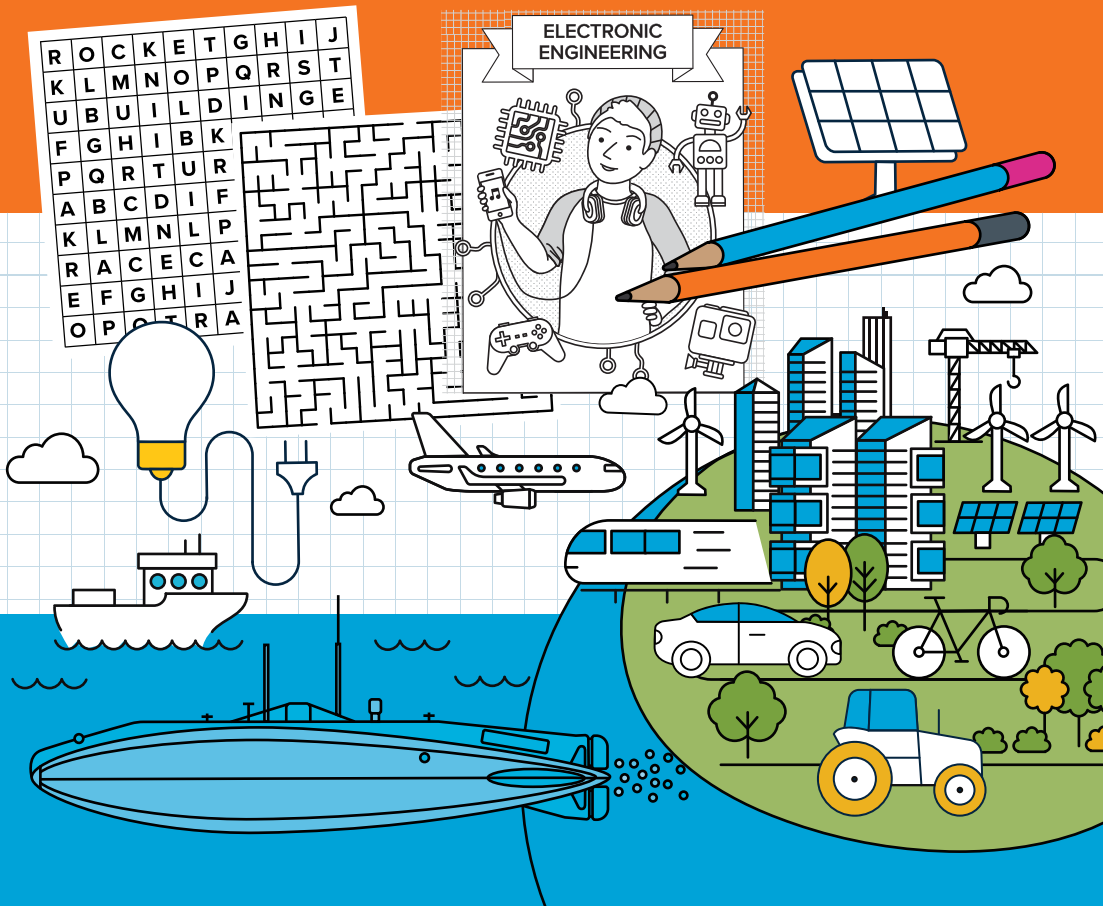


Fun  
activities  
inside!

Φ ENGINEERS IRELAND **STEPS**

# Engineering Bumper Pack

Discover the exciting world of engineering



# Inspiring School Children to Engineer a Brighter Future

The Engineers Ireland STEPS Programme is designed to open up the exciting possibilities which engineering offers to school children who want to make a real difference in the world.

Have fun discovering engineering!

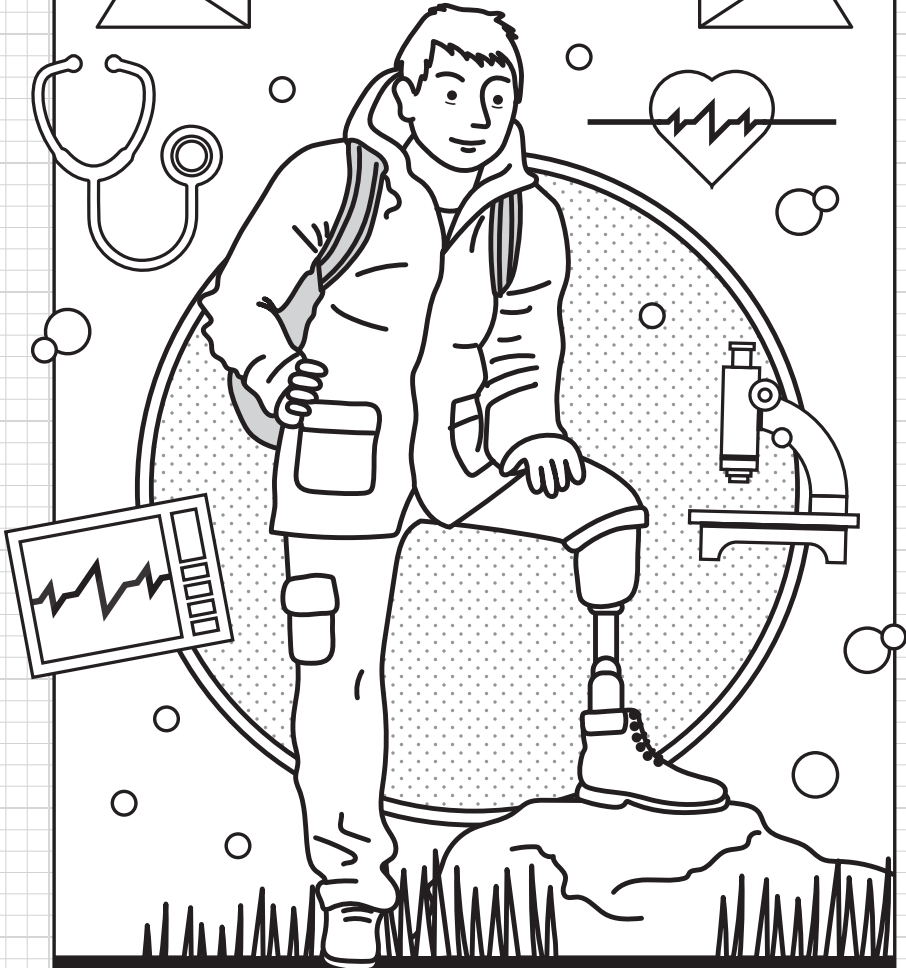
Visit **[www.engineersireland.ie/schools](http://www.engineersireland.ie/schools)** for ideas on how to get involved with STEPS.

# Engineer your own adventure

This book belongs to:

---

# BIOMEDICAL ENGINEERING



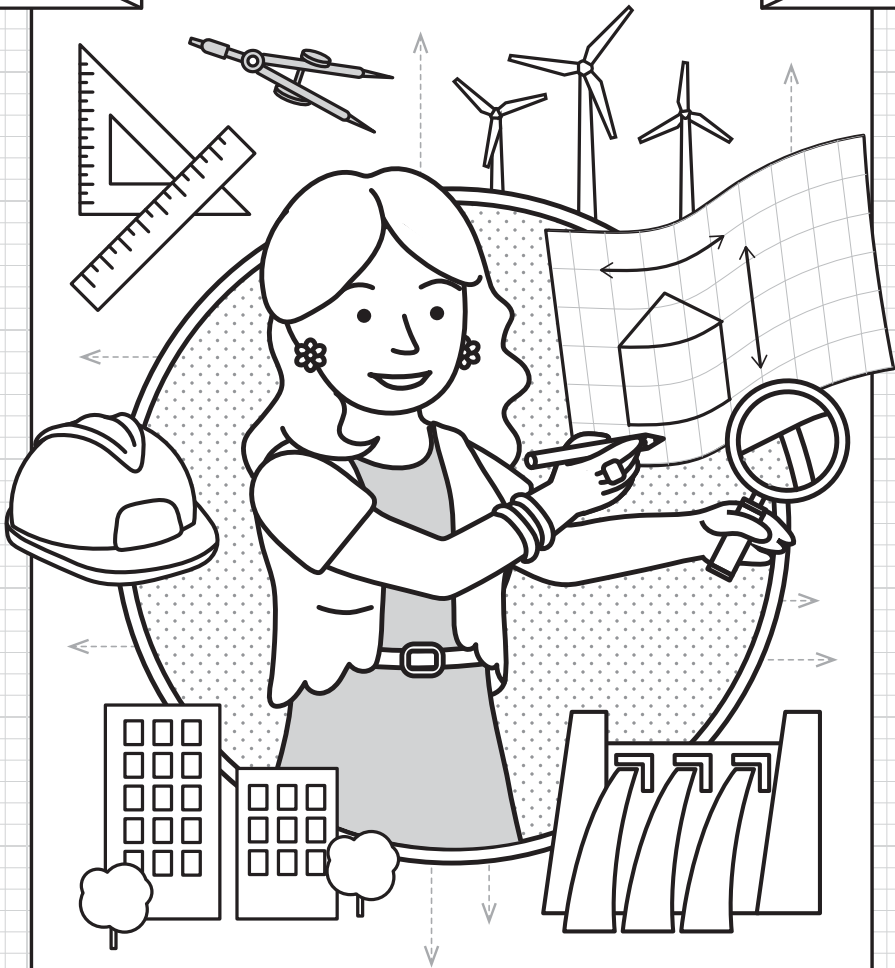
Biomedical engineers develop technologies and equipment to help save people's lives and improve their health.

## Chemical & Process ENGINEERING

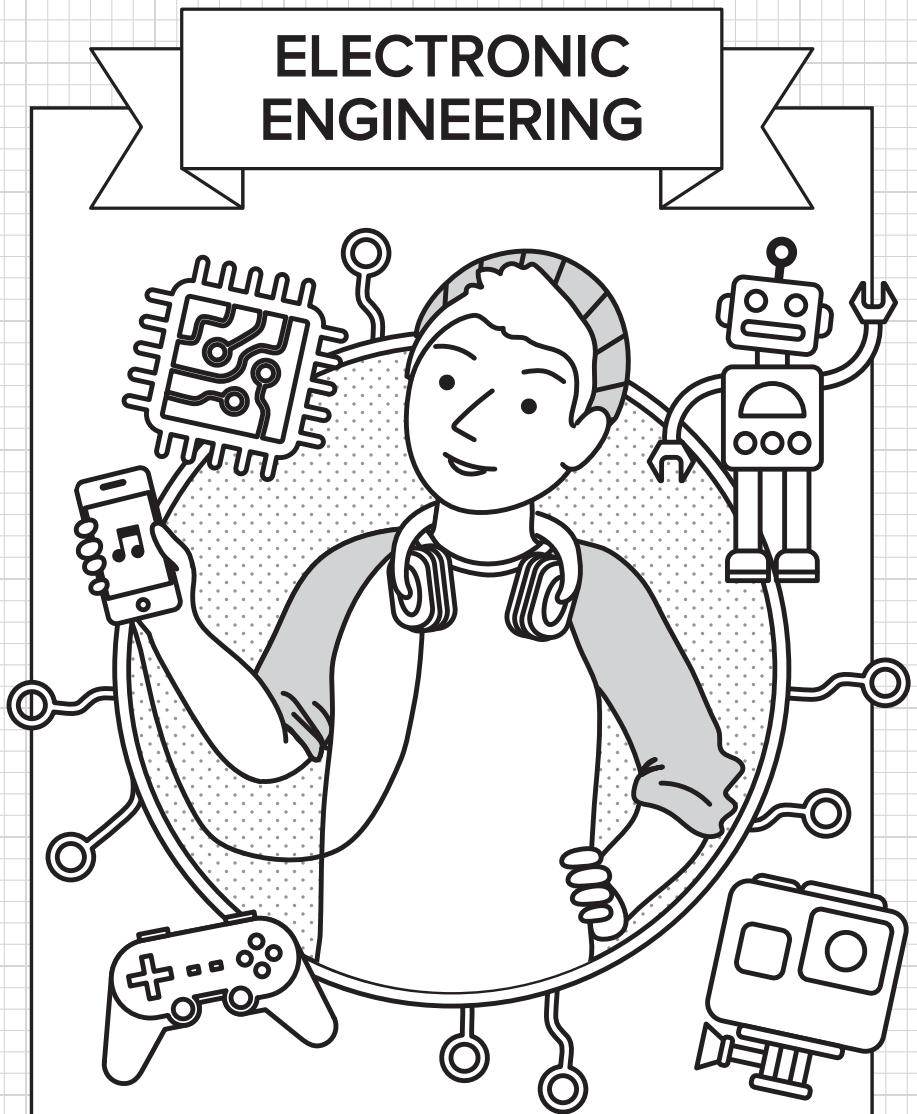


Chemical engineers develop the industrial processes used to make everyday products such as food, drink, drugs, cosmetics, plastics and electronics.

# CIVIL ENGINEERING

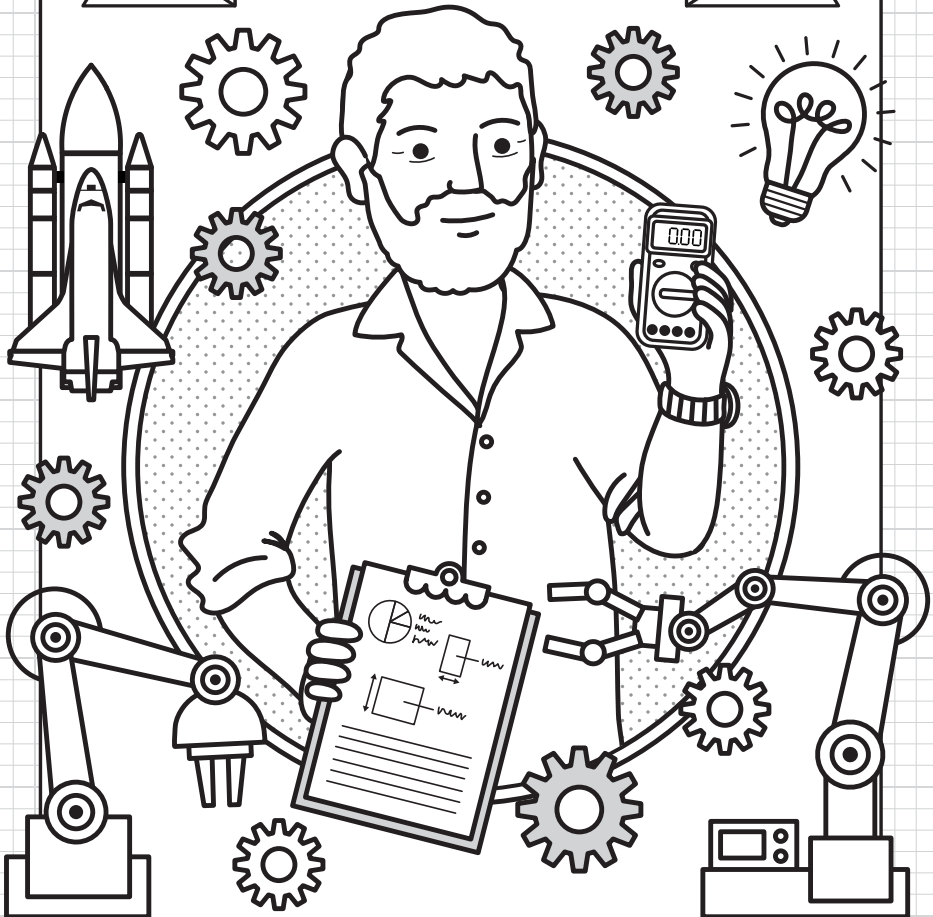


Civil, structural and environmental engineers design and construct the buildings and infrastructure that are essential to our modern society.



Electronic engineers design and develop the electrical and electronic equipment that we use every day, from mobile phones to microwaves.

# MECHANICAL ENGINEERING



Mechanical engineers use their problem-solving skills to design machines and technologies to improve our world.



# COMPUTER & SOFTWARE ENGINEERING



Computer and software engineers design and develop hardware, software and information systems for computers and mobile devices.

1



Rocket

2



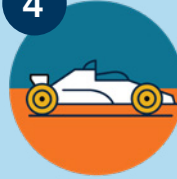
Turbine

3



Building

4

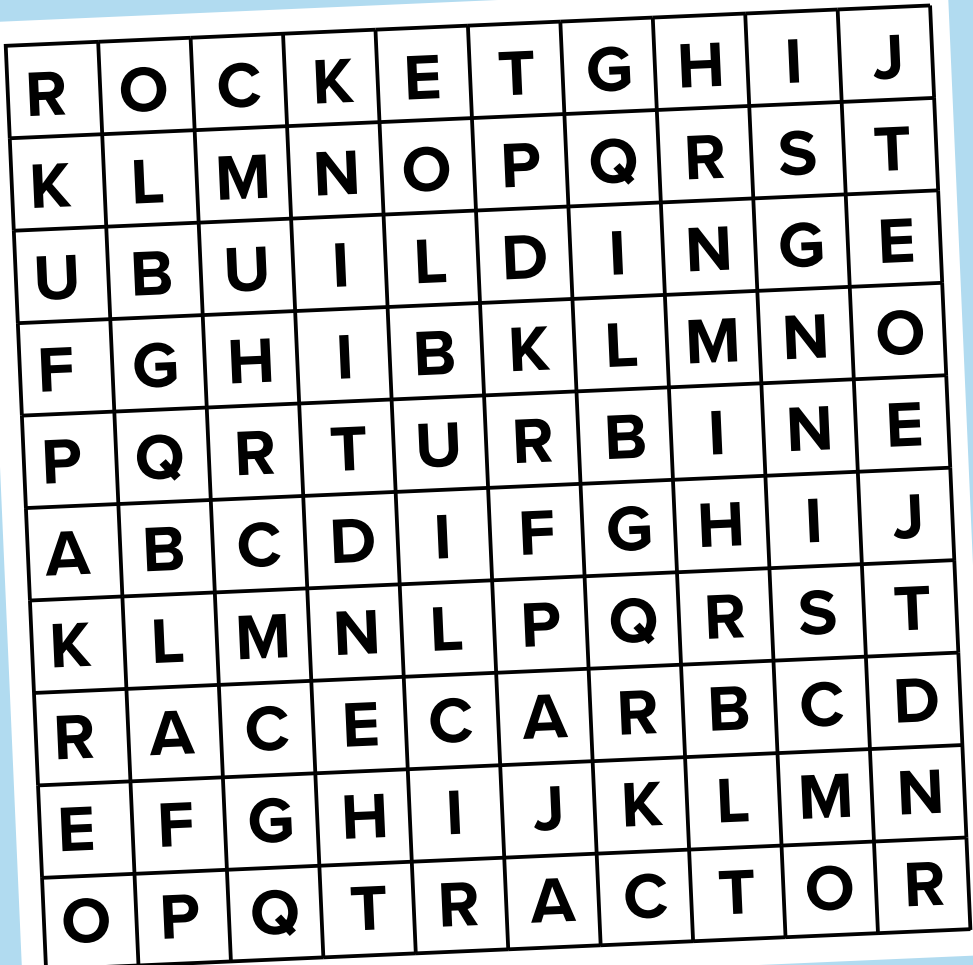


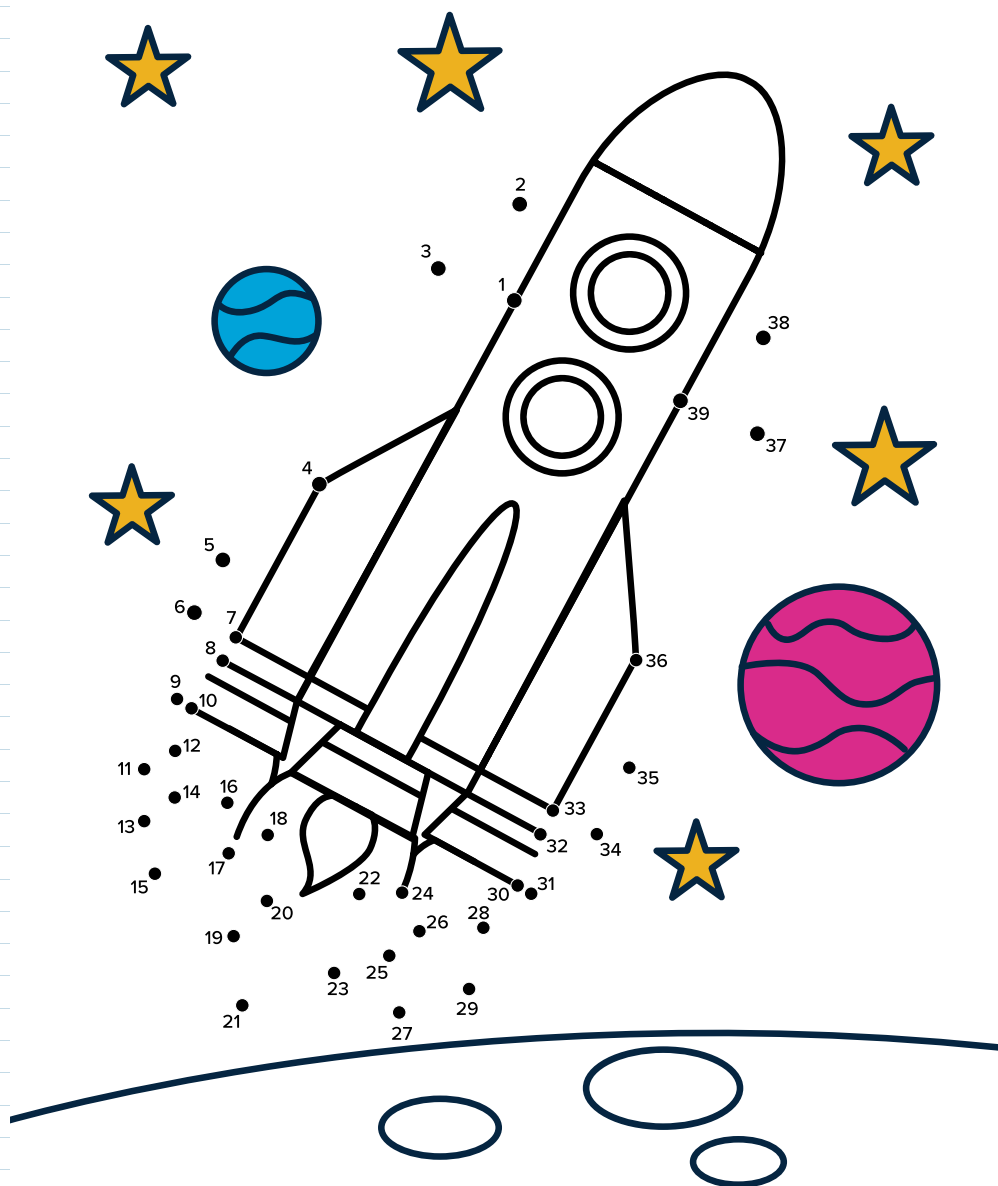
Racecar

5



Tractor

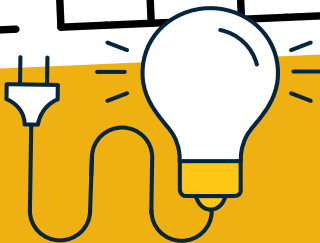
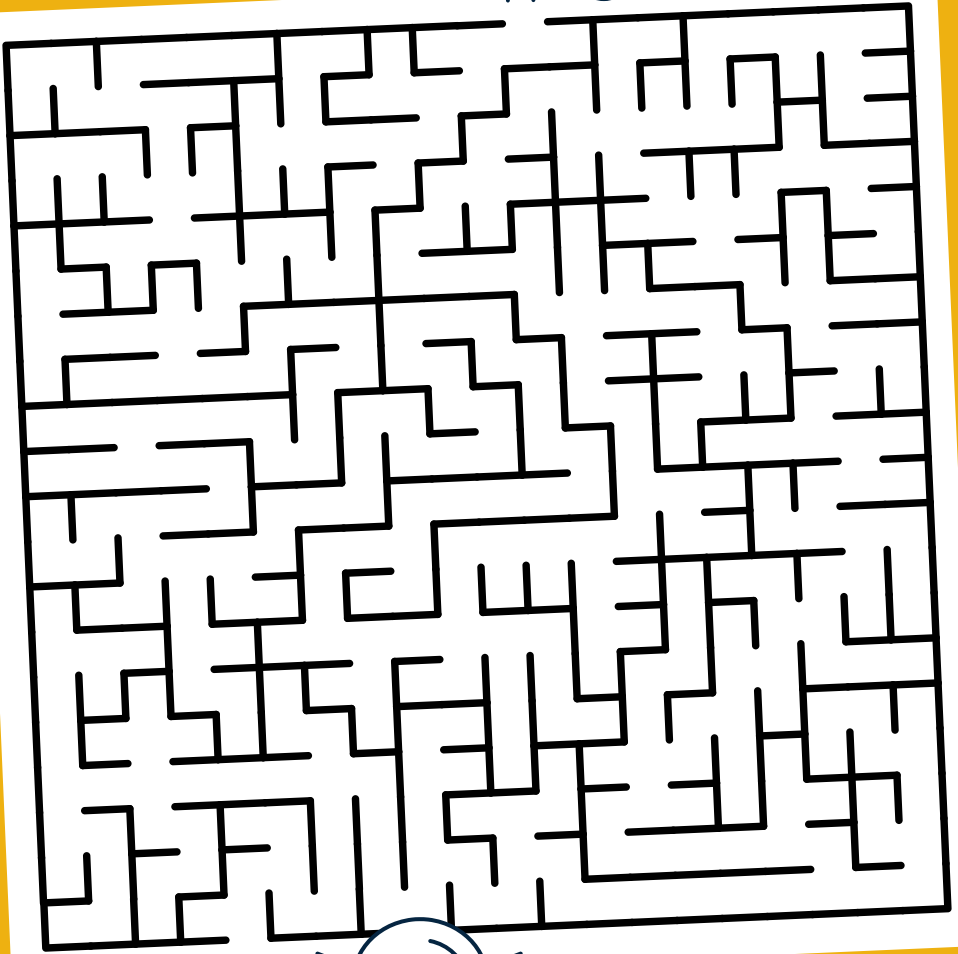




9

## Maze

Can you help the power from the sun power the lightbulb?



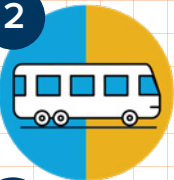
Unscramble the words to reveal the different electronic items:

1



toab

2



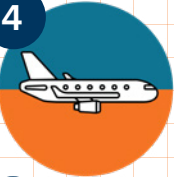
ubs

3



rac

4



nealp

5



kieb

6



recsoot

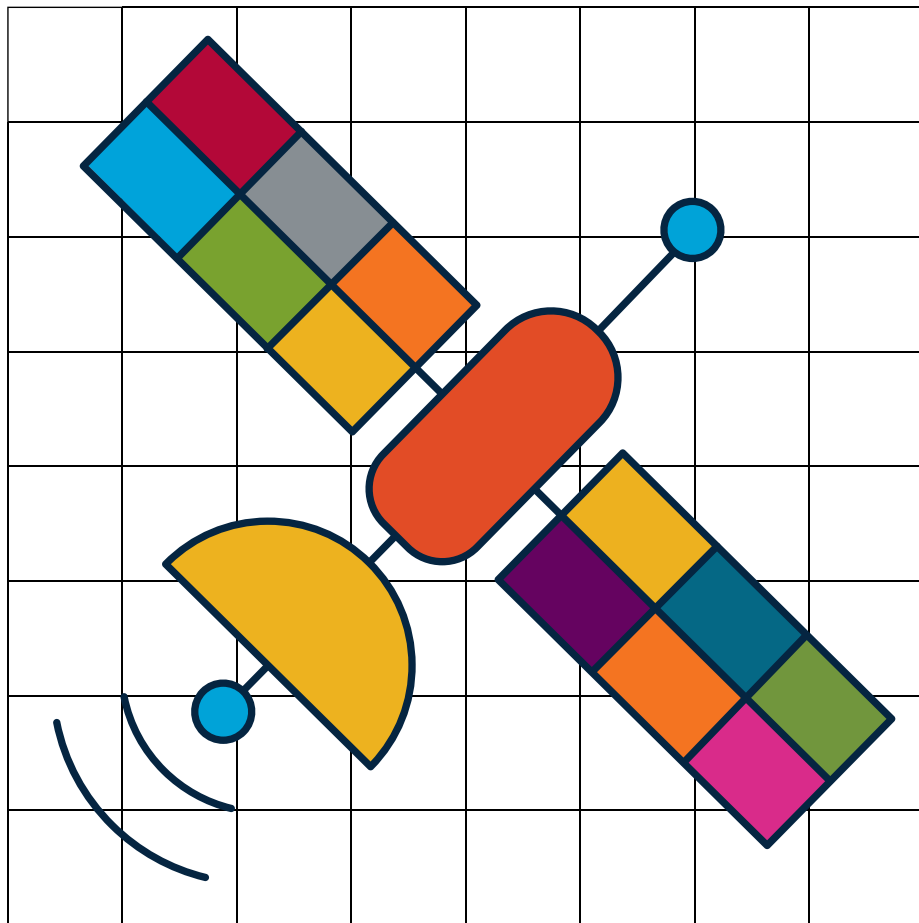
7

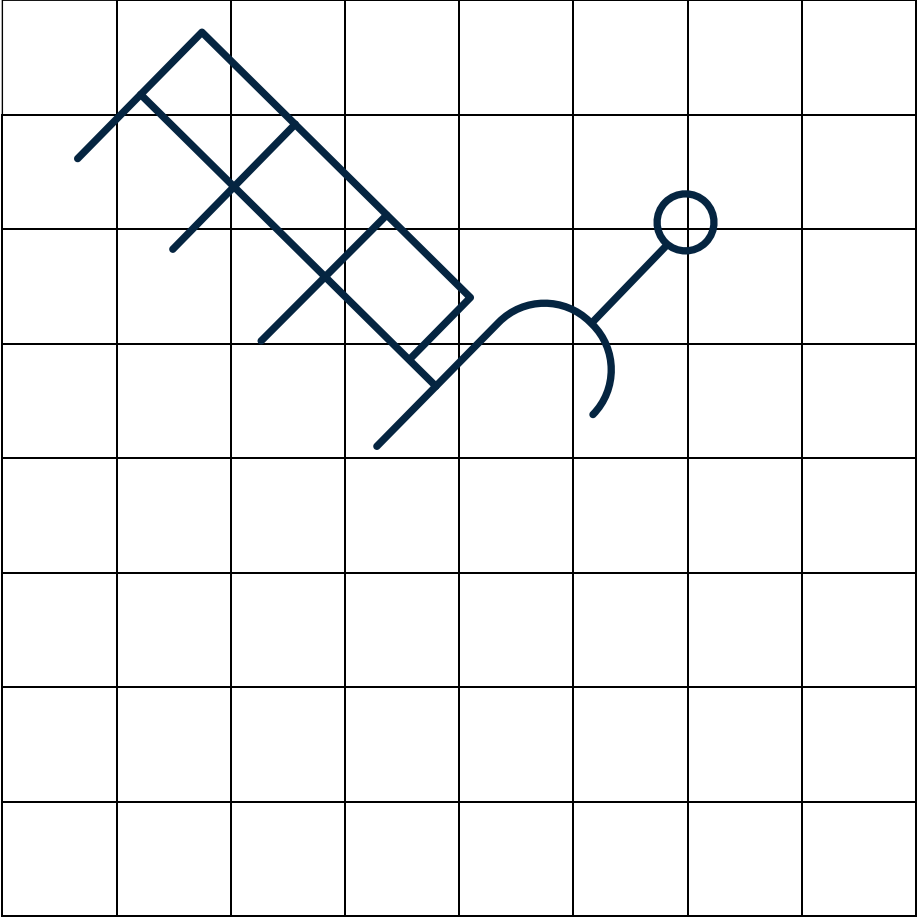


raint

11

Finish the picture and colour





Look at this futuristic city scene. Can you spot the 10 differences between the two pictures?





13

## Draw a picture of where you live

Imagine what it will look like in 25 years time in the future.



**Spotter sheet**

Can you find these items?

- Hurley
- Drone
- Sports Watch
- Wheelchair
- Solar Panel



YWHERE!



Φ ENGINEERS IRELAND **STEPS**

Take the engineering challenge!

Engineers take ideas and turn them into reality using science, maths and imagination. Engineers are masters of problem-solving and creative design. Engineering is a broad profession and there are many different types and disciplines of engineering.

You are challenged to use your problem-solving skills to crack the hidden code. This secret code uses a keyword Cipher to create the code. The famous Irish engineer John Phillip Holland invented the first submarine in 1898. This code uses 'submarine' as the keyword to form the Cipher.

	1	2	3	4	5
1	S	U	B	M	A
2	R	I	N	E	C
3	D	F	G	H	J
4	K	L	O	P	Q
5	T	V	W	X	Y

### Example

Break the code:

42 32 33 22 32 42 42 12 11 22 12 42 24 51 32 13

The decoded answer would be **Engineers Ireland**

## Break these codes!

Below are coded answers to questions. Your challenge is to use this key cipher to break the code and find the answer to the questions.

- 1** Crack the code to find out which engineers design, make and test objects that travel through the air. Such as rockets, aeroplanes and drones?

**51 42 12 34 32 51 21 15 22 52 51 24**

- 2** Which engineers develop technologies and equipment to help save people's lives and improve their health?

**31 22 34 41 42 13 22 52 51 24**

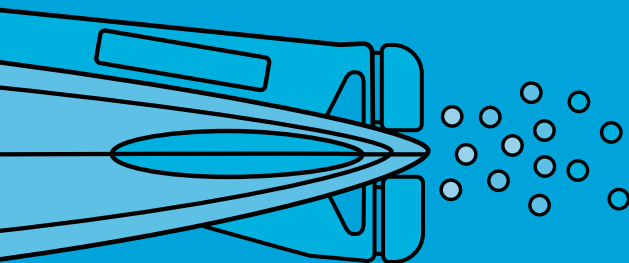
- 3** Crack the code to find the type of engineers that develop the industrial processes used to make everyday products such as food, drink, drugs, cosmetics, plastics and electronics.

**52 43 42 41 22 52 51 24**

- 4** What type of engineers design systems to deliver high quality, safe and economical food to consumers?

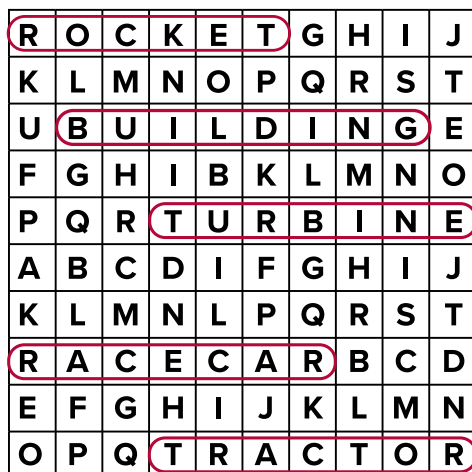
**31 22 34 11 55 11 15 42 41 11 51 33 12 22 52 21 24 15 21 12 51 24**

**51 32 13 23 34 34 13**



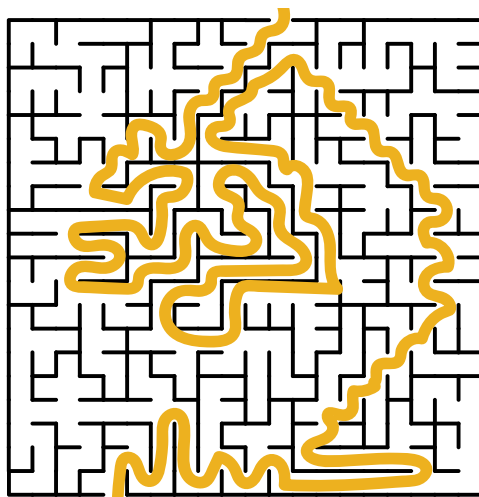
## Page 9

## Wordsearch



## Page 11

## Maze



## Page 12

## Match pictures

1. Boat
2. Bus
3. Car
4. Plane
5. Bike
6. Scooter
7. Train

---

## Page 15

Spot the  
difference



---

## Page 16

Engineering  
is everywhere



---

## Page 17

Break the  
cipher

1. 51 42 12 34 32 51 21 15 22 52 51 24

**AERONAUTICAL**

2. 31 22 34 41 42 13 22 52 51 24

**BIOMEDICAL**

3. 52 43 42 41 22 52 51 24

**CHEMICAL**

4. 31 22 34 11 55 11 15 42 41 11

51 33 12 22 52 21 24 15 21 12 51 24

51 32 13    23 34 34 13

**BIOSYSTEMS, AGRICULTURAL AND FOOD**

This booklet has been compiled by Aisling O'Halloran, STEPS Executive, for the Engineers Ireland STEPS programme.

**Engineers Ireland STEPS**

22 Clyde Road

Ballsbridge

Dublin 4

Ireland, D04 R3N

Tel +353 01 665 1340

Email: [steps@engineersireland.ie](mailto:steps@engineersireland.ie)

[www.engineersireland.ie/schools](http://www.engineersireland.ie/schools)