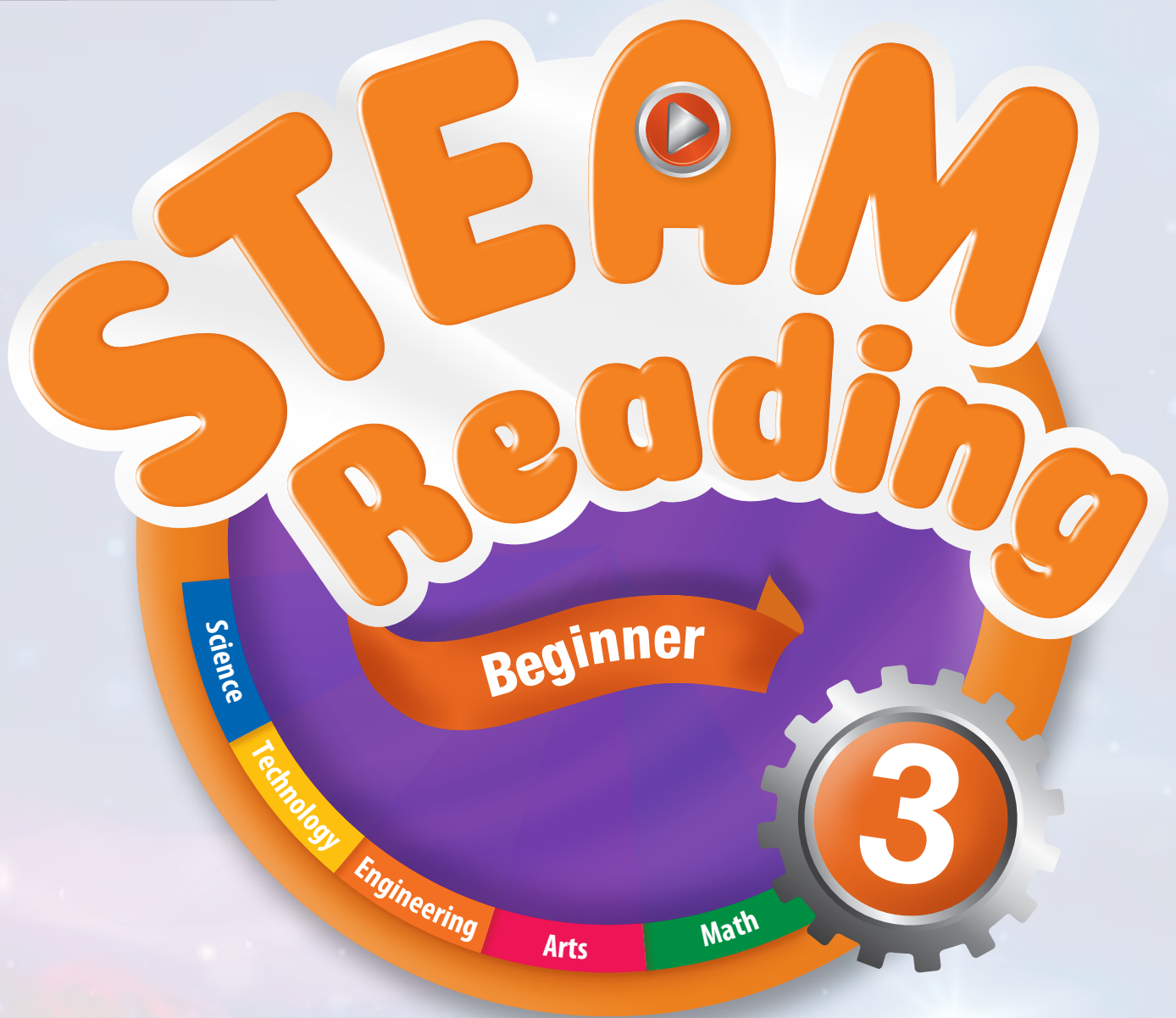




1 **2** **3** **4** **5**

STEAM

9

KEY WORDS

A Look, listen, and repeat. **25**

n. vending machine

v. lay

v. lean

n. slide

v. roll

n. iron

B Listen and number the words. **26**

40

I will learn... how vending machines work.

ROLL A COIN

WARM-UP
What was the last thing you got from a vending machine?

READING
Listen and read. **27**

Vending machines are useful.
We put coins in. We get things out!
How do they work?
They use magnets to stop coins that aren't real.
Let's see!

STEP 1
Lay two thick books together.

STEP 2
Lean another book against the two thick books to make a slide.

1 STEAM

Units are grouped together in pairs. Each pair of units has lessons on the same subject. Every unit focuses on one or more aspects of STEAM (Science, Technology, Engineering, Arts, Math).

2 I WILL LEARN...

The academic objective of the unit is introduced to get students thinking.

3 QR CODES

Scan the audio QR CODE to listen to the key words and reading passages. In the experiment units, scan the video QR CODE to watch a video of a real experiment.



Video Experiments

Live-action videos take students step-by-step through all science experiments. This visual aid enhances their learning experience and makes the topic come alive.





Put a stick magnet on the book.



Roll a coin and an iron ring along the book.

The coin rolls down the book. It doesn't stick to the magnet.

The iron ring stops. It sticks to the magnet.

Iron sticks to magnets.

Coins are made of other metals (copper and nickel, etc.).

These metals don't stick to magnets.



WOW! I SEE!

Only some metals, like iron, stick to magnets. Most coins are made with some combination of copper*, zinc*, and nickel*.

Go to page 84 for the meaning of difficult words (*).

C Circle the key words in the reading.

D Read and choose.

1. You put coins in me, and things come out. What am I?

slide

vending machine

2. When a ball goes down a slide, it does this.

rolls

leans

41

4 KEY WORDS

Every unit introduces new KEY WORDS that are necessary to understand the unit's topic. All key words are found in the READING and are illustrated with a photograph.

5 READING

Each READING is an introduction to the topic of the unit. The first unit in a pair introduces the subject through an experiment. The experiment is illustrated and easy to follow. The second unit features an engaging short story on the same topic.

6 WOW! I SEE!

This section goes into further detail on the concepts introduced in the READING.

7 WORDS WITH AN ASTERISK (*)

Difficult words in the unit are marked with an asterisk (*) and are explained in a word list at the back of the book.

8 SHORT ACTIVITIES

Short activities focus attention on the KEY WORDS and check understanding.

CHECK YOUR UNDERSTANDING

This section features a range of activities to check both reading comprehension and understanding of the unit vocabulary.

STEAM PROJECT

The STEAM PROJECT ends the unit with a fun and interactive project that encourages individual creativity as well as collaboration. Project types include experiments, math problems, and arts & crafts. Experimental projects have a video available via QR code. Further explanation for certain projects can be found in the PROJECT REFERENCE at the end of the book.

CHECK YOUR UNDERSTANDING

A Choose the correct answers.

1. What is the purpose of the experiment?
a. To watch a coin roll down a slide.
b. To see how vending machines work.
c. To try to make a slide with a book.
2. What sticks to the magnet?
a. An iron ring b. A copper ring c. A zinc ring
3. Why doesn't the coin stick to the magnet?
a. It has too much iron.
b. It isn't made of magnet.
c. It is made of copper and nickel.

B Look, read, and check.

1. ☐ a. Lean a book against the others to make a slide.
☐ b. Lean a book against the others to make a swing.
2. ☐ a. An iron ring sticks to a magnet.
☐ b. A coin sticks to a magnet.

C Number the pictures in the correct order.

Lean another book against the books to make a slide.
Lay two thick books together.
Roll a coin and an iron ring along the book.
Put a stick magnet on the book.

Look, match, and write.

1. • iron
2. • vending machine
3. • lean
4. • slide
5. • lay
6. • roll

STEAM PROJECT

PROJECT MAGNET PAINTING

You will need:

STEP 1

- a. Put the piece of paper in the bottom of the shoe box.
- b. Put drops of different colors of paint all over the paper.
- c. Put the paper clip on the paper.
- d. Hold the magnet under the shoe box.
- e. Move the paper clip and watch it rise up the paint.

STEP 2

- a. Answer the questions.
- b. Why does the paper clip move when the magnet moves?
- c. Instead of using a paper clip, what else can you move with a magnet?

PROJECT REFERENCE

2 LIQUID, GAS, LIQUID

You can see the state of water change.

Materials:

STEP 1

- a. Fill one of the cups with warm water.
- b. Turn the other cup upside down and put it on top of the other cup.
- c. Put an ice cube on top.
- d. Watch and see what happens.

The water in the bottom cup is hot, so the water turns into gas slowly. Then, the ice cube makes the gas cold. It turns into water. It's liquid again.

3 BUILDING A PAPER BRIDGE

We can build a strong bridge!

Materials:

STEP 1

- a. Put two paper cups on the floor with a space between them.
- b. Put the sheet of paper on the cups like a bridge.
- c. Put one coin on the bridge. Then put two coins on the bridge.

STEP 2

- a. Now fold the paper like this:
- b. Put the paper on top of the cups.
- c. Put the coins on the bridge.

The flat piece of paper bent very easily. However, when you fold the paper, it increases the paper's length quite a bit, allowing it to form a strong bridge.

PROJECT REFERENCE

PROJECT REFERENCE pages go into further detail of the concepts behind the project.

WORKBOOK

VOCABULARY PRACTICE

This checks students' understanding of the key words introduced in the Student Book unit.

SENTENCE PRACTICE

This is an unscramble activity featuring sentences taken from the unit reading.

11 LIQUID TO SOLID

VOCABULARY PRACTICE

1 Write the letters for each word.

ay ml fw dd st he

1. 

hal ____ ay

2. 

____ s

3. 

ml ____ le

4. 

te ____ tube

5. 

crus ____ d

6. 

st ____

2 Look at the pictures and complete the sentences.

- Exercising is important to  healthy.
- We used a  in the science experiment.
-  flour, water, and eggs in a large bowl.
- I really like this snack. It has marshmallow in the  m ____.

SENTENCE PRACTICE

Unscramble and complete the sentences.

- a liquid / happens / when / changes / what
→ _____ to a solid?
- test tube / with / halfway / fill a
→ _____ water.
- salt / crushed / mix / with / ice
→ _____ in a cup.
- the test / in the middle of / the / cup / tube
→ Put _____.
- didn't / weight / but / the
→ _____ change.

SUMMARY

Complete the summary. One word is not used.

crushed halfway leight test tubes stayed weight

Fill a test tube 1. _____ with water. Check the height and the weight of the water. Put the test tube in the middle of a cup of 2. _____ ice. The water in the 3. _____ freezes. Measure the height and weight again, then put the test tube in a cup of warm water. The ice melts. Measure the 4. _____ and weight again. The ice was higher in the test tube than the water, but the 5. _____ didn't change.

SUMMARY

This is a recap of the unit's reading passage. Students are able to check their understanding of the ideas introduced in the unit.

TABLE OF CONTENTS

UNIT / PAGE	STEAM	DETAILS	
1 Page 8	S T E A M	Title	THE THREE STATES OF WATER / WC: 75 ▶
		Academic Objective	Learn about liquids, solids, and gases
		Vocabulary	freeze, ice, palm, melt, disappear, frozen
		STEAM Project	Solids, Liquids, or Gases?
			21st Century Skills: Critical Thinking, Communication
2 Page 12	S T E A M	Title	SMOKE OR STEAM? / WC: 89
		Academic Objective	Learn how steam is made
		Vocabulary	boil, noodles, fire, smoke, pot, steam
		STEAM Project	Liquid, Gas, Liquid ▶
			21st Century Skills: Critical Thinking, Communication, Collaboration
3 Page 16	S T E A M	Title	CRUSHING CUPS / WC: 74 ▶
		Academic Objective	Learn how we can spread out our weight
		Vocabulary	wet, quickly, floor, row, stand, crush
		STEAM Project	Building a Paper Bridge ▶
			21st Century Skills: Communication, Critical Thinking
4 Page 20	S T E A M	Title	SUPER SKIS / WC: 93
		Academic Objective	Learn what pressure is and how it works
		Vocabulary	ski, pressure, wear, area, push, spread
		STEAM Project	High or Low Pressure
			21st Century Skills: Creativity, Collaboration, Critical Thinking
5 Page 24	S T E A M	Title	STRAW FLUTES / WC: 67 ▶
		Academic Objective	Learn how to make low and high sounds
		Vocabulary	straw, blow, arrange, upper, hold, length
		STEAM Project	High and Low Notes!
			21st Century Skills: Critical Thinking
6 Page 28	S T E A M	Title	THE WOLF AND THE WHISTLE / WC: 93
		Academic Objective	Learn about loud and quiet sounds
		Vocabulary	low, sound, growling, whistle, pocket, travel
		STEAM Project	When to Whisper
			21st Century Skills: Critical Thinking, Communication, Collaboration
7 Page 32	S T E A M	Title	THE PINE CONE'S SECRET / WC: 85 ▶
		Academic Objective	Learn facts about pine cones
		Vocabulary	pine cone, forest, decoration, dry, shrink, humid
		STEAM Project	Pine Cone Snake
			21st Century Skills: Creativity, Collaboration, Communication
8 Page 36	S T E A M	Title	THE STORY OF THE PINE CONE / WC: 90
		Academic Objective	Learn why pine cones open and close
		Vocabulary	pine tree, be full of, look after, protect, warm, sunny
		STEAM Project	Natural Inventions
			21st Century Skills: Creativity, Collaboration, Communication, Critical Thinking

UNIT / PAGE	STEAM	DETAILS	
9 Page 40	S T E A M	Title	ROLL A COIN / WC: 68 🎵
		Academic Objective	Learn how vending machines work
		Vocabulary	vending machine, lay, lean, slide, roll, iron
		STEAM Project	Magnet Painting 21st Century Skills: Critical Thinking, Collaboration
10 Page 44	S T E A M	Title	TOY COINS / WC: 87
		Academic Objective	Learn what sticks to magnets
		Vocabulary	test, toy, real, only, size, past
		STEAM Project	Metal Cereal 🎵 21st Century Skills: Critical Thinking
11 Page 48	S T E A M	Title	LIQUID TO SOLID / WC: 60 🎵
		Academic Objective	Learn what happens to water when it freezes
		Vocabulary	test tube, halfway, mix, crushed, middle, stay
		STEAM Project	Salted Ice 🎵 21st Century Skills: Critical Thinking, Collaboration
12 Page 52	S T E A M	Title	ICE BREAKER / WC: 88
		Academic Objective	Learn why ice takes up more space than water
		Vocabulary	hot, open, freezer, surprised, glass, yogurt
		STEAM Project	Oil and Ice 🎵 21st Century Skills: Critical Thinking, Creativity
13 Page 56	S T E A M	Title	ROCK-BREAKING RIVERS / WC: 77 🎵
		Academic Objective	Learn how rocks turn into sand
		Vocabulary	bottom, near, pile, bring, river, turn into
		STEAM Project	Sand Art 21st Century Skills: Creativity, Communication
14 Page 60	S T E A M	Title	ADVENTURES OF SPRING WATER / WC: 96
		Academic Objective	Learn how water changes the land around it
		Vocabulary	spring water, flow, begin, trip, through, ocean
		STEAM Project	Bodies of Water 21st Century Skills: Critical Thinking, Communication
15 Page 64	S T E A M	Title	BUILDING WORLDS / WC: 87
		Academic Objective	Learn about virtual reality and how it is made
		Vocabulary	headset, forward, backward, creator, film, special
		STEAM Project	Making a Virtual World 21st Century Skills: Critical Thinking, Collaboration, Communication
16 Page 68	S T E A M	Title	FLOWER POWER / WC: 70
		Academic Objective	Learn about plants and botanists
		Vocabulary	know, world, climb, trouble, medicine, fun
		STEAM Project	Be a Botanist 21st Century Skills: Creativity, Critical Thinking, Communication



I will learn... about liquids, solids, and gases.

THE THREE STATES OF WATER



Scan for Audio

KEY WORDS

A Look, listen, and repeat.  01



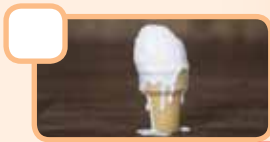
v. freeze



n. ice



n. palm



v. melt



v. disappear



adj. frozen

B Listen and number the words.  02

WARM-UP

How can we turn water into a solid?

READING

Listen and read.  03



Scan for Video

Water can be solid, liquid, or gas.

Can you believe it?

Let's take a look. We can see water change from solid to liquid and then to gas.





Freeze some water to make ice.



Put the ice on your palm and see what happens.

The ice melts and becomes liquid. Later, the water disappears into the air.

A frozen lake is solid. The water on a pool slide is liquid.

The steam at a hot spring is water as gas.

What other solids, liquids, and gases are around us?



WOW! I SEE!

Water looks different at different temperatures. When water gets cold, it freezes into ice. It does this at zero degrees Celsius*. When it gets hot, it becomes a gas.

Go to page 80 for the meaning of difficult words (*).

C Circle the key words in the reading.

D Read and choose.

1. I am the inside of your hand. What am I?

ice

palm

2. When ice gets hot, it does this.

melts

freezes

CHECK YOUR UNDERSTANDING

A Choose the correct answers.

MAIN IDEA

1. What is the main purpose of the experiment?

- a. To see how cold water gets hot
- b. To see the three states of water
- c. To watch water become gas

DETAIL

2. Water can be solid, liquid, or _____.

- a. ice
- b. metal
- c. gas

DETAIL

3. Which is NOT true?

- a. Ice is frozen water.
- b. Ice melts and becomes gas.
- c. Steam is water in gas form.

B Look, read, and check.

1.


☐

a. A frozen lake is solid.

☐

b. A frozen lake is gas.

2.


☐

a. Steam is gas.

☐

b. Steam is liquid.

C Complete the chart.

Cause		Effect
The water gets cold.	→	It freezes. It becomes _____.
The ice gets hot.	→	The ice _____. It becomes liquid.
The water gets hot.	→	It becomes _____.

D Unscramble and write.

1.



r / d / i / a / s / p / p / e / a

2.



c / e / i

3.



e / n / f / r / z / o

4.



t / l / m / e

5.



e / e / f / r / e / z

6.



l / p / m / a



SCIENCE

TECHNOLOGY

ENGINEERING

ARTS

MATH

PROJECT SOLIDS, LIQUIDS, OR GASES?

Critical Thinking What items are solids, liquids, or gases?

STEP 1 Look at the items below and put them in the table.

air	chocolate	cola	milk	plastic
rice	smoke	snow	steam	

Solid	Liquid	Gas
 snow		 smoke

STEP 2 **Communication** Can any of these items change their state easily? Discuss with a friend.

STEAM Reading

Beginner

Science

Technology

Engineering

Arts

Math

3

Workbook

TABLE OF CONTENTS

UNIT 1	THE THREE STATES OF WATER	4
UNIT 2	SMOKE OR STEAM?	6
UNIT 3	CRUSHING CUPS	8
UNIT 4	SUPER SKIS	10
UNIT 5	STRAW FLUTES	12
UNIT 6	THE WOLF AND THE WHISTLE	14
UNIT 7	THE PINE CONE'S SECRET	16
UNIT 8	THE STORY OF THE PINE CONE	18

UNIT 9 ROLL A COIN 20

UNIT 10 TOY COINS 22

UNIT 11 LIQUID TO SOLID 24

UNIT 12 ICE BREAKER 26

UNIT 13 ROCK-BREAKING RIVERS 28

UNIT 14 ADVENTURES OF SPRING WATER 30

UNIT 15 BUILDING WORLDS 32

UNIT 16 FLOWER POWER 34

1

THE THREE STATES OF WATER

VOCABULARY PRACTICE

A Find, circle, and write the words.

1.



grfreezewo

2.



meltyon

3.



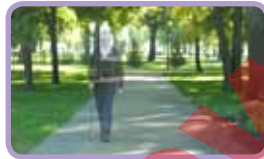
rempalmt

4.



preicewer

5.



disappearanty

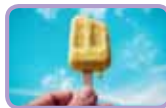
6.



frozentypa

B Look at the pictures and complete the sentences.

1. Don't let your ice cream



m _____.

2. I put my water bottle in the freezer. The water turned to



i _____.

3. The ice cube on Wendy's



p _____ melted.

4. Let's go ice skating on the



f _____ pond.



SENTENCE PRACTICE

Unscramble and complete the sentences.

1. make / some water / to / ice
→ Freeze _____.
2. melts / the ice / and becomes
→ _____ liquid.
3. at / is / the steam / water / a hot spring
→ _____ as gas.
4. pool slide / is / on a / liquid
→ The water _____.
5. solid, liquid, / gas / and / can be
→ Water _____.

SUMMARY

Complete the summary. One word is not used.

disappears

freeze

gas

liquid

melts

palm

Water has three states. It can be a solid, a 1. _____, or a gas. First, freeze water to make ice. Then, put the ice on your 2. _____. The ice 3. _____ and becomes liquid. Leave the water on your palm. Soon, it 4. _____ and becomes 5. _____. Look for other solids, liquids, and gases around you.