

CAPS

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learning 



GRADE

3

LEARNER'S  
BOOK

# Platinum

Coding and Robotics

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Maskew Miller Learning  
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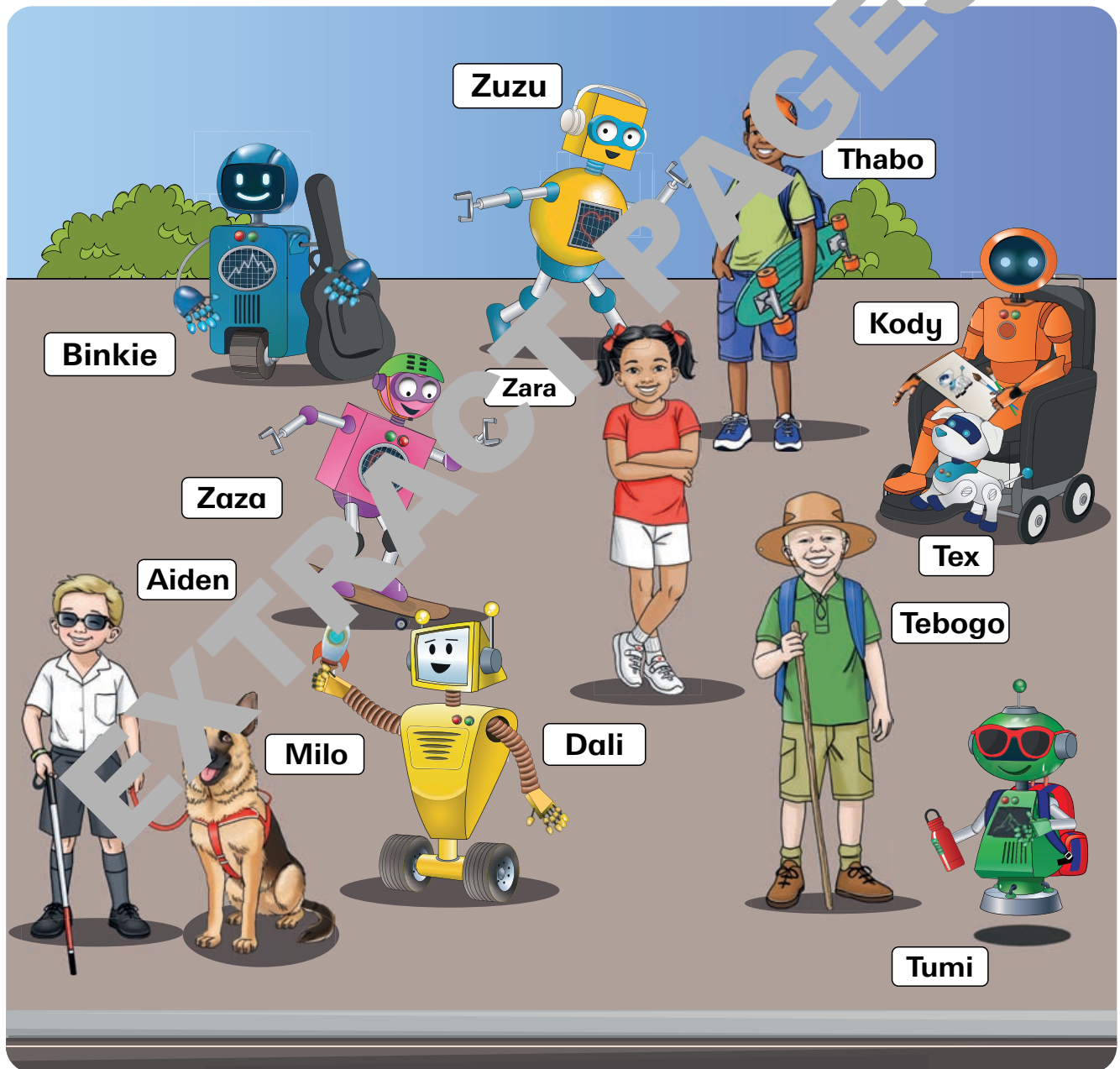
# Welcome

Dear Learner,



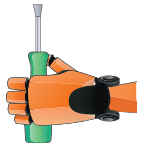





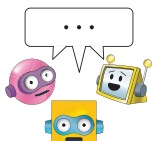
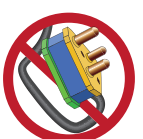
Welcome to this exciting textbook! You will meet amazing characters; just like each character is special in their own way, you are too!

Get ready to learn, play and code with your friends.

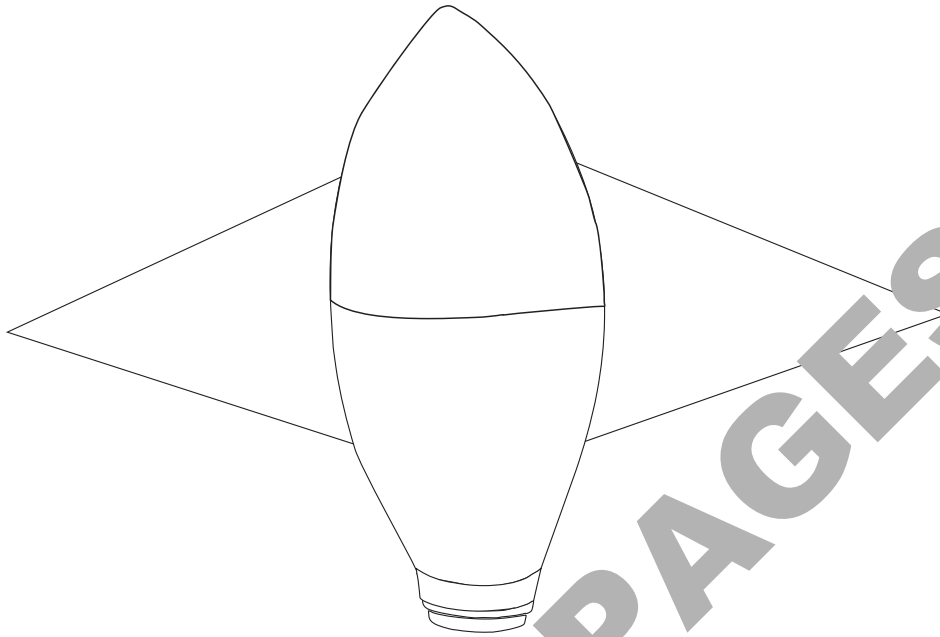
Happy learning.



# How to use this book

When you see	It means:
	time to work with my friend
	time to work as a group
	time to use my hands and my brain
	time to draw and write
	time to talk about things
	time to use my brain and imagination
	time to move my body
	time to code
	time to share
	coding through play

# To grasp the concept of directionality



## Make a rocket:

You will need:

- 4 X sticks (this can be painted sucker sticks, straws, cardboard or coloured paper cut into strips - whatever is easiest and the most available to you).
- 1 red
- 1 orange
- 1 blue
- 1 yellow
- Glue

## Making your rocket:

- Trace the rocket
- Cut out the traced rocket
- Colour your rocket
  - Up – red
  - Down – blue
  - Right – orange
  - Left - yellow
- Paste your rocket on a piece of cardboard

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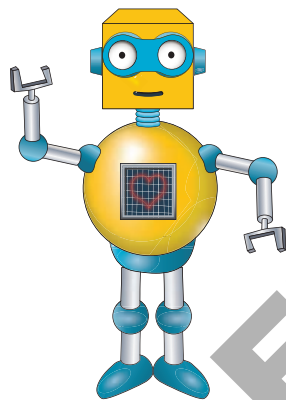
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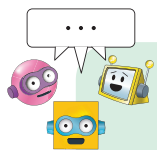
**EXTRACT PAGES**

# Which way do I go?

C1  
C2  
C3

It is Sports Day at school.

We make decisions all the time. How do you decide?



## Let's begin

Is this a pattern?

So, what is a sequence then?



Yes, look at the **repeating** flowers. A pattern is a repeated set of sequences.

A sequence is a set of **elements** or things. When they are repeated, they form a pattern.

## Activity 1



### Grid 1

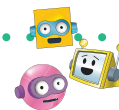
- I. Help Binkie find Amina's clothes. Look at the grid.
  - a. Find the sports clothes.
  - b. Find the casual clothes.







**repeating** - when something happens again and again.

**elements** - an element is anything that can be found in a sequence.

New words



2. Create a code to go to a pair of red shorts.
- The code must begin at the start arrow.
  - Avoid obstacles in your path by jumping over them.

Forward			
Turn left		Turn right	
Jump over		Repeat	② ③ ④ ⑤



3. Write the code and test it.
4. Ask a group member to check it.

## Activity 1 (continued)



### Grid 2

1. Look at the grid.



- a. Find the sports clothes.
  - b. Find the casual clothes.
2. Create a code to collect sports clothes, and end at the stop.
- The code must begin at the start arrow.
- Collect at least three items.



Forward			
Turn left		Turn right	
Pick up		Repeat	(2) (3) (4) (5)

## Activity 1 (continued)



3. Write the code and test it.  
Choose the matching icon to answer the question.

Does the code have errors?



Yes, quite a few errors



Only one or two errors



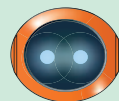
No, no errors!

4. Swop with another group and execute their code.

Did the code solve the problem?



Could be better



Well



Very well

How do you feel about the work you did?

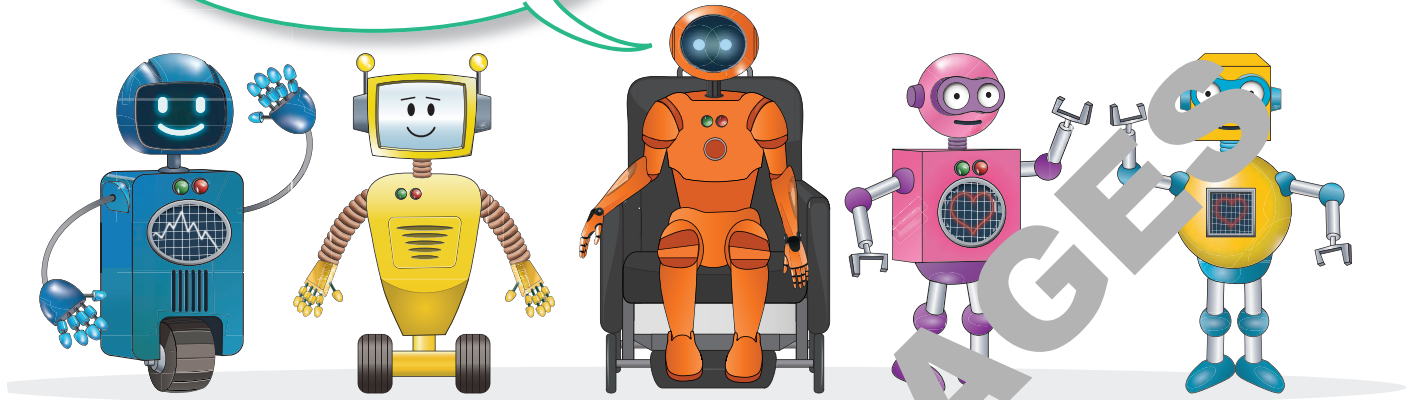
1 	2 	3 	4 
Disappointed	Happy!	Proud!	Yay!

**Program** – a list of instructions telling a computer, robot or toy what to do.

**Computer** – a machine that helps you do many things, like talking to others, playing games and finding information.

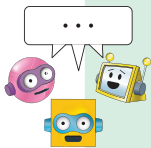
New words

I want to get to know you better. Tell me about yourself?



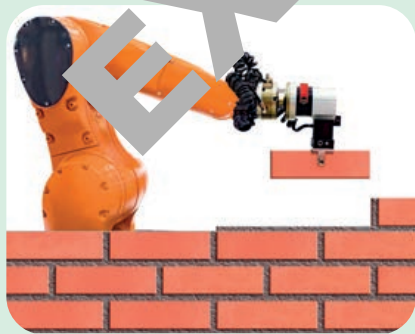
Do you know what information is safe to share, and what is not?

## Let us begin



A robot is a machine. It is **programmed** by a human using a **computer**.

A robot follows instructions. It helps people do tasks.



## Activity 1



Talk about what work these robots and people are doing.



A robot arm collecting garbage



People collecting garbage



Lawnmower robot



A person cutting the grass










## Activity 2



Kody wants to learn more about you. You must be wise.

If the question is personal, you must say, “No, I can’t tell you that, that is personal information.”



- What is your favourite activity?
- What is your telephone number?
- What is your address?
- What is your name?
- What is your favourite food?
- Do you prefer ice cream or a soda?
- Do you like to dance?
- What is your favourite colour?
- What do you like doing after school?

## Activity 2 (continued)



You have 13 arrows:

- 2 'turn right' commands
- 9 'forward' commands
- 2 'turn left' commands.

You also have:

1. 'as many as you can pick up'
2. 'repeat' tokens.

1. Write a code. Use the coding cards.
2. The code must take you to two yellow cards and one red card.
3. Check your code.
4. Swap your code with a friend.
5. Follow the person's code. Read the question you land on and answer it.
6. Continue while the rest of the group listens to the questions and answers. Let them check the code as well.
7. The whole group takes turns until all the codes are tested and read.

How do you feel about the work you did?

1 	2 	3 	4 
Trying!	Happy!	Proud!	Yay!

# Let's draw

C3

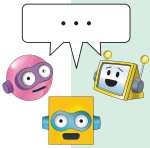
R6

D1  
D6



What do you like to draw?

## Let us begin



Technology is meant to help people and improve their way of life. We find technology in many places.



In our homes



On farms



When we travel

## Let us begin

A computing device works with **digital information** that helps us do our tasks.



With digital communication



At work



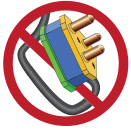
Connecting people around the world

**Digital information** – Secret codes made up of numbers that computers use to show pictures, words, and videos.

**Code** – a person that tells the computer what to do.



## Activity 1



Decide who is the **coder** and who is the robot.  
The coder reads the code. The robot listens and draws on a blank grid. 'Pen up' means to leave the block blank.

'Pen down' means to colour the block in. Follow the instructions.

Pen up Forward	
Pen down Forward	


Start on the left-hand side.  
Swap roles with your friend and do the task again.

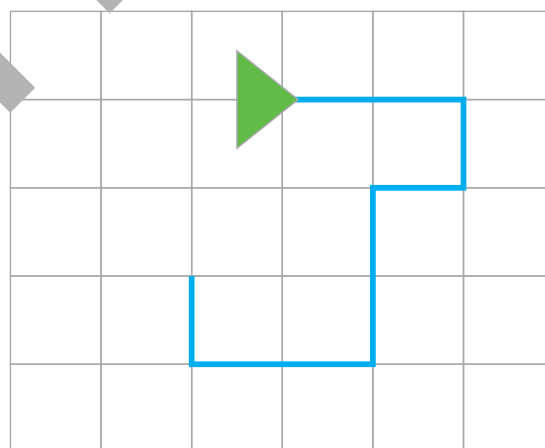
## Activity 2



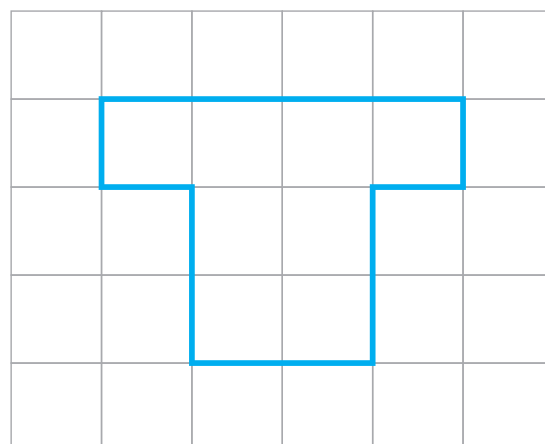
- I. Draw your picture on the lines in the grid.
  - Sit back to back and draw without looking.
  - Decide who is the coder and who is the robot.
  - The coder gives clear instructions on where to draw using words like forward, down, turn left, turn right, pen up and pen down.
  - The robot listens and draws the code on a blank grid with a colour pen or pencil.
  - Swap roles, and check each others.



Begin here.  
Talk about  
the shape to  
draw.

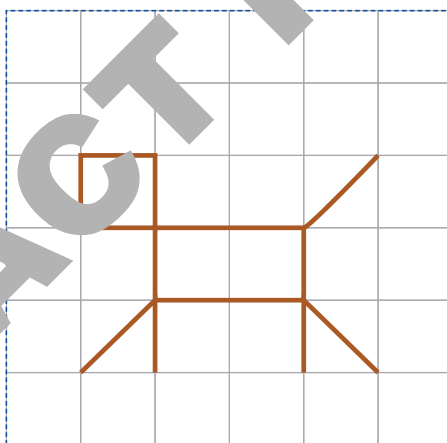
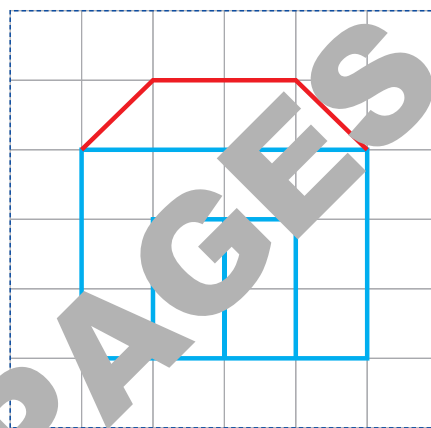
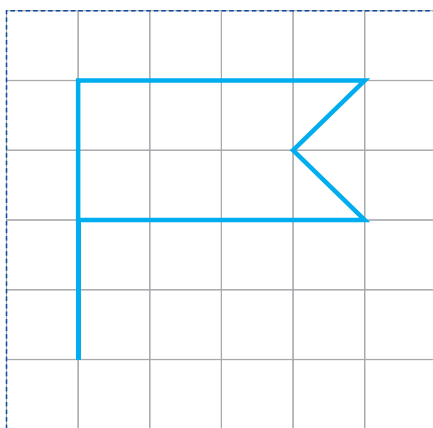


This is the  
shape you  
should try  
aiming to  
draw.



## Activity 2 (continued)

2. Create the code to form these pictures.



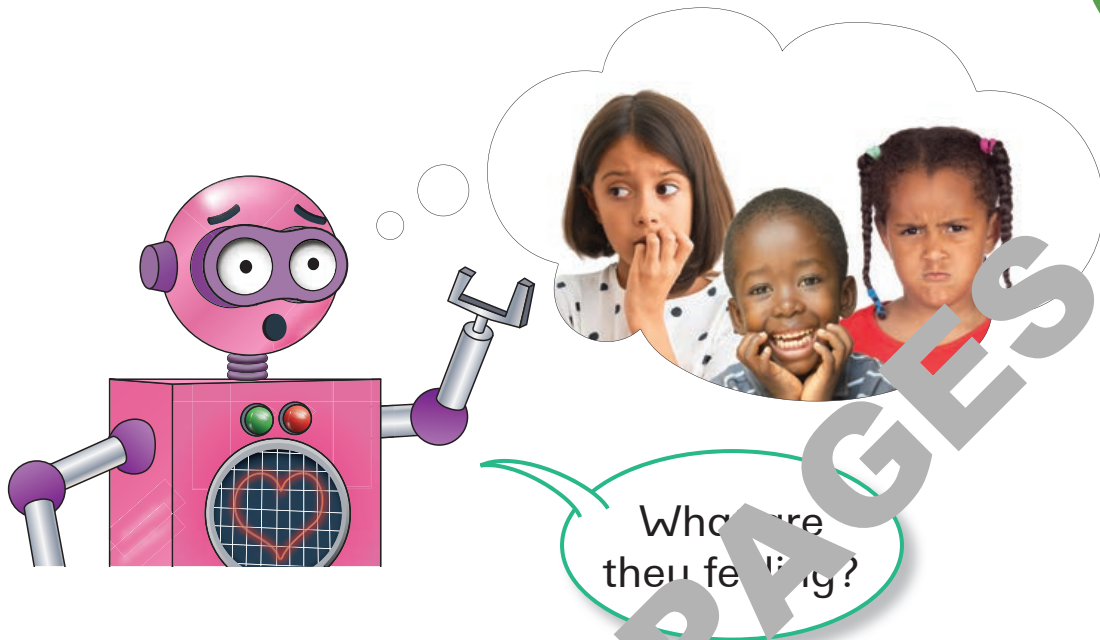
How do you feel about the work you did?

<p>1 </p>	<p>2 </p>	<p>3 </p>	<p>4 </p>
<p>Trying!</p>	<p>Happy!</p>	<p>Proud!</p>	<p>Yay!</p>

# What is a feeling?

C2  
C3

D3



How can you tell what someone is feeling?

## Let us begin



**Information Technology (IT)** is about the tools we use to work with information, like words, numbers, pictures and sound.



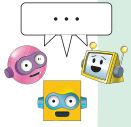
Numbers



Pictures



Sound



A computer remembers information because it has a **memory**.



It keeps all sorts of information safe so it can use them later.



News articles



Homework



Online videos

A computer **processes** information and can solve number problems.



**Memory** – a place that holds all the important information so that the computer can find it again.

**Process** – A process is like a recipe that shows you how to do something.

## Activity 1



Look at the picture and choose the matching icon.

a.



1.



2.



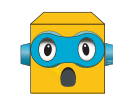
3.



4.



5.



6.


b.

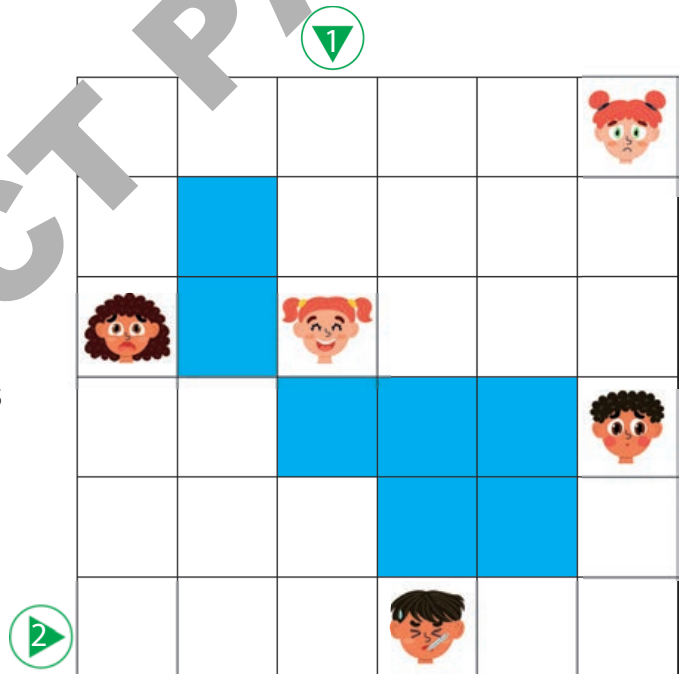


## Activity 2

We experience different emotions every day.

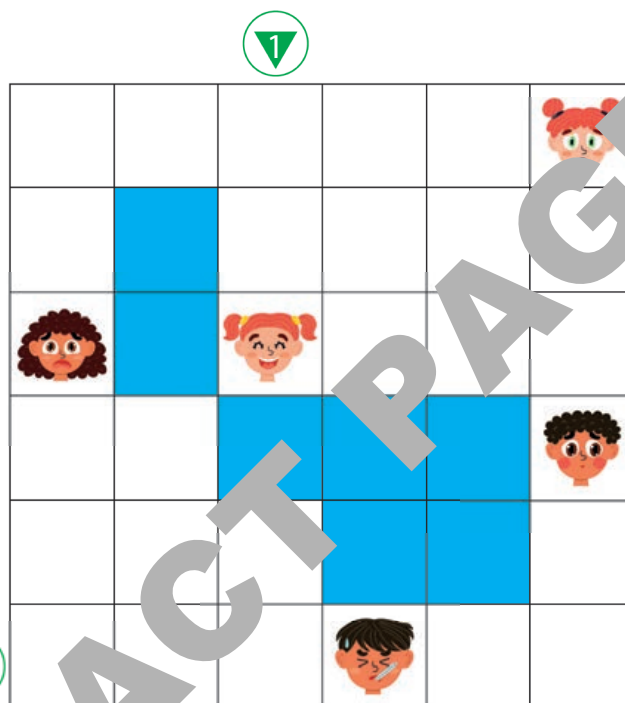


1. Begin at the start arrow one .
  - a. Write the code to collect five feelings on the grid.
  - b. Check the code.
  - c. Debug, if needed.
  - d. Check another group's code.



## Activity 2 (continued)

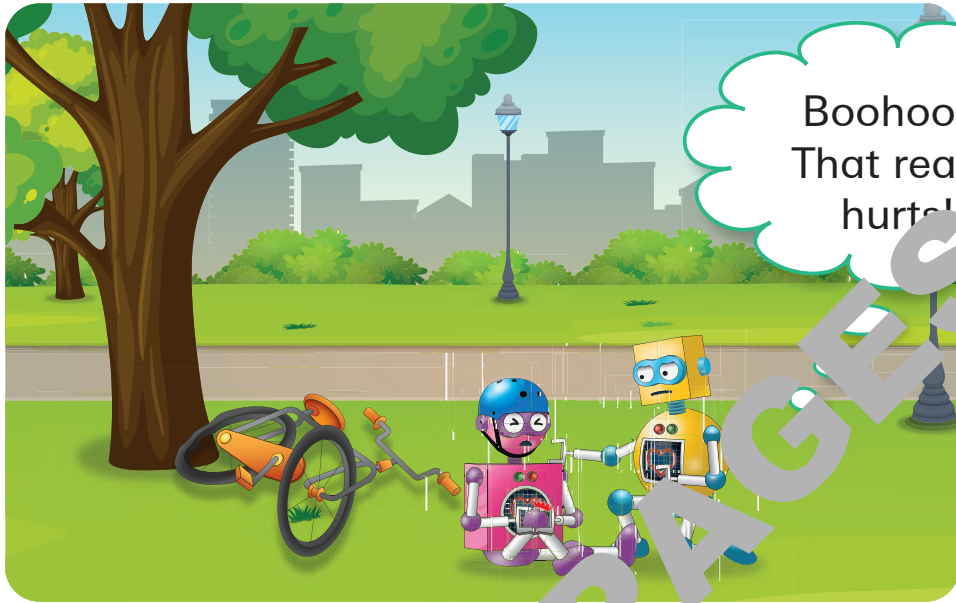
2. Begin at the start arrow two .



- a. Write the code to collect all five belongings on the grid.
  - b. Check the code.
  - c. Debug, if needed.
3. Choose your favourite route.
  4. Shorten that code.

How do you feel about the work you did?

<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>	
Trying!		Happy!		Proud!		Yay!	



Sometimes we have an accident and need a first aid kit.

## Let us begin!

Accidents happen. You need to be careful and safe in the real world and online.

1. Talk about safe and unsafe behaviour in the pictures.

2. How can such behaviour affect our health and safety?
3. Match each unsafe behaviour with a safe behaviour. Write only the number and the letter.



## Unsafe behaviour

1.



I ride my bike while speaking on the phone.

2.



I walk across the road while **texting** on my phone.

## Safe behaviour

a.



I wait for the car to reverse before getting the ball.

b.



I use a strong password with a mix of letters, numbers and symbols.

### Unsafe behaviour

3.



I use a password with only numbers or letters.

4.



I run behind the car that is reversing to get the ball.

### Safe behaviour

c.



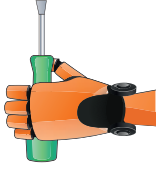
I ride my bike and look for traffic. My phone is in my pocket.

d.



I stop and look for traffic before crossing the road. My phone is in my pocket.

## Activity 1



Make a first aid kit



1. Look at the pictures. Talk about the items that must go inside the first aid kit.

### You will need

- 1 red A4 sheet of cardboard
- 1 white card to draw items to go in the first aid kit: cotton wool, bandage, ointment, earbuds, gloves, etc.
- Pair of scissors
- 30 cm ruler
- Pencil and pencil crayons
- Koki pens
- Glue