up, it rises above the lamp. Colder air moves down. It creates a convection current in the air. This causes the paper spiral to move round and round.

Unit 4. Water Moves Around the World

S T E A M

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|--------------------|---|
| Academic Objective | Learn about water currents and how they move |
| Vocabulary | equator, circulation, seawater, per, take, thousand, circulate, whole |
| STEAM Project | How Seawater Currents Work 21st Century Skills: Critical Thinking |

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: No, the seawater at the poles is much colder than seawater in my country.

[KEY WORDS]

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

[READING]

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

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. 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. a 2. c 3. c
- B. Circle T for true or F for false. Correct the false statements.
 1. F; Tim felt that the water was cold when he put his foot in the water.
 2. F; Seawater moves at 1 cm per hour.
- C. Put a check (✓) for correct sentences and a cross (X) for incorrect sentences about seawater. 1. ✓ 2. X 3. X 4. X 5. ✓ 6. ✓
- D. Unscramble the letters and write them in the blanks.
 1. equator 2. thousand 3. whole 4. circulation 5. seawater 6. circulate

[STEAM PROJECT]

- Have students complete the seawater characteristics chart.
- Have them share the answers with their partner or group.
- Have them complete the paragraph referring to the image next to it.
- Have them share the results of step 2 with their partner or group.
- Answer:
- Step 1
- Cold Seawater: around the North Pole, cold, dense
- Warm Seawater: around the equator, light, moves up, warm
- Step 2
- 1. Moving 2. sinks 3. warm water 4. heats

Unit 5. Growing Mushrooms

| | |
|--------------------|---|
| Academic Objective | Learn about mushrooms and how to grow them |
| Vocabulary | fungus (fungi), mold, nutrient, alive, instruction, include, spawn, spore |
| STEAM Project | The Life Cycle of Mushrooms 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: Because when you eat moldy bread, you could inhale some of the mold spores which could cause breathing problems.

[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, 7, 8, 5, 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 them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. b 2. a

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. a 3. b
- B. Circle T for true or F for false. Correct the false statements.
1. T 2. F; Mushrooms grow from spores carried by the wind.
- C. Complete the chart.
Plants: a, d Fungi: b, c, e
- D. Complete the sentences.
1. mold 2. alive 3. include 4. instructions 5. spores 6. nutrients

[STEAM PROJECT]

- Have students match the words to the life cycle of mushrooms on step 1 and complete the paragraph on step 2.
- Have them share the answers of the steps.
- Explain them the meaning of difficult words referring to the WORD LIST.
- Answers:
- Step 1
1. spores 2. germinated spores 3. mushroom spawn 4. pinhead 5. new mushroom 6. grown-up mushroom
- Step 2
1. grown-up mushroom 2. spores 3. germinated spores 4. mushroom spawn 5. pinhead 6. new mushroom

Unit 6. I Am Not a Plant!

| | |
|--------------------|--|
| Academic Objective | Learn about differences between mushrooms and plants |
| Vocabulary | mushroom, wide, stalk, photosynthesis, dead, reproduce, gill, land |
| STEAM Project | 21st Century Skills: Critical Thinking, Communication |

HEY WORDS
Look, listen, and repeat.

WARM-UP
How are fungi different from plants?

READING
Listen and read.
It's very nice to meet you. I'm a mushroom, I have a wide cap and a stalk. I don't move, and I grow upward, so people think I am a plant. But I'm not a plant! I'm not an animal either. Then what am I? I'm a fungus. Mold is a member of my family!
Fungi like me grow well in a warm and humid environment. You can see a lot of us in the summer. Plants make their own food through photosynthesis. I can't do this, so I get nutrients from dead and living things around me.

How do I reproduce?
I reproduce by spores. Spores are powders in the gills under my cap. Spores are light, so they float in the air. They float away and land on the earth. There, they grow into new mushrooms.

Read and choose.
1. What does "dead" mean in the reading?
a. the spores
b. the gills
c. the fungi
2. Which is the opposite of "light"?
a. trash
b. ground
c. take off

CHECK YOUR UNDERSTANDING
Choose the correct answers.
1. What is the reading mainly about?
a. Where you can find a fungus.
b. Why spores can't fly in the air.
c. The difference between plants and fungi.
2. The wind carries away the spores because
a. they are so light that they float in the air.
b. they are in the gills, under the cap of the mushroom.
c. they get their nutrients from living and dead things around them.
3. Which of the following processes can a fungus NOT do?
a. Photosynthesis
b. Reproduction
c. Getting nutrients

Match the word with its definition.
1. the main stem of a plant or mushroom
2. not alive
3. the process in which plants produce their own food using energy from light
4. to produce young animals or plants
5. a thin structure under the cap of a mushroom
6. a fungus with a round cap and a stalk

SOME FACTS ABOUT FUNGI
STEP 1: Read the facts about fungi.
They cover more than 8 million square meters and keep spreading as they travel long distances in the air.
It has beautiful, but it's deadly! Some types of fungi get on your skin.
It affects plants, it covers them with a white cover and kills them. Don't touch it!
Scientists can use dead plant organic matter and fungi to make antibiotics for other plants and soil.
It is used to make penicillin, many other fungi are used to produce medicines and antibiotics.
You can find them in supermarkets. They are not just for food.

STEP 2: Complete the chart about fungi with a friend.
antibiotics
some diseases
kill
nutrients
- We use them to make medicine and...
- They are... other plants.
- They are... so you should know which mushrooms are edible and which are not before eating them.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Fungi do not need sunlight to grow, but plants do. Fungi grow from spores, but plants grow from seeds. Fungi do not have leaves, but plants do. Fungi get nutrients from other dead and living things while plants make their own food through photosynthesis.

[KEY WORDS]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. a 3. a
- B. Circle T for true or F for false. Correct the false statements.
 1. F; A mushroom has a large cap and a long stalk.
 2. F; Plants feed through the process of photosynthesis.
- C. Complete the chart.
 1. photosynthesis 2. dead 3. reproduce 4. land 5. belong
- D. Match the word with its definition.
 1. stalk 2. dead 3. photosynthesis 4. reproduce 5. gill 6. mushroom

[STEAM PROJECT]

- Have students read the information about fungi.
- Have them complete the chart about fungi with their friends.
- Have them share the answers of step 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer: 1. antibiotics 2. grow 3. break down 4. nutrients 5. kill 6. deadly

Unit 7. Water Drops

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|--------------------|---|
| Academic Objective | Learn about surface tension |
| Vocabulary | state, surface tension, penny, pipette, one at a time, count, spill, eventually |
| STEAM Project | Toothpick Surface Tension 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: The paperclip floats.

[KEY WORDS]

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

[READING]

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

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. 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. a
- B. Circle T for true or F for false. Correct the false statements.
1. F; Water can change between three states: solid, liquid, and gas. 2. T
- C. Number the pictures in the correct order. 2, 1, 3, 4
- D. Complete the sentences.
1. eventually 2. one at a time 3. counts 4. spill 5. pipette 6. states

[STEAM PROJECT]

- Have students do the experiment and answer the questions.
- Have them share the results with their partner or group.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1
a. Yes, they do.
b. No, they don't.
- Step 2
The water molecules of the water in the bowl are pulled together equally. The molecules on top are pulled together more tightly because there are no water molecules above them. They form a sort of "skin," and we call this surface tension. When we add liquid soap inside the triangle of toothpicks, we decrease the surface tension. The water molecules move, so the toothpicks move.

Unit 8. A Water Strider

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|--------------------|---|
| Academic Objective | Learn more about surface tension |
| Vocabulary | water strider, reservoir, look like, thin, pair, scientific, fine, spread out |
| STEAM Project | Water Striders 21st Century Skills: Critical Thinking |

KEY WORDS
Look, listen, and repeat

READING
Listen and read

WARM-UP
What happens to surface tension when we add a drop of detergent to water?

CHECK YOUR UNDERSTANDING
Choose the correct answer.
1. What is the main purpose of the reading?
2. The water strider's four long legs help it...
3. Which of the following is true about water striders?
4. Circle T for true or F for false. Correct the false statements.
5. Put a check (✓) for correct sentences and a cross (X) for incorrect sentences about water striders.

PROJECT WATER STRIDERS
STEP 1 Match the words to the body of the water strider.
STEP 2 Complete the sentences.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The detergent causes the surface tension to break.

[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, 2, 6, 5, 4, 8, 7

[READING]

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

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. 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. a 2. c 3. c
- B. Circle T for true or F for false. Correct the false statements.
1. F; The water strider's front two legs are short. 2. T
- C. Put a check (✓) for correct sentences and a cross (X) for incorrect sentences about water striders. 1. ✓ 2. ✓ 3. X 4. X 5. X 6. ✓
- D. Unscramble the letters and write them in the blanks.
1. reservoir 2. pair 3. scientific 4. fine 5. water strider 6. look like

[STEAM PROJECT]

- Have students match the words to the image of the water strider and fill in the blanks to complete the paragraph.
- Have them share the answers of the blanks with their partner or group. Ask different pairs of groups to represent their answers to the class.
- Answer:
- Step 1:
1. front legs 2. eyes 3. middle legs 4. back legs 5. antennae 6. head 7. body 8. wings
- Step 2:
1. body 2. eyes 3. front legs 4. antennae 5. middle legs 6. back legs 7. wings

Unit 9. Speed Racers

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|--------------------|---|
| Academic Objective | Learn about how to compare the speed of objects |
| Vocabulary | distance, race, far, starting line, tape measure, vertical, set, fan |
| STEAM Project | 21st Century Skills: Critical Thinking, Collaboration, Communication |

KEY WORDS
Look, listen, and repeat.

READING
Listen and read.
How can we compare the speed of objects?
There are two ways to do it.
We can compare their speed over the same **distance**.
For example, five people run a 100-meter **race**. The person who finishes first is the fastest.
We can also compare how **fast** objects can travel at different speeds over the same amount of time.
A bicycle travels 60 km in 3 hours. A car travels 240 km, and a train travels 300 km in the same time.
Which is the fastest? It's the train. **It** travels the farthest in the same amount of time.
Let's compare the speed of objects over the same amount of time.

WARM-UP
How do you know the speed of cars?

1 Draw a starting line on the floor. Place a fan against it so it is vertical to the line.

2 Prepare three paper cars. Place one car on the starting line and set a timer for the race. For example 1 minute.

3 Make the paper car using a fan. Mark where the car stopped and measure how far it moved.

4 Now do it for the other two cars. Which car moved the farthest?

The first car went 72 cm, the second car went 52 cm, and the third car went 40 cm.
The first car went the farthest in the same amount of time, so it is the fastest.
Which car was the fastest for you?

Read and choose.
1. Which is the opposite of fast?
a. small b. slow c. long
2. What does **it** mean in the reading?
a. the train b. the car c. the bicycle

CHECK YOUR UNDERSTANDING

1 Choose the correct answers.
1. What is the purpose of the reading?
a. to explain how to measure speed
b. to explain why a bicycle is faster than a train
c. to explain how to put paper cars on the starting line
2. One of the ways to measure speed is _____.
a. to compare the distance between two objects
b. to compare the speed of two objects over the same distance
c. to compare the speed of two objects over different distances
3. Which of the following is **NOT** needed to do the experiment?
a. paper cars b. a train c. a tape measure

2 Circle T for true or F for false. Correct the false statements.
1. The person who finishes last in a race is the fastest runner. T F
2. In the experiment, the first car is the fastest because it goes the farthest in the same amount of time. T F

3 Complete the chart.

| | distance | time | far | fast | tape measure |
|---------------|---|------|---|------|--------------|
| Step 1 | There are two ways to compare the speed of objects. | | | | |
| Step 2 | To compare how fast objects travel over the same _____. | | This is what happens in a _____. The first to finish is the fastest. | | |
| Step 3 | To compare how _____ objects can go over the same amount of time. | | Prepare three paper cars _____. Use _____ to make the paper cars move. The car that goes the farthest is the fastest. | | |

4 Complete the sentences.
1. Why don't you walk to school? You don't live _____ from there.
2. Did your teacher _____ the data for the final exam?
3. It's so hot! Don't you have a _____ to cool the car?
4. The _____ between Earth and the Moon is 384,000 km.
5. We need a _____ to measure the height of the door.
6. Her shirt has a pattern of _____ stripes.

PROJECT WHICH IS THE FASTEST SPORT?
Here are some sports and the speeds at which you need to move to do them.
STEP 1 Match the sport to the photo.
1. 352 km/h football (soccer) ice hockey speed skater sprinter
2. 100 km/h tennis 100 m dash 100 m freestyle swimmer 100 m butterfly swimmer
STEP 2 Put them in order from the slowest to the fastest.
STEP 3 Share your answers with a friend.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: We can know the speed of cars by knowing how long it takes them to travel a certain distance.

[KEY WORDS]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. b 3. b
- B. Circle T for true or F for false. Correct the false statements.
1. F; The person who finishes first in a race is the fastest runner. 2. T
- C. Complete the chart.
1. distance 2. race 3. far 4. tape measure 5. fans
- D. Complete the sentences.
1. far 2. set 3. fan 4. distance 5. tape measure 6. vertical

[STEAM PROJECT]

- Have students match the sport to the photo.
- Have them put the words in order from the slowest to the fastest
- Have them share the results of steps 1, 2 with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
Step 1:
1. sprint 2. ice hockey 3. F1 4. football (soccer) 5. speed skiing
Step 2: football (soccer) → ice hockey → sprint → speed skiing → F1

Unit 10. A Race to Grandfather's House

| | |
|--------------------|--|
| Academic Objective | Learn how to work out velocity |
| Vocabulary | arrive, leave, find out, work out, velocity, kilometer, divide by, win |
| STEAM Project | 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 run about 10 kilometers per hour.

[KEY WORDS]

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

[READING]

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

[SHORT ACTIVITIES]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. b 3. a
- B. Circle T for true or F for false. Correct the false statements.
 1. F; Sally and her uncle left home at different times but arrived at the same time.
 2. T
- C. Complete the chart.
 - Who: Sally and Uncle Pete
 - What: Velocity, and who traveled faster to get to Sally's grandfather's home
 - Where: At Sally's grandfather's home
 - When: At 10:00 a.m.
 - Why: Her car traveled in 80 km/h while Uncle Pete's car went in 70 km/h.
- D. Match the word with its definition.
 1. arrive 2. win 3. kilometer 4. leave 5. divide by 6. find out

[STEAM PROJECT]

- Have students solve the problems using the formula.
- Have them share the results with their partner or group. Ask different pairs of groups to represent their results to the class.
- Answer:
 1. 130 kilometers 2. 3.5 hours 3. 261 kilometers
 4. 115 kilometers 5. 16 kilometers

Unit 11. The Changing Volume of Gases

| | |
|--------------------|---|
| Academic Objective | Learn about the volume of gases |
| Vocabulary | table tennis, step on, by mistake, triangular, flask, return, original, knowledge |
| STEAM Project | How Can You Fix the Crushed Ball? 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:** You can smell some type of gases.

[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, 2, 6, 7, 4, 1, 8

[READING]

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

[SHORT ACTIVITIES]

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

[CHECK YOUR UNDERSTANDING]

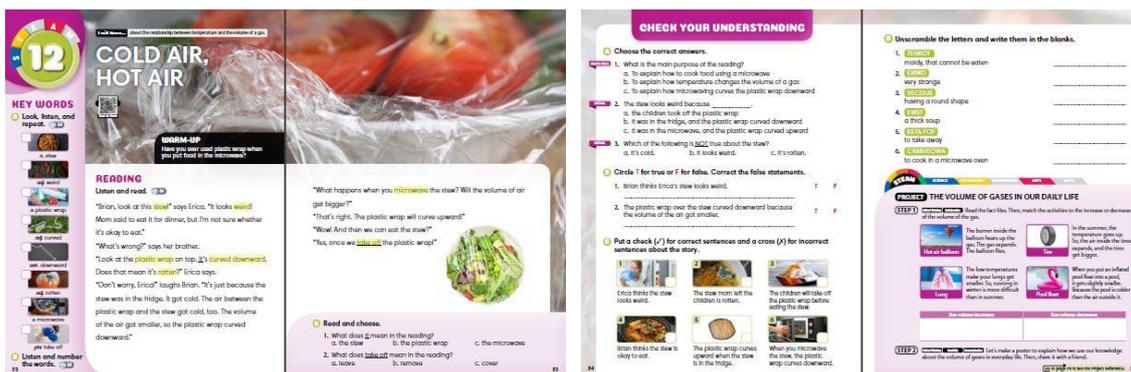
- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. a 3. a
- B. Circle T for true or F for false. Correct the false statements.
- 1. T 2. F; If you put a crushed table tennis ball in hot water, it will recover its original shape.
- C. Circle the correct answers. 1. flask 2. bigger 3. smaller 4. hot 5. bigger
- D. Complete the sentences.
- 1. step on 2. return 3. knowledge 4. triangular 5. by mistake 6. original

[STEAM PROJECT]

- Have students do the experiment and answer the question.
- Have them complete the paragraph.
- Have them share the answers with their partner or group.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1: The ball gets bigger. It returns to its original shape.
- Step 2:
- 1. crushed 2. volume 3. boiling 4. heat up 5. bigger 6. original

Unit 12. Cold Air, Hot Air

| | |
|--------------------|---|
| Academic Objective | Learn about the relationship between temperature and the volume of a gas |
| Vocabulary | stew, weird, plastic wrap, curved, downward, rotten, microwave, take off |
| STEAM Project | The Volume of Gases in Our Daily Life |
| | 21st Century Skills: Critical Thinking, Collaboration, Creativity, Communication |



[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, I used it to microwave leftovers.

[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, 7, 5, 4, 1, 8, 6, 2

[READING]

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

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. b 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. b 3. c
- B. Circle T for true or F for false. Correct the false statements.
1. F; Erica thinks mom's stew looks weird. 2. T
- C. Put a check (✓) for correct sentences and a cross (X) for incorrect sentences about the story. 1. ✓ 2. X 3. ✓ 4. ✓ 5. X 6. X
- D. Unscramble the letters and write them in the blanks.
1. rotten 2. weird 3. curved 4. stew 5. take off 6. microwave

[STEAM PROJECT]

- Have students read the information about the volume of gases and complete the chart about it.
- 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 make a poster about the volume of gases in everyday life and explain it to their partner.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Answer:
- Gas volume increases: Hot air balloon, Tire
- Gas volume decreases: Lung, Pool float

Unit 13. Stems Carry Water

| | |
|--------------------|---|
| Academic Objective | Learn about the function of the stem in a plant |
| Vocabulary | root, stem, lily, horizontally, vertically, dot, appearance, wind |
| STEAM Project | 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:** In that way, water can travel up the stem to the flowers so they can live longer.

[KEY WORDS]

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

[READING]

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

[SHORT ACTIVITIES]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. c 2. a 3. c
- B. Circle T for true or F for false. Correct the false statements.
1. F; Roots spread out under the ground and absorb water. 2. T
- C. Complete the chart.
1. roots 2. lily 3. horizontally 4. dots 5. stem
- D. Complete the sentences.
1. wind 2. lily 3. dots 4. roots 5. appearance 6. horizontally

[STEAM PROJECT]

- Have students do the experiment with the stems and answer the question.
- Have them fill out each blank to complete the paragraph.
- Have them share the answers of step 1 and 2 with their partner or group.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer with reasons based on PROJECT REFERENCE.
- Answer:
- Step 1: No, they don't.
- Step 2: 1. saltwater 2. sweet 3. stems 4. roots 5. vertically

Unit 14. Grandmother's Garden

| | |
|--------------------|---|
| Academic Objective | Learn more about different types of stems |
| Vocabulary | weekend, dig up, sweet potato, upright, crawl, stolon, morning glory, pie |
| STEAM Project | Parts of a Plant |
| | 21st Century Skills: Critical Thinking, Creativity, Collaboration, Communication |

14 GRANDMOTHER'S GARDEN

KEY WORDS
Look, listen, and repeat.
1. weekend
2. dig up
3. sweet potato
4. upright
5. crawl
6. stolon
7. morning glory
8. pie

READING
Listen and read.
Brian visits his grandmother for the weekend. He loves helping her in her garden.
Today, Brian is digging up some sweet potatoes. He stops digging when he sees something interesting.
"Grandma, those tomato plants have upright stems. But these sweet potato stems crawl along the ground!"
"That's right," says Grandmother. "A crawling stem, like that of these sweet potatoes, is called a stolon. Sweet potatoes and strawberries have stems like this."
"Stems are so interesting. What other plants have different stems?" asks Brian.
"Well, morning glory stems wrap around other objects."

CHECK YOUR UNDERSTANDING

1. Choose the correct answers.

- What is the reading mainly about?
a. What a stolon is.
b. Different types of stems and their functions.
c. Why Brian loves his grandmother's sweet potato pie.
- Some plants have crawling stems like _____.
a. strawberries and tomatoes.
b. strawberries and sweet potatoes.
c. morning glories and sweet potatoes.
- Which of the following is not true about stems?
a. Some crawl. b. Some dig up. c. Some stand upright.

2. Circle T for true or F for false. Correct the false statements.

- Sweet potatoes have stems that crawl along the ground. T F
- Today, Brian is planting some sweet potatoes for his grandmother's pie. T F

3. Complete the chart.

| | | |
|---------|-------|--------------|
| Picture | Name | Type of stem |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |
| | _____ | _____ |

4. Match the word with its definition.

| | |
|--|-----------------|
| 1. a potato that tastes sweet and has pink skin | • pie |
| 2. a crawling plant with flat flowers | • upright |
| 3. to take something out of the ground or the bottom | • crawl |
| 4. a baked dish of fruit or meat with pastry on the bottom | • morning glory |
| 5. straight up | • sweet potato |
| 6. to move along the ground | • dig up |

PROJECT PARTS OF A PLANT

STEP 1 Match the parts of the strawberry plant to their functions.

- It makes fruit with seeds to continue the plant's life cycle.
- It carries water and nutrients from the roots to the leaves.
- It lies flat on the soil and absorbs water from the soil.
- It holds upright and catches dust/fertilizer food for the plant.
- It lies weak. You can eat it.

STEP 2 Make a poster describing the parts of a sweet potato plant or a morning glory plant. Then, draw a sketch.

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: Yes, I have. When I went to the farm with my family last year, we picked carrots together.

[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, 2, 4, 8, 7, 1, 6

[READING]

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

[SHORT ACTIVITIES]

- Have them individually answer question C. Check the answer as a class and give a simple explanation if necessary.
- Answer: 1. b 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. b 3. b
- B. Circle T for true or F for false. Correct the false statements.
- 1. T 2. F; Today, Brian is digging up some sweet potatoes for his grandmother's pie.
- C. Complete the chart.
- 1. tomato 2. upright stem 3. sweet potato 4. crawling stem (stolon) 5. strawberry 6. crawling stem (stolon) 7. morning glory 8. wrapping/winding stem
- D. Match the word with its definition.
- 1. sweet potato 2. morning glory 3. dig up 4. pie 5. upright 6. crawl

[STEAM PROJECT]

- Have students match the functions to the parts of the strawberry.
- 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 make a poster describing the parts of a sweet potato plant or a morning glory plant and share it with their partner of group.
- Answer: 1. a 2. e 3. c 4. b 5. d

Unit 15. What's the Weather Like Today?

S T E A M

| | |
|--------------------|--|
| Academic Objective | Learn about the weather and meteorologists |
| Vocabulary | meteorologist, weather balloon, record, atmospheric pressure, information, analyze, report, weather forecaster |
| STEAM Project | Make a Pinwheel 21st Century Skills: Communication, 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 can find it by watching the forecast on television or searching for the Internet.

[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, 1, 2, 8, 4, 3, 5, 7

[READING]

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

[SHORT ACTIVITIES]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. b 2. b 3. c
- B. Circle T for true or F for false. Correct the false statements.
1. F; Meteorologists use weather balloons to record atmospheric pressure. 2. T
- C. Complete the chart.
1. Meteorologists 2. weather balloons 3. record 4. satellites 5. analyze
- D. Unscramble the letters and write them in the blanks.
1. report 2. record 3. meteorologist 4. analyze 5. information 6. weather balloon

[STEAM PROJECT]

- Have students make a pinwheel following the instructions on step 1.
- Have them show their own pinwheel to their friends and go outside to play.
- Have them observe the pinwheel and write a report about it.
- Refer to PROJECT REFERENCE at the end of the book for further explanation.
- Give the answer of step 3 with reasons based on PROJECT REFERENCE.

Unit 16. Hydro Helpers

| | |
|--------------------|---|
| Academic Objective | Learn about water and hydrologists |
| Vocabulary | fresh water, rest, salty, keep, hydrologist, contaminated, groundwater, life |
| STEAM Project | Make a Water Saving Poster 21st Century Skills: Critical Thinking, Collaboration, Communication, Creativity |

[WARM-UP]

- Discuss the warm-up question to see how much background information students possess about the topic.
- Sample Answer: The water I drink comes from a source of water deep in the ground.

[KEY WORDS]

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

[READING]

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

[SHORT ACTIVITIES]

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

[CHECK YOUR UNDERSTANDING]

- Give students 5-10 minutes to write their answers. Remind them to not refer to the reading or previous pages to check their understanding.
- Elicit answers from students. If there are any disagreements between students on the answers, have them cite the lines in the text that support their choices. For purpose, inference, or topic questions, elicit reasons why distractors are incorrect choices (ex. not in text, inaccurate, minor detail, etc.).
- Answer:
- A. Choose the correct answers. 1. a 2. a 3. b
- B. Circle T for true or F for false. Correct the false statements.
1. T 2. F; Hydrologists make sure every human on Earth has safe (clean) water to drink.
- C. Complete the chart.
1. hydrologists 2. contaminated 3. drink 4. groundwater 5. clean and safe
- D. Match the word with its definition.
1. hydrologist 2. rest 3. contaminated 4. life 5. keep 6. salty

[STEAM PROJECT]

- Have students put the letters in the correct box.
- Have them share the answers of step 1 with their partner or group.
- Have them make a poster to help people save water including 3 requirements.
- Have them share their works with the class.
- Answer:
- Good: b, e, f, h, j Bad: a, c, d, g, i