



# The REAL STEAM

Konnie Karma

A1

Express Publishing

# CONTENTS



## SCIENCE

1	What is a Chemical Reaction? .....	p.	6
2	Can We Measure Wind Speed? .....	p.	9
3	The Solar System .....	p.	13
4	Soil Layers .....	p.	16
5	Colours! Colours! .....	p.	20

## TECHNOLOGY

1	A Simple Microscope .....	p.	24
2	An Amazing Maze .....	p.	27
3	Let's Go Camping .....	p.	30
4	Telephones - Past & Present .....	p.	34
5	Listen to Your Heart .....	p.	38

## ENGINEERING

1	My Dream School .....	p.	42
2	The Earth's Orbit .....	p.	45
3	Enjoy the Ride .....	p.	48
4	Let's Play! .....	p.	51
5	Zip Lines .....	p.	55

## ARTS

1	A Collage Tells a Story .....	p.	60
2	An Upcycled Vase .....	p.	63
3	Animal Talk .....	p.	66
4	Be a Poet .....	p.	69
5	Shadow Theatre .....	p.	73

## MATHS

1	3D Shapes .....	p.	78
2	The Symmetry of the Human Body .....	p.	82
3	Calculations .....	p.	85
4	Stick to the Budget .....	p.	89
5	The School Canteen .....	p.	92

## PROJECTS

Project 1:	Mother Nature .....	p.	96
Project 2:	Look Up! .....	p.	114

Evaluation Form .....	p.	134
-----------------------	----	-----

# STEAM (SCIENCE)

1

## WHAT IS A CHEMICAL REACTION?

### Aim

'What is a chemical reaction?' To try and answer this question, let's do an experiment with things in the kitchen.



**chemical reaction:** when two or more materials mix and change to make another material



**lab (laboratory):** a place or a building where we can do experiments or teach Science



**bubble:** a small ball of air or gas inside water, etc; for example, we see bubbles when water boils

### A iWonder

1 Where do you think we can see chemical reactions: in labs? in everyday life? in both?

2 In a chemical reaction, we can see a temperature change, a colour change and bubbles. Which of the following do you think are chemical reactions? Tick (✓). Then, check your answers online. (e.g. you can type: is burning wood a chemical reaction?)

A



burning wood

B



mixing vinegar and baking soda

C



baking a cake

D



cooking an egg

E



mixing sand and water

F

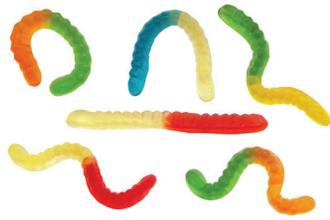


exploding fireworks

3 What can you see in each chemical reaction in Ex. 2: a temperature change? a colour change? bubbles? Tell your partner.

### B iImagine

- 4 Let's try an experiment. Look at the things below. How can we use them to make a chemical reaction? Talk with your partner. Draw or write your ideas below.



gummy worms



vinegar



baking soda



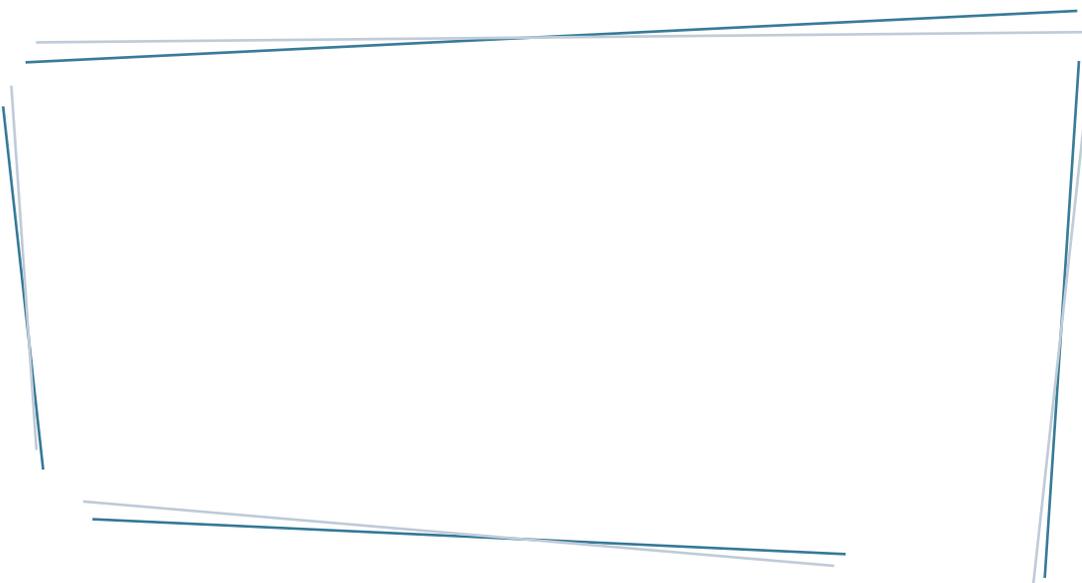
some warm water



2 jars

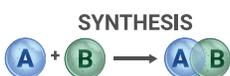


a pair of tongs



### DID YOU KNOW?

There are different types of chemical reactions. One of them is synthesis and it looks like this:



- 5 Let's do the experiment. What are the steps?

- Cut the gummy worms horizontally in half, to make them thinner.
- Fill a jar with warm water. Add 3 tablespoons of baking soda and mix well.
- Put the gummy worms in the jar with the baking soda.
- Let them sit for 20 minutes.
- Fill the other jar with vinegar.
- Use the tongs. Take the gummy worms from the first jar and carefully put them into the jar with the vinegar.



# STEAM (SCIENCE)

1

## WHAT IS A CHEMICAL REACTION?

### D iObserve

6 What do you observe? Tell your partner.

1 What can you see?

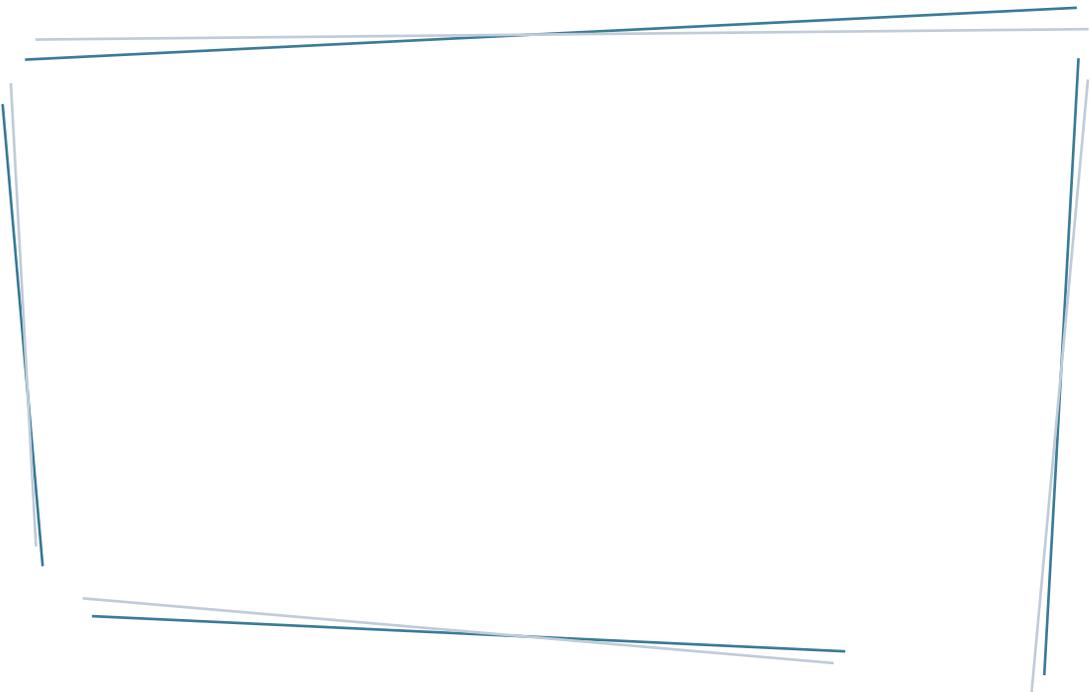
\_\_\_\_\_

2 What happens when you put the gummy worms in the jar with the vinegar?

\_\_\_\_\_

### E iCreate

7 In pairs, draw the experiment with the gummy worms in the box below. Draw arrows and write the names of the things you used. Present the experiment to your classmates and explain what is happening in each step. You can use the information in the *Did you Know?* box if you want.



### F iEvaluate

8 In pairs, write two things you learned about chemical reactions.

1 \_\_\_\_\_

2 \_\_\_\_\_



### iExtend

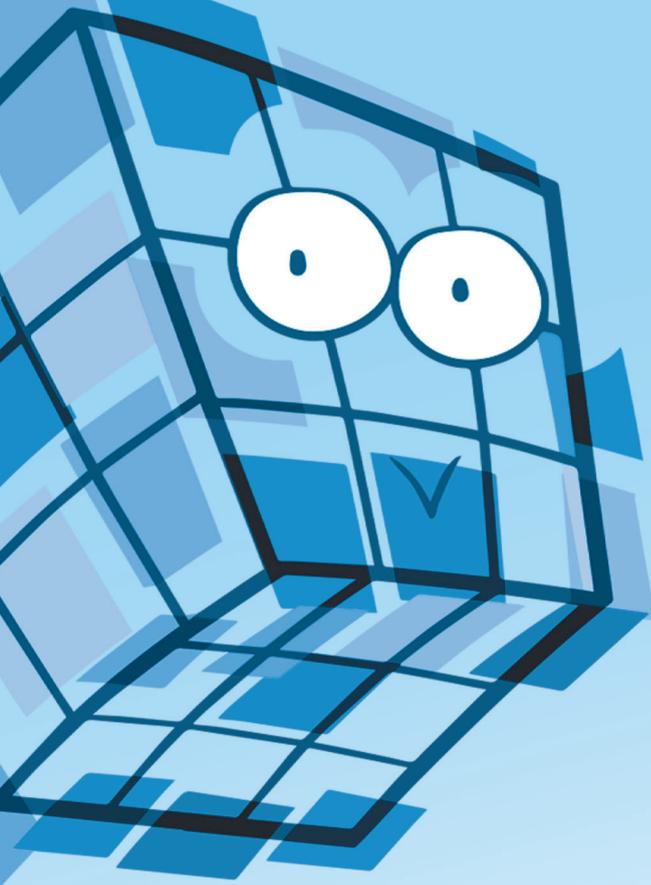
Use a ruler. Measure: how long were the gummy worms before the experiment? how long are they after the experiment? What do you observe? Why do you think this happens?

\_\_\_\_\_  
\_\_\_\_\_

❖ Complete the Evaluation Form at the back of the book.

# The REAL STEAM

A1



*The REAL STEAM* is a five-level series for students at CEFR levels Pre-A1 to B2 that promotes experiential and holistic language learning through STEAM activities. Students carry out a variety of scientific experiments, engineering projects, mathematical calculations and art projects, all carefully tailored to their language level. The series provides hands-on activities for students to explore the STEAM world through six collaborative steps: *iWonder* (asking questions), *ilagine* (preparing for the activity), *iExplore* (doing the activity), *iObserve* (making observations), *iCreate* (presenting results) and *iEvaluate* (analysing results).

## Components

- Student's Book
- Teacher's lesson plans (downloadable)



Express Publishing

ISBN 978-1-3992-1465-0



9 781399 214650