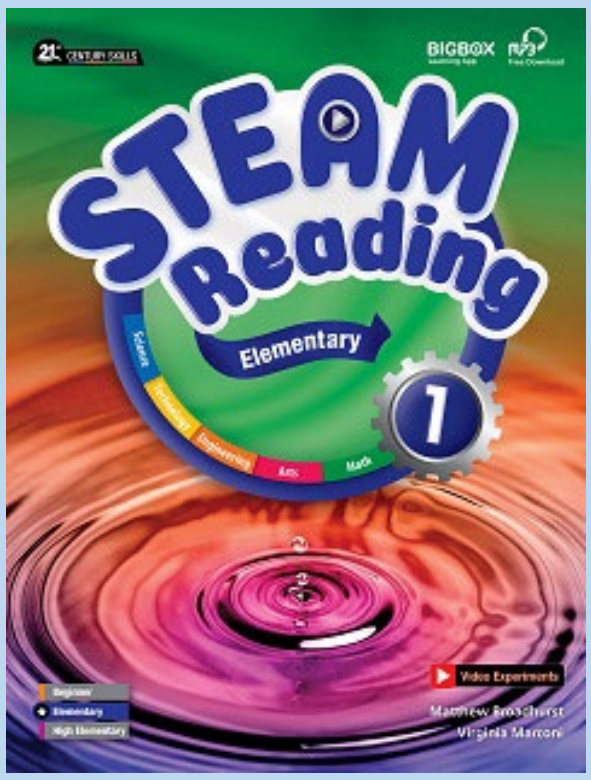
Libro	STEAM Reading



Niveles	**A1 – B1**
Unidades por libro	**12**
Lecciones por Unidad	**2**
Horas por semana	**3 a 5**

CLASSBOX

Plataforma para maestros

BIGBOX

App para alumnos

Descripción

STEAM Reading se compone de **9** libros organizados en **módulos de tres niveles** con pasajes de lectura escritos de una manera sencilla, cuidadosa y controlada para ayudar a los alumnos con la adquisición de vocabulario y desarrollen lectura de comprensión a través de temas relacionados con:

- **S** – Science (Ciencias)
- **T** – Technology (Tecnología)
- **E** – Engineering (Ingeniería)
- **A** – Arts (Artes)
- **M** – Maths (Matemáticas)

CARACTERÍSTICAS

- Pasajes de lectura interesantes para los alumnos mientas aprenden conceptos relacionados con las materias STEAM.
- Los conceptos se explican con temas de ficción y no-ficción, además de proponer proyectos y experimentos para garantizar la comprensión.
- Videos en los que se muestran los experimentos, disponibles en QR dentro de los libros.
- Los proyectos en cada unidad han sido diseñados para estimular el desarrollo de las habilidades del Siglo XXI: *Critical Thinking*, *Communication*, *Collaboration*, and *Creativity*.

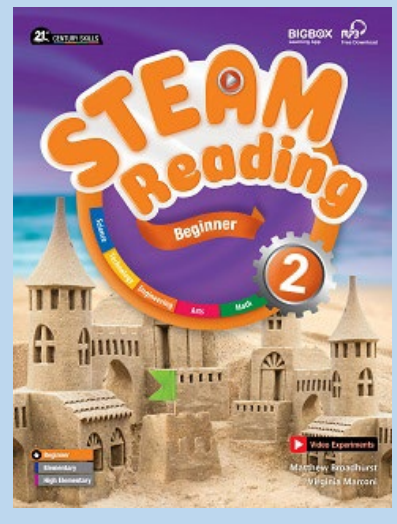
COMPONENTES

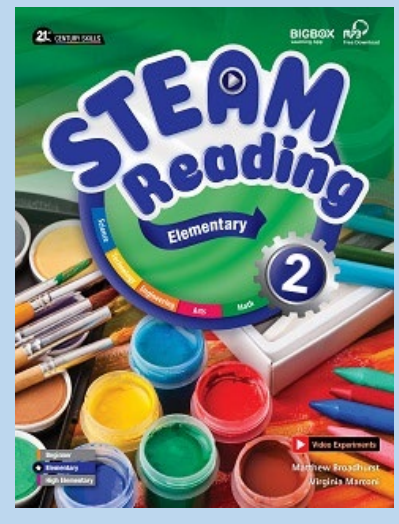
CLASSBOX **Plataforma para maestros**

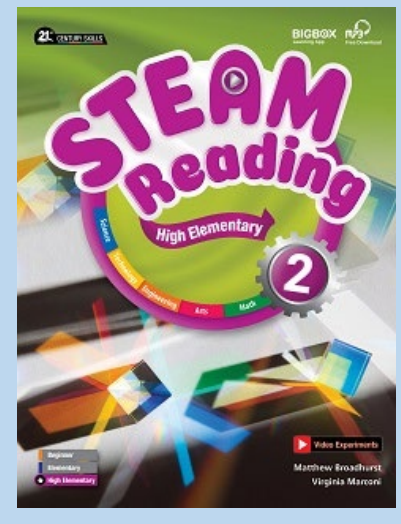
- MP3
- Word lists
- Transcripciones
- Syllabus
- Lesson plan
- Answer Key
- Writing worksheets (ejercicios adicionales de escritura)
- Exámenes de unidad
- Examen de medio curso
- Examen final
- Guía del maestro
- Assessment
- Tips e ideas
- Background knowledge

COMPONENTES

- Libro del alumno
- MP3 descargables
- Big Box App







21st CENTURY SKILLS

STEAM Reading

SAMPLER

BEGINNER – HIGH ELEMENTARY

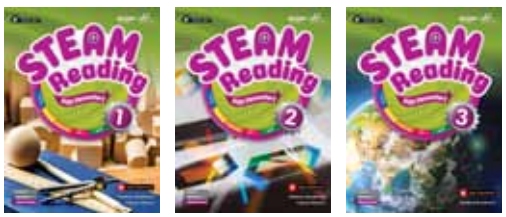
STEAM Reading

Science Technology Engineering Arts Math

The STEAM Reading series helps young learners develop their reading skills while learning about fascinating topics related to science, technology, engineering, art, and math to increase their knowledge in these increasingly important areas.

STEAM Reading Beginner 1, 2, 3

STEAM Reading Elementary 1, 2, 3



STEAM Reading High Elementary 1, 2, 3

The series consists of nine books arranged into three levels, with reading passages written in easy, carefully controlled language with lots of support with vocabulary and comprehension to help learners focus on the content, without struggling with the language.

Features

- Interesting reading passages that engage learners while teaching them about key concepts in STEAM areas
- Key concepts are explained in both fiction and nonfiction passages and demonstrated with hands-on projects and experiments to ensure learner engagement and understanding
- Live-action videos for each experiment can be easily accessed by scanning the handy QR codes throughout the books to demonstrate step-by-step for young learners and show them what to do
- Projects in each unit are specifically designed to build learners' 21st-Century skills (Critical Thinking, Communication, Collaboration, and Creativity)

Level: Beginner to High Elementary (CEFR A1 – A2+)

Main Components

• Student Book (16 four-page units)
• Workbook (16 two-page units) – included book-in-book

Digital supplemental materials

• CLASSBOX (Digital teaching platform with LMS) for teachers
• BIGBOX learning app with Class Booster interactive activities for students

Downloadable supplemental materials

Answer key, MP3 audio, Word lists, Vocabulary tests, Worksheets (Dictation, Unscramble), Tests (Unit, Review, Midterm, Final), Lesson Plans, Syllabi, Teacher's Guide, Tips & Ideas (Background knowledge passages)

STUDENT BOOK

WARM UP & KEY WORDS
A simple question gets learners thinking about the topic. Key words are introduced with photographs.

READING
Units are paired and cover the same topic, first with an easy-to-follow experiment, and then with an engaging short story.

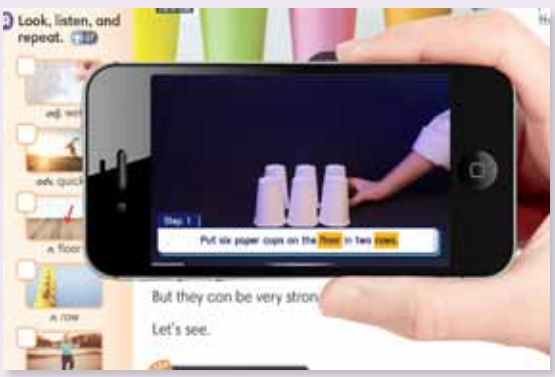
CHECK YOUR UNDERSTANDING
A range of activities checks comprehension of the story and understanding of the vocabulary.

STEAM PROJECT
A fun, interactive project gets students to apply what they've learned and practice 21st Century skills.

APPENDIX

PROJECT REFERENCE & WORD LIST
More detailed project instructions and a word list with written definitions and extra words is available for every unit in the appendix at the back of the book.

VIDEOS



EXPERIMENT PROJECT VIDEOS
Each experiment project has an accompanying video. Learners can scan the handy QR code with a mobile device and see step-by-step instructions explaining what they should do in the experiment.

WORKBOOK

VOCABULARY PRACTICE, SENTENCE PRACTICE, SUMMARY
Additional activities in the included Workbook check students' understanding of the vocabulary and sentence structures from the passage. A short summary activity checks students understanding of key ideas from the unit.

DIGITAL ACTIVITIES

BIGBOX

BIGBOX LEARNING APP with CLASS BOOSTER
Students can download the BIGBOX app on PC or their mobile device for more practice with interactive activities, including digital flashcards, comprehension and structure practice, and the experiment videos.

BEGINNER – BOOK 2

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

• Project Reference / Page 74 • Word List / Page 80

STEAM 1

I will learn... about air.

BUBBLING AIR

Scan for Audio

WARM-UP

What can you feel when you use a fan?

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

READING

Listen and read. 03

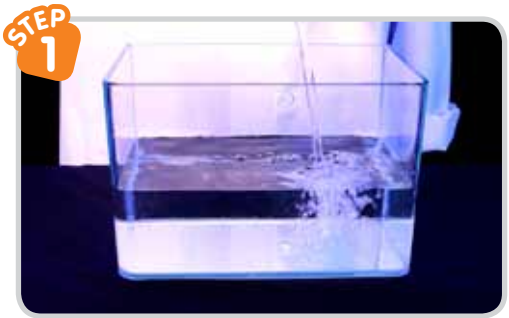
Scan for Video

Can we see air? Can we touch it?

We cannot see air. We cannot touch it either.

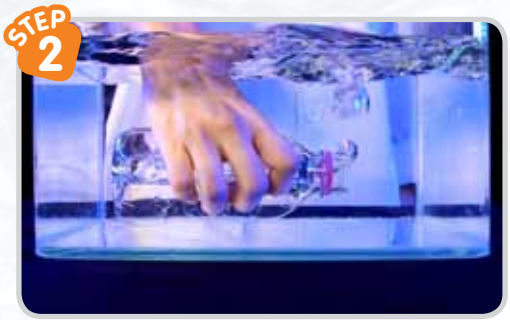
But air is all around us.

Let's do a simple experiment.



Fill a large bowl with water.

STEP 2



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

STEP 3

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?

WOW! 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.

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

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? plastic / air
2. I am a ball of air in water. What am I? bubble / syringe

CHECK YOUR UNDERSTANDING

A Choose the correct answers.

MAIN IDEA **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

DETAIL **2.** _____ are made of air.

a. Plastics b. Bottles c. Bubbles

DETAIL **3.** Which is <u>NOT</u> 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.

- syringe
- air
- fill
- plastic
- touch
- bubble

STEAM — SCIENCE | TECHNOLOGY | ENGINEERING | ARTS | MATH

PROJECT TESTING FOR AIR

Scan for Video

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.

Critical Thinking 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.

Critical Thinking Q. What happens?
A. The water **doesn't go** / **goes** into the can.
There **are** / **aren't** bubbles coming out of the can.

Critical Thinking Collaboration 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.

1 BUBBLING AIR

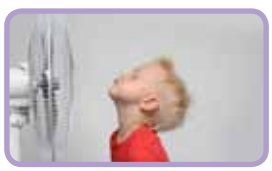
VOCABULARY PRACTICE

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?

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.

ELEMENTARY – BOOK 2

UNIT / PAGE	STEAM	DETAILS	
1 Page 8	S T E A M	Title	LIGHT TRAVELS / WC: 114
		Academic Objective	Learn about how light moves
		Vocabulary	straight, flashlight, direction, target, toward, reflection
		STEAM Project	Reflecting Light
			21st Century Skills: Critical Thinking, Creativity, Collaboration
2 Page 12	S T E A M	Title	THE BUS DRIVER / WC: 101
		Academic Objective	Learn more about reflection
		Vocabulary	get on, crowded, get off, rearview mirror, front, stop
		STEAM Project	Concave and Convex Mirrors
			21st Century Skills: Critical Thinking
3 Page 16	S T E A M	Title	THE WATER CYCLE / WC: 106
		Academic Objective	Learn about the water cycle
		Vocabulary	evaporate, condense, cycle, seal, decrease, increase
		STEAM Project	The Water Cycle in a Bottle
			21st Century Skills: Creativity, Critical Thinking
4 Page 20	S T E A M	Title	DISAPPEARED WATER / WC: 127
		Academic Objective	Learn more about the water cycle
		Vocabulary	vacation, forget, become, cloud, high, again
		STEAM Project	Why It Is Important to Save Water
			21st Century Skills: Critical Thinking, Creativity, Communication
5 Page 24	S T E A M	Title	A RAFT OF STRAWS / WC: 124
		Academic Objective	Learn why things float or sink
		Vocabulary	coin, raft, design, blueprint, buoyancy, upward
		STEAM Project	Make a Plastic Bottle Raft
			21st Century Skills: Creativity, Critical Thinking, Collaboration, Communication
6 Page 28	S T E A M	Title	HOW DOES A SHIP FLOAT? / WC: 114
		Academic Objective	Learn more about buoyancy
		Vocabulary	ship, Internet, search, force, be made of, huge
		STEAM Project	Build a Better Vehicle
			21st Century Skills: Critical Thinking, Collaboration, Creativity
7 Page 32	S T E A M	Title	ICE FISHING / WC: 96
		Academic Objective	Learn about salt and ice
		Vocabulary	spray, stairs, ingredient, ice cube, make sure, degree
		STEAM Project	How to Make Ice Cream in a Bag
			21st Century Skills: Critical Thinking
8 Page 36	S T E A M	Title	FROZEN / WC: 126
		Academic Objective	Learn more about the freezing point of water
		Vocabulary	aunt, even, reply, ask, because, lower
		STEAM Project	An Ice-Melting Experiment
			21st Century Skills: Critical Thinking, Collaboration

UNIT / PAGE	STEAM	DETAILS	
9 Page 40	S T E A M	Title	THE POWER OF PULLEYS / WC: 98
		Academic Objective	Learn about pulleys and how to lift things easily
		Vocabulary	lift, pulley, wheel, loose, wrap, distribute
		STEAM Project	How Pulleys Make Life Easier
			21st Century Skills: Critical Thinking, Communication
10 Page 44	S T E A M	Title	INVENTIONS OF THE PAST / WC: 103
		Academic Objective	Learn more about pulleys
		Vocabulary	fortress, electricity, easily, work, carry, need
		STEAM Project	More About Pulleys
			21st Century Skills: Critical Thinking
11 Page 48	S T E A M	Title	A VOLCANIC ERUPTION / WC: 100
		Academic Objective	Learn about volcanoes and volcanic eruptions
		Vocabulary	magma, volcano, erupt, lava, detergent, vinegar
		STEAM Project	Learn About Volcanoes
			21st Century Skills: Critical Thinking
12 Page 52	S T E A M	Title	VOLCANOES: GOOD OR BAD? / WC: 113
		Academic Objective	Learn more about volcanoes
		Vocabulary	worried, danger, cause, ash, surface, hot spring
		STEAM Project	Good and Bad Things About Volcanoes
			21st Century Skills: Critical Thinking, Collaboration, Communication
13 Page 56	S T E A M	Title	THE FAULTS IN OUR EARTH / WC: 89
		Academic Objective	Learn about earthquakes
		Vocabulary	crust, puzzle, crack, fault, spine, relax
		STEAM Project	Earthquake Experiment
			21st Century Skills: Critical Thinking, Collaboration
14 Page 60	S T E A M	Title	EARTHQUAKE SAFETY / WC: 127
		Academic Objective	Learn more about earthquakes
		Vocabulary	grab, news report, fall down, turn off, power, elevator
		STEAM Project	Do During an Earthquake
			21st Century Skills: Critical Thinking, Communication
15 Page 64	S T E A M	Title	MACHINES ALL AROUND / WC: 104
		Academic Objective	Learn about machines and mechanical engineers
		Vocabulary	complicated, mechanical, industry, turn on, switch, fridge
		STEAM Project	Let's Make Our Own Lift
			21st Century Skills: Critical Thinking, Collaboration
16 Page 68	S T E A M	Title	UNDERWATER EXPLORERS / WC: 100
		Academic Objective	Learn about archaeology and underwater archaeologists
		Vocabulary	important, archaeologist, dig, percent, item, underwater
		STEAM Project	Are You a Good Archaeologist?
			21st Century Skills: Critical Thinking, Creativity, Communication

I will learn... more about buoyancy.

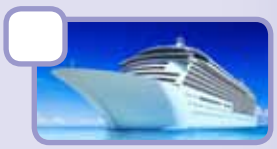
HOW DOES A SHIP FLOAT?

WARM-UP

Buoyancy pushes things up in water. What's the force that pulls them down? It begins with "g."

KEY WORDS

A **Look, listen, and repeat.** 16



n. ship

n. Internet

v. search

n. force

phr. be made of

adj. huge

B **Listen and number the words.** 17

READING

Listen and read. 18

Clara and Brian went to the beach. They saw a big ship in the water.

Brian said, "Clara, how can that big ship float?"

"I don't know. Let's check on the Internet."

They searched for how boats float.

Brian said, "It says it's because the force of water pushes the ship up. It's called buoyancy."

"Yes, that's right," said Clara. "My smartphone says this, too. The big ship has lots of air in it. The ship is made of heavy iron. But the air makes it lighter.

"The iron and air are lighter than the water. So the ship floats!"

"Oh, I see!" said Brian. "That's how that huge ship can float on water."

C Circle the key words in the reading.

D Read and choose.

1. What does search mean in the reading?
   a. try to lose b. try to find c. try to hit

2. Which is the opposite of huge?
   a. big b. high c. small

CHECK YOUR UNDERSTANDING

A Choose the correct answers.

MAIN IDEA **1.** What is the reading mainly about?

a. How to search for things on the Internet
b. How iron and air are heavier than water
c. How buoyancy keeps a ship from sinking

DETAIL **2.** The _____ that is inside the ship is much lighter than water.

a. iron b. air c. force

DETAIL **3.** Which of the following does a large ship NOT have in it?

a. Seawater b. Air c. Iron

B Check true (T) or false (F) for each sentence.

	T	F
1. Clara's smartphone said the air in a huge ship made it lighter than water.	☐	☐
2. There is a force in water that pushes ships up and keeps them from sinking.	☐	☐

C Complete the chart.

Who	**Who** are the characters in the story? Brian and _____
What	**What** is the story about? How big _____
Where	**Where** are the characters? They are _____
When	**When** did they search the Internet? After they _____
Why	**Why** do ships float? The buoyancy _____

D Choose the best definition.

1. Internet
   a. a place to hide information
   b. a place to find information

2. force
   a. a power
   b. a movement

3. be made of
   a. to be used to
   b. to be composed of

4. ship
   a. a large boat made of iron
   b. a small car made of wood

STEAM SCIENCE TECHNOLOGY ENGINEERING ARTS MATH

PROJECT BUILD A BETTER VEHICLE*

STEP 1 Critical Thinking Look at the picture below and answer the questions.

1. What kind of vehicle is this?
   a. car b. airplane c. ship
2. Where does this vehicle operate*?
   a. in the ocean b. in the sky c. underwater

STEP 2 Critical Thinking Collaboration Let's search about ship buoyancy and share it with friends.

How can big ships float?

STEP 3 Creativity Design your own ship.

Draw here.

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

6 HOW DOES A SHIP FLOAT?

VOCABULARY PRACTICE

A Unscramble the word. Then write it.

1.

tIntrene

_____

2.

haesrc

_____

3.

efcor

_____

4.

phis

_____

5.

eghu

_____

6.

eb mead fo

_____

B Complete the sentences with the words from the box. One word is not used.

forces	Internet	is made of	search	ship

1. This raft _____ straws, so it easily floats on water.
2. Gravity, buoyancy, and magnetism are all _____.
3. The _____ finally reached the port.
4. The teacher told us to go on the _____ and look for information about buoyancy.

SENTENCE PRACTICE

Match the sentences and write.

1.	They saw a	•	• can float on water.
2.	Brian said, “Clara, how	•	• than the water.
3.	My smartphone says this, too.	•	• can that big ship float?”
4.	The iron and air are lighter	•	• The big ship has lots of air in it.
5.	That’s how that huge ship	•	• big ship in the water.

1. _____

2. _____

3. _____

4. _____

5. _____

SUMMARY

Complete the summary. One word is not used.

air force huge Internet iron searched smartphone

When Clara and Brian went to the beach, they saw a(n) **1.** _____ ship floating in the water. Brian wanted to know how the ship could float. They went on the **2.** _____. They **3.** _____ for how boats float. Brian said there is a(n) **4.** _____ that pushes the ship up. Clara said her smartphone also said that big ships can float because they have lots of **5.** _____ in them. The ships are very heavy because they are made of **6.** _____, but the air makes the ships lighter.

HIGH ELEMENTARY – BOOK 2

UNIT / PAGE	STEAM	DETAILS	
1 Page 8	S	Title	BROKEN CHOPSTICK / WC: 171
	T	Academic Objective	Learn about light refraction
	E	Vocabulary	lawn, pass, slow down, enter, refract, slightly, position, focused
	A	STEAM Project	Changing Arrows
	M		**21st Century Skills:** Critical Thinking, Communication, Creativity
2 Page 12	S	Title	TALL BOY, SHORT LEGS / WC: 158
	T	Academic Objective	Learn more about light refraction
	E	Vocabulary	entire, swimming pool, dive, funny, refraction, brain, line, come in
	A	STEAM Project	The Reappearing Coin
	M		**21st Century Skills:** Critical Thinking
3 Page 16	S	Title	PRESSURE CHANGES, VOLUME CHANGES / WC: 176
	T	Academic Objective	Learn about the volume changes of gases
	E	Vocabulary	certain, apply, plunger, lightly, change, repeat, base on, no matter
	A	STEAM Project	Fountain Bottle Experiment
	M		**21st Century Skills:** Critical Thinking
4 Page 20	S	Title	A BAG OF CHIPS / WC: 168
	T	Academic Objective	Learn more about air pressure
	E	Vocabulary	pack, chip, in case, proud, swell, burst, inflated, suspicious
	A	STEAM Project	Atmospheric Pressure and Altitude
	M		**21st Century Skills:** Critical Thinking
5 Page 24	S	Title	TWO DIFFERENT LENSES / WC: 174
	T	Academic Objective	Learn about different types of lenses
	E	Vocabulary	lens, bend, convex, concave, on the other hand, transparent, laser pointer, beam
	A	STEAM Project	What Can a Magnifying Glass Do?
	M		**21st Century Skills:** Critical Thinking, Collaboration
6 Page 28	S	Title	TELESCOPES, MICROSCOPES, AND MORE! / WC: 160
	T	Academic Objective	Learn more about lenses and how they are used
	E	Vocabulary	observatory, space, telescope, explain, gather, in detail, binoculars, microscope
	A	STEAM Project	Uses of Lenses
	M		**21st Century Skills:** Critical Thinking
7 Page 32	S	Title	THE FLOW OF ELECTRICITY / WC: 145
	T	Academic Objective	Learn about electricity and how it flows
	E	Vocabulary	electricity, electrical, circuit, electric current, wire, connect, conductor, complete
	A	STEAM Project	An Electrical Circuit
	M		**21st Century Skills:** Critical Thinking
8 Page 36	S	Title	ALL OF THE LIGHTS / WC: 154
	T	Academic Objective	Learn more about how electricity flows
	E	Vocabulary	get ready, thread, light up, join, conduct, positive, negative, already
	A	STEAM Project	Electrical Conductors and Insulators
	M		**21st Century Skills:** Critical Thinking

UNIT / PAGE	STEAM	DETAILS	
9 Page 40	S	Title	MORE BATTERIES / WC: 133
	T	Academic Objective	Learn more about electrical circuits and batteries
	E	Vocabulary	series, connection, parallel, remaining, brightness, voltage, strong, last
	A	STEAM Project	How Can We Make Holiday Lights?
	M		**21st Century Skills:** Critical Thinking, Communication
10 Page 44	S	Title	ELECTRICITY EVERYWHERE / WC: 169
	T	Academic Objective	Learn more about things that use electricity
	E	Vocabulary	heater, run, plug, outlet, throw, grocery store, electronics, overheat
	A	STEAM Project	Why and How Should We Save Electricity?
	M		**21st Century Skills:** Critical Thinking, Creativity, Communication
11 Page 48	S	Title	SEA BREEZE AND LAND BREEZE / WC: 181
	T	Academic Objective	Learn about the difference between a land breeze and a sea breeze
	E	Vocabulary	daytime, sea breeze, land breeze, lamp, heated, movement, heat up, create
	A	STEAM Project	Flowing Air
	M		**21st Century Skills:** Critical Thinking
12 Page 52	S	Title	FLYING A KITE / WC: 172
	T	Academic Objective	Learn more about a land breeze and a sea breeze
	E	Vocabulary	take a trip, kite, above, from A to B, check out, dinner, go out, flow
	A	STEAM Project	Make a Kite
	M		**21st Century Skills:** Creativity, Communication
13 Page 56	S	Title	THE HEIGHT OF THE SUN / WC: 156
	T	Academic Objective	Learn about the height of the sun and the seasons
	E	Vocabulary	differ, season, steep, angle, shallow, once, heat energy, rise
	A	STEAM Project	The Sun and The Seasons
	M		**21st Century Skills:** Critical Thinking, Communication
14 Page 60	S	Title	THE LENGTH OF THE DAY / WC: 166
	T	Academic Objective	Learn about solar altitude
	E	Vocabulary	set, bright, solar altitude, during, at an angle, revolve, maximum, minimum
	A	STEAM Project	How to Read a Climate Graph
	M		**21st Century Skills:** Critical Thinking
15 Page 64	S	Title	ELECTRICITY FROM THE SUN / WC: 159
	T	Academic Objective	Learn about changing sunlight into electricity
	E	Vocabulary	imagine, coal, climate change, solar, effective, plan, implement, essential
	A	STEAM Project	How Solar Panels Work
	M		**21st Century Skills:** Critical Thinking, Communication
16 Page 68	S	Title	WEB DEVELOPER / WC: 158
	T	Academic Objective	Learn about developing a website
	E	Vocabulary	website, crash, manage, scroll, sell out, annoying, technical, load
	A	STEAM Project	What Can You Do on the Internet?
	M		**21st Century Skills:** Critical Thinking, Creativity, Communication

STEAM

7

I will learn... about electricity and how it flows.

THE FLOW OF ELECTRICITY

Scan for Audio

WARM-UP

What happens when you plug in a lamp?

KEY WORDS

A **Look, listen, and repeat.** 19

n. electricity

adj. electrical

n. circuit

n. electric current

n. wire

v. connect

n. conductor

adj. complete

B **Listen and number the words.** 20

READING

Listen and read. 21

Scan for Video

How does electricity flow? First, it needs an electrical circuit. The electricity flowing through the circuit is called an electric current.

Can we make a circuit to turn on a light bulb? Prepare a battery, wires, and a light bulb.

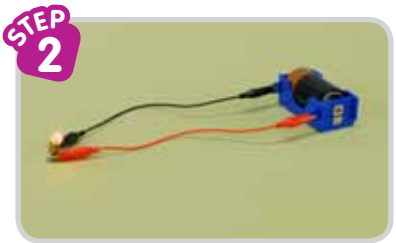
Let's make two different circuits.

Circuit 1

STEP 1

Get two wires. Connect one end of each wire to each pole of the battery (+/-).

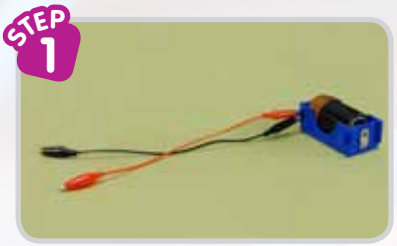
STEP 2



Connect the other ends of the wires to the light bulb. What happens?

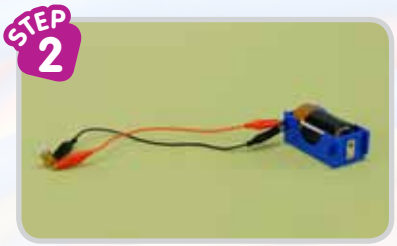
Circuit 2

STEP 1



Get two wires. Connect one end of two wires to one pole of the battery.

STEP 2



Connect the other ends of the wires to the bulb. What happens?

When did the bulb light up? It only turned on in Circuit 1.

Why do you think that was?

An electrical circuit needs certain things.

1. The battery, wires, and bulb should all be connected.
2. The electrical conductors should be connected to both poles of the battery.
3. The light bulb should be connected to both conductors.

In Circuit 2, only one pole of the battery was connected.

The bulb didn't turn on because the electrical circuit wasn't complete.

The electricity couldn't flow.

Take the battery, wires, and light bulb again. What other circuits could you make with them?

C Read and choose.

1. What does It mean in the reading?
a. the bulb b. the battery c. the wire

2. What does complete mean in the reading?
a. unfinished b. complicated c. finished

CHECK YOUR UNDERSTANDING

A Choose the correct answers.

MAIN IDEA

1. What is the reading mainly about?
   a. How electricity unplugs a circuit
   b. How electricity flows through a circuit
   c. How electricity flows through a battery

DETAIL

2. The second circuit didn't work because _____.
   a. we did not connect the two wires to the bulb
   b. we connected the two wires to each pole of the battery
   c. we did not connect the two wires to the two poles of the battery

DETAIL

3. Which of the following does electricity NOT do?
   a. Connect two poles
   b. Flow through a circuit
   c. Travel through conductors

B Check T for true or F for false. Correct the false statements.

1. Electricity flows through a bulb into an electrical circuit. T F
   _____

2. The electrical circuit is complete when one pole is connected. T F
   _____

C Put a check (✓) for correct sentences and a cross (✗) for incorrect sentences about electricity.

1

Electric currents travel through conductors.

2

Electricity does not flow through wires.

3

To do the experiment, you need two batteries.

4

To do the experiment, you need two bulbs.

5

The bulb lights up when the circuit is complete.

6

The circuit is complete when only one of the poles is connected.

D Complete the sentences.

complete conductor connect electric currents electrical wires

1. Make sure you _____ the two wires, one to each pole.
2. I have a(n) _____ set of books.
3. Copper is an excellent _____ of electricity.
4. Be careful with that plug! _____ can be very dangerous.
5. You need _____ to make a circuit and allow electricity to flow.
6. The television and microwave oven are _____ devices.

STEAM SCIENCE TECHNOLOGY ENGINEERING ARTS MATH

PROJECT AN ELECTRICAL CIRCUIT

An electrical circuit is a connection of electrical components* that electricity flows. Electrical circuits power bulbs and other electrical objects in your home.

STEP 1 Critical Thinking Complete the sentences using the word bank below.

complete conductors electric current electricity pole wires

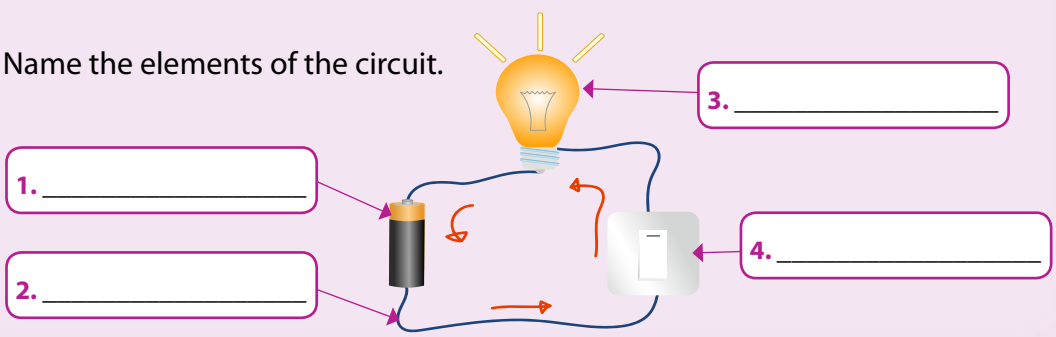
A battery is the most important component. It is the power source. It provides energy for 1. _____ to flow.

Electricity flows through 2. _____. They are made of good 3. _____ like copper.

The electricity that flows from the battery to the bulb and back is called a(n) 4. _____. It flows from the positive 5. _____ to the negative pole.

When the switch is open, the circuit is cut and the current does not flow. When it is closed, the circuit is 6. _____ and electricity flows.

STEP 2 Critical Thinking Name the elements of the circuit.



Go to page 83 for the meaning of difficult words (*).

7 THE FLOW OF ELECTRICITY

VOCABULARY PRACTICE

A Match and write.

1.
wires

2.
connects

3.
electricity

4.
complete

- Many years ago, there was no _____, so people had to read by candlelight.
- Our school library has the _____ works of William Shakespeare.
- The number 6 bus _____ our neighborhood to the city center.
- The technician was connecting the telephone _____ to the central network.

B Choose the correct words.

1. Wood is not a good _____ of heat or electricity.
   a. transportation b. conductor c. substance

2. A fridge or a computer needs a(n) _____ to work.
   a. electric current b. sea current c. air current

3. Mr. Kyle is a(n) _____ engineer. He works at the power station.
   a. space b. sound c. electrical

4. Electricity flows through the wires in the _____.
   a. brain b. circuit c. light

COMPREHENSION PRACTICE

Read the following passage and choose the correct answers.

① When did the bulb light up? It only turned on in Circuit 1. ② Why do you think that was? ③

1. The battery, wires, and bulb should all be connected.
2. The electrical conductors should be connected to both poles of the battery.
3. The light bulb should be connected to both conductors.

1. What happens when you don't connect the two wires to the two battery poles?

a. The electric current doesn't flow.
b. The electrical conductors light the bulb.
c. The battery, wires, and bulb are all connected.

2. What is the best place for the sentence below?

An electrical circuit needs certain things.

a. ① b. ② c. ③

3. What does conductor mean in the passage?

a. insulator b. leader c. substance allowing electricity

SUMMARY

Complete the summary. One word is not used.

bulb circuit complete conductors connected electrical flows wires

Electricity 1. _____ through a(n) 2. _____ circuit. We made an experiment to see what happens when we make a circuit to light a(n) 3. _____. We used 4. _____, a battery, and a light bulb to make two circuits. In the first circuit, we 5. _____ the ends of the two wires, one to the positive and the other to the negative pole of the battery. Then we connected the other two ends to the bulb. The bulb lit up. In the second 6. _____, we only connected the wires to one pole. The bulb did not light up. This happened because the electrical circuit was not 7. _____. So electricity couldn't flow.

STEAM Reading

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