

# STEAM

## Reading

Beginner

2

Science

Technology

Engineering

Arts

Math

★ Beginner

Elementary

High Elementary



Video Experiments

Matthew Broadhurst  
Virginia Marconi



# STEAM

## Reading

Science

Technology

Engineering

Arts

Math

Beginner

2

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1


2

3

4

5

### KEY WORDS

**A** Look, listen, and repeat.  01



*n.* air



*v.* touch



*v.* fill




*n.* plastic



*n.* syringe



*n.* bubble

**B** Listen and number the words.  02

8

I will learn... about air.

## BUBBLING AIR



Scan for Audio

### WARM-UP

What can you feel when you use a fan?

### READING

Listen and read.  03



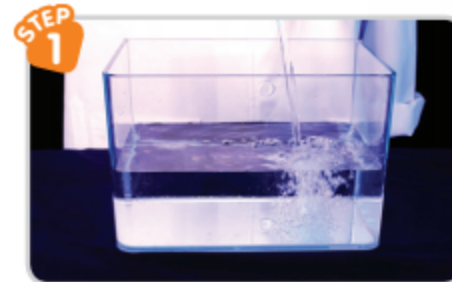
Scan for Video

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.



**Fill** a large bowl with water.



### 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 an empty **plastic** bottle in the water and push it down.



Put an empty **syringe** into the water and push down the top.

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?



#### AHA! I SEE!

Air is all around us. It is what we breathe\* and it keeps us alive. All living things need air to live. Air fills all empty containers.

#### C Circle the key words in the reading.

#### D Read and choose.

1. You can't see me. You can't touch me. You need me to live. What am I?
2. I am a ball of air in water. What am I?

plastic    air

bubble    syringe

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#### 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 AHA! 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 wordlist 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

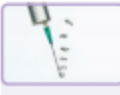
**A Choose the correct answers.**


**1.** What is the 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. Plastics      b. Bottles      c. Bubbles


**3.** Which is **NOT** true?  
a. We cannot see air.    b. We cannot touch air.    c. We can touch air.


**B 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.

**C Number the pictures in the correct order.**

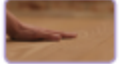
  
Bubbles come out of the syringe into the water.


  
Push down on the top of the syringe.


  
Fill a large bowl with water.


  
Put a syringe into the water.


**D Look, match, and write.**


**1.** 

**2.** 

**3.** 


**4.** 


**5.** 

**6.** 

**PROJECT 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.  
**Q:** What can you see?  
**A:** The can floats in the water. It goes / doesn't go down into the water.

**STEP 2** Now, turn the can on its side and push it into the water.  
**Q:** What happens?  
**A:** The water doesn't go / goes into the can.  
There are / aren't bubbles coming out of the can.

**Q:** 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.


Go to page 74 to see the Project Reference. 11


## PROJECT REFERENCE

### 1 TESTING FOR AIR

You can feel air around you when it is windy, and you can see leaves move, but you still can't see air by itself.

**Materials:**

  
a large bowl full of water

  
an empty soda can


**STEP 1** Put the can bottom first into the bowl of water.  
**STEP 2** Now, turn the can on its side and push it into the water.


In this experiment, you can see bubbles as the water pushes out air from inside the bottle. Most things that look empty are really full of air.


### 2 THE DRY PAPER EXPERIMENT

Your paper is still dry even though you put it in water!

**Materials:**

  
a bowl full of water

  
an empty glass

  
a ball of paper

**STEP** a. Put the paper ball into the bottom of the glass.  
b. Turn over the glass and put it straight into the water.  
c. Take out the glass and take out the paper.

Why does the paper remain dry? When you put any cup upside down in the water, there is air inside the cup. The air pushes outward from inside the cup, pressing on the walls of the cup as it tries to escape.

## 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.



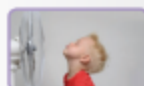



1

## BUBBLING AIR

### VOCABULARY PRACTICE

A Write the letters for each word.

ir las ouc il rin bbl

1.  t \_\_\_\_\_ h
2.  bu \_\_\_\_\_ e
3.  a \_\_\_\_\_
4.  p \_\_\_\_\_ tic
5.  sy \_\_\_\_\_ ge
6.  f \_\_\_\_\_ l

B Look at the pictures and complete the sentences.

1. Don't  t \_\_\_\_\_ that button. The car will start!
2. The doctor used a  s \_\_\_\_\_.
3. We need  a \_\_\_\_\_ to breathe.
4. Can you  f \_\_\_\_\_ my glass with orange juice, please?

4

### SENTENCE PRACTICE

Unscramble and complete the sentences.

1. all / is / us / around  
→ Air \_\_\_\_\_.
2. in the water / and push it down / an empty plastic bottle  
→ Put \_\_\_\_\_.
3. come / from / out / the bottle  
→ Bubbles \_\_\_\_\_.
4. and / an empty syringe / the top / push down / into the water  
→ Put \_\_\_\_\_.
5. made / a bubbling / they  
→ \_\_\_\_\_ sound.

### SUMMARY

Complete the summary. One word is not used.

air bubbles fill plastic syringe touch

We fill a large bowl with water. Then, we push an empty 1. \_\_\_\_\_ bottle into the water. 2. \_\_\_\_\_ come out of the bottle. Now, we put an empty 3. \_\_\_\_\_ into the water and push down the top. Again, bubbles come out of the syringe. They make a bubbling sound. We can't 4. \_\_\_\_\_ or see 5. \_\_\_\_\_, but it is all around us.

5

### 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.



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<b>1</b> Page 8	<b>S</b>	Title	BUBBLING AIR / WC: 60 ▶
	<b>T</b>	Academic Objective	Learn about air
	<b>E</b>	Vocabulary	air, touch, fill, plastic, syringe, bubble
	<b>A</b>	STEAM Project	Testing For Air ▶
	<b>M</b>		<b>21st Century Skills:</b> Critical Thinking, Collaboration
<b>2</b> Page 12	<b>S</b>	Title	TONY'S BALLOON / WC: 86
	<b>T</b>	Academic Objective	Learn about the properties of air
	<b>E</b>	Vocabulary	balloon, untie, try, feel, wind, around
	<b>A</b>	STEAM Project	The Dry Paper Experiment ▶
	<b>M</b>		<b>21st Century Skills:</b> Critical Thinking
<b>3</b> Page 16	<b>S</b>	Title	MAGNETS PUSH AND PULL / WC: 88 ▶
	<b>T</b>	Academic Objective	Learn about magnets and their poles
	<b>E</b>	Vocabulary	pole, north, south, opposite, build, tower
	<b>A</b>	STEAM Project	Exploring Magnets
	<b>M</b>		<b>21st Century Skills:</b> Critical Thinking
<b>4</b> Page 20	<b>S</b>	Title	NEW PENCIL CASE / WC: 80
	<b>T</b>	Academic Objective	Learn about the uses of magnets
	<b>E</b>	Vocabulary	zip, pencil case, drop, shake, close, tightly
	<b>A</b>	STEAM Project	Find the Words
	<b>M</b>		<b>21st Century Skills:</b> Critical Thinking
<b>5</b> Page 24	<b>S</b>	Title	GROWING SEEDS / WC: 68 ▶
	<b>T</b>	Academic Objective	Learn about seeds and how they grow
	<b>E</b>	Vocabulary	kidney bean, cotton, place, temperature, bud, soil
	<b>A</b>	STEAM Project	Life Cycle of a Plant
	<b>M</b>		<b>21st Century Skills:</b> Critical Thinking, Communication, Creativity
<b>6</b> Page 28	<b>S</b>	Title	GROWING TOMATOES / WC: 83
	<b>T</b>	Academic Objective	Learn how seeds grow into plants
	<b>E</b>	Vocabulary	cherry tomato, taste, buy, plant, sunlight, water
	<b>A</b>	STEAM Project	Parts of a Plant
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<b>7</b> Page 32	<b>S</b>	Title	HOW ROCKS BECOME SOIL / WC: 51 ▶
	<b>T</b>	Academic Objective	Learn how soil is formed
	<b>E</b>	Vocabulary	mountain, rock, large, sharp, edge, powder
	<b>A</b>	STEAM Project	The Soil Layers
	<b>M</b>		<b>21st Century Skills:</b> Critical Thinking
<b>8</b> Page 36	<b>S</b>	Title	THE MAGIC OF NATURE / WC: 84
	<b>T</b>	Academic Objective	Learn more about the characteristics of soil
	<b>E</b>	Vocabulary	go hiking, hurt, rest, nature, break, piece
	<b>A</b>	STEAM Project	Soil Formation
	<b>M</b>		<b>21st Century Skills:</b> Critical Thinking

UNIT / PAGE	STEAM	DETAILS	
9 Page 40	S	Title	THE SHAKING DRUM / WC: 86 🎧
	T	Academic Objective	Learn about different kinds of sounds
	E	Vocabulary	hear, believe, drum, hit, jump, move
	A	STEAM Project	Is the Sound You Hear Big or Small?
	M		<b>21st Century Skills:</b> Critical Thinking, Communication
10 Page 44	S	Title	TICKING CLOCK / WC: 88
	T	Academic Objective	Learn more about sound and how to measure it
	E	Vocabulary	living room, clock, tick, laugh, measure, decibel
	A	STEAM Project	How Dangerous Are the Sounds We Hear?
	M		<b>21st Century Skills:</b> Critical Thinking, Communication
11 Page 48	S	Title	DIFFERENT SHADOWS / WC: 62 🎧
	T	Academic Objective	Learn about light and shadows
	E	Vocabulary	shadow, dark, prepare, next to, different, object
	A	STEAM Project	Let's Make a Sun Clock 🎧
	M		<b>21st Century Skills:</b> Critical Thinking, Communication
12 Page 52	S	Title	STOP FOLLOWING ME! / WC: 77
	T	Academic Objective	Learn more about shadows and light
	E	Vocabulary	lake, follow, help, under, lie down, hide
	A	STEAM Project	Changing Shadow
	M		<b>21st Century Skills:</b> Critical Thinking
13 Page 56	S	Title	GRAVITY PULLS / WC: 60 🎧
	T	Academic Objective	Learn about gravity
	E	Vocabulary	ground, gravity, bucket, poke, hole, fall
	A	STEAM Project	How Fast Do They Fall? 🎧
	M		<b>21st Century Skills:</b> Critical Thinking
14 Page 60	S	Title	A FALLEN APPLE / WC: 80
	T	Academic Objective	Learn more about gravity
	E	Vocabulary	head, Earth, pull, fish, swim, pond
	A	STEAM Project	Paper Clip Gravity Experiment 🎧
	M		<b>21st Century Skills:</b> Critical Thinking
15 Page 64	S	Title	MODERN FARMING / WC: 81
	T	Academic Objective	Learn about farmers and farming in the future
	E	Vocabulary	farmer, feed, animal, machine, computer, robot
	A	STEAM Project	Help Bob
	M		<b>21st Century Skills:</b> Critical Thinking, Collaboration
16 Page 68	S	Title	ROBOT PILL / WC: 81
	T	Academic Objective	Learn about biotechnology
	E	Vocabulary	picture, smartphone, sick, pill, swallow, fix
	A	STEAM Project	How Biotechnology Can Help Us
	M		<b>21st Century Skills:</b> Critical Thinking, Collaboration, Communication