



LEADERS
International High
"Unleashing Tomorrow's Top Leaders"



COMPUTING

Learner's Book 1

EDITORS

Dr Derrick D. Tlhoiwe
Dr Tumelo Tlhoiwe

Then copyright 2025 Leaders

LEADERS HIISES

High Intense Interactive Stimulativr Education System
UNLEASHING TOMORROW'S TOP LEADERS

Contents



How to use this book

4

Term 1

Unit 1 Computers are everywhere	8
Unit 2 Be an animator	24
Unit 3 Be a data detective	36

Term 2

Unit 4 Be a designer	48
Unit 5 We can network	64
Unit 6 Be a problem solver	76
Unit 7 Computers control things	88

Term 3

Unit 8 Be a data collector	102
Unit 9 Be a games developer	118
Unit 10 We are connected	130
Unit 11 Be an artist	142

Glossary

156

How to use this book

Get started! Talk about the new topic with a partner or small group.

You will learn: A list of things you will learn in the unit.

Get started!

Most of you have seen a computer or you may have one at home. The following pictures show different types of computers.



Discuss with your partner:

- Have you seen these computers before? Point to the pictures you have.
- What have you done on a computer?

In this unit, you will learn about different types of computers and the different things they can do.

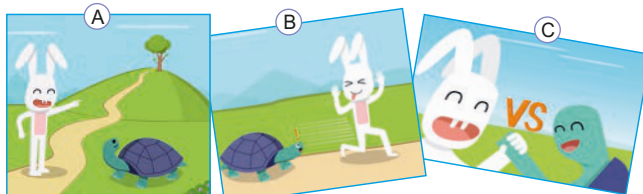


You will learn:

- that computers can be used for different things
- that a computer can run different programs
- about data and information.

Warm up

1 Work in groups. Look at the three pictures below. Put them in the right order to tell a story. _____



2 Who will win the race?

- ☐ Turtle
☐ Rabbit

3 Now add the picture on the right.

Who will win the race now?

- ☐ Turtle
☐ Rabbit



Warm up: An offline activity to start your learning.

Do you remember?

Before starting this unit, check that you:

- can follow the steps in an algorithm
- know the order of steps is important
- know that algorithms are used to create code.

There is an online chapter about Scratch Jr.



Do you remember?
A list of things you should know before you start the unit.

Learn

An algorithm can be written as a program.

To create a program in ScratchJr:

- 1 Choose a character.



- 2 Choose a background.

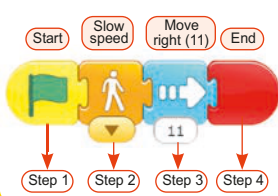


- 3 Choose the blocks of code for the task.

Algorithm

Step	Instruction	
1	Start on Green Flag	
2	Move at slow speed	
3	Move 11 steps right	11
4	Stop program	

The algorithm moves a character at slow speed 11 steps to the right.

Blocks of code

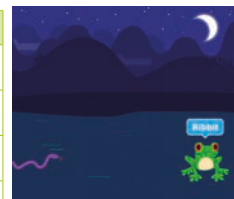
Learn: Learn new computing skills with your teacher. Look at the instructions to help you.

Practise: Answer questions to learn more and practise your new skills.

Practise

- 1 Open the game from page 136.
- 2 Here is a new algorithm for the **Frog**. This is the new result we want in the game.

Step	Instruction	
1	Start on Tap	
2	Jump 8 grid squares	
3	Say "Ribbit"	
4	Stop program	



- 3 Here is the new code for the **Frog**.
- 4 Change your program to the new code for the **Frog**. Test this code.
- 5 We want to add a **Snake** to the game. Here is the algorithm for the **Snake**.

Step	Instruction	
1	Start on Green Flag	
2	Play Pop sound	POP
3	Move 6 steps right	6
4	Stop program	

- 6 Select a **Snake** character.
- 7 Create the code to match the algorithm.
- 8 Test your program. Did you get the right result?

Go further:
Activities to make
you think carefully
about computing.

Go further

You will create a new game. Here is an algorithm for a **Frog**

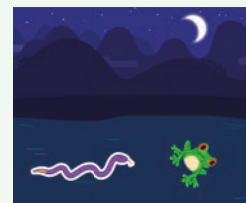
Step	Instruction	
1	Start on Tap	
2	Turn right (5)	5 
3	Stop program	

- 1 Open a new project.
- 2 Add a **Frog** character and this code. Does the code match the algorithm?



- 3 Run the program.
Here is an algorithm for a **Snake**.

Step	Instruction	
1	Start on Tap	
2	Grow (by 2)	2 
3	Move 5 steps left	5 
4	Stop program	



- 4 Add a **Snake** character and this code to your program.
- 5 Test the code.
- 6 Does the program give the right result?
- 7 Debug your code.



Challenge yourself

Using your game from the last page:

- 1 Add the **Bat** character.



- 2 Add code to the **Bat**.
The code should match this algorithm.

Step	Instruction	
1	Start on Green Message	
2	Move 1 step up	1 
3	Stop program	

- 3 Draw a **Green Button** using the **Paint Editor**.

- 4 Add code to the **Green Button** to match this algorithm:

Step	Instruction	
1	Start on Tap	
2	Send Green Start Message	
3	Stop program	

The **Green Button**
controls the **Frog**



- 5 Test your program. Does it give the right result?
- 6 If not, check for errors and correct them.

Challenge yourself!
A harder activity to
test your new skills.



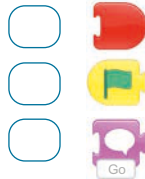
All links to additional
resources can be found at:
<https://www.hoddereducation.co.uk/cambridgeextras>

My project

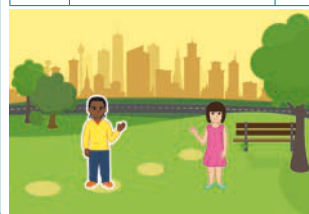
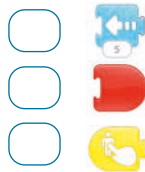
Look at the algorithms for two children playing hide and seek. Put the blocks of code in the correct order.

Character 1

Step	Instruction	
1	Start on Green Flag	
2	Say "Go Hide"	
3	Stop program	

**Character 2**

Step	Instruction	
1	Start on Tap	
2	Move 5 steps left	
3	Stop program	



The **Say**block shows a message from the character.



My project: A longer activity at the end of the unit to test the skills you have learnt so far.

Did you know?

Many devices cannot connect to a network.
For example, a bicycle cannot connect to a network.



Did you know? Learn about interesting facts and information.

What can you do?
Find out how much you have learnt and what you can do.

What can you do?

Read and review what you can do.

- ✓ I know what an algorithm is.
- ✓ I can follow the steps in an algorithm.
- ✓ I know an algorithm can be created as code.

Great job! Now you know how to follow algorithms and code!

**Computational thinking**

Help Eve get ready to go to the beach. Match each step to an instruction.

STEP 1 : ?
STEP 2 : ?
STEP 3 : ?

A Leave home
B Wake up
C Get dressed



Computational thinking: A task that tests your computational thinking skills.

Keywords

algorithm: a set of instructions for a task or problem
instructions: information about how something should be done
task: an activity

Keywords: Understand new computing words. The **Glossary** at the end of the book also lists all of these words.

Unit 1 Computers are everywhere

We are surrounded by computers

Get started!

Most of you have seen a computer or you may have one at home. The following pictures show different types of computers.



Discuss with your partner:

- Have you seen these computers before? Point to the pictures you have seen.
- What have you done on a computer?



In this unit, you will learn about different types of computers and the different things they can do.

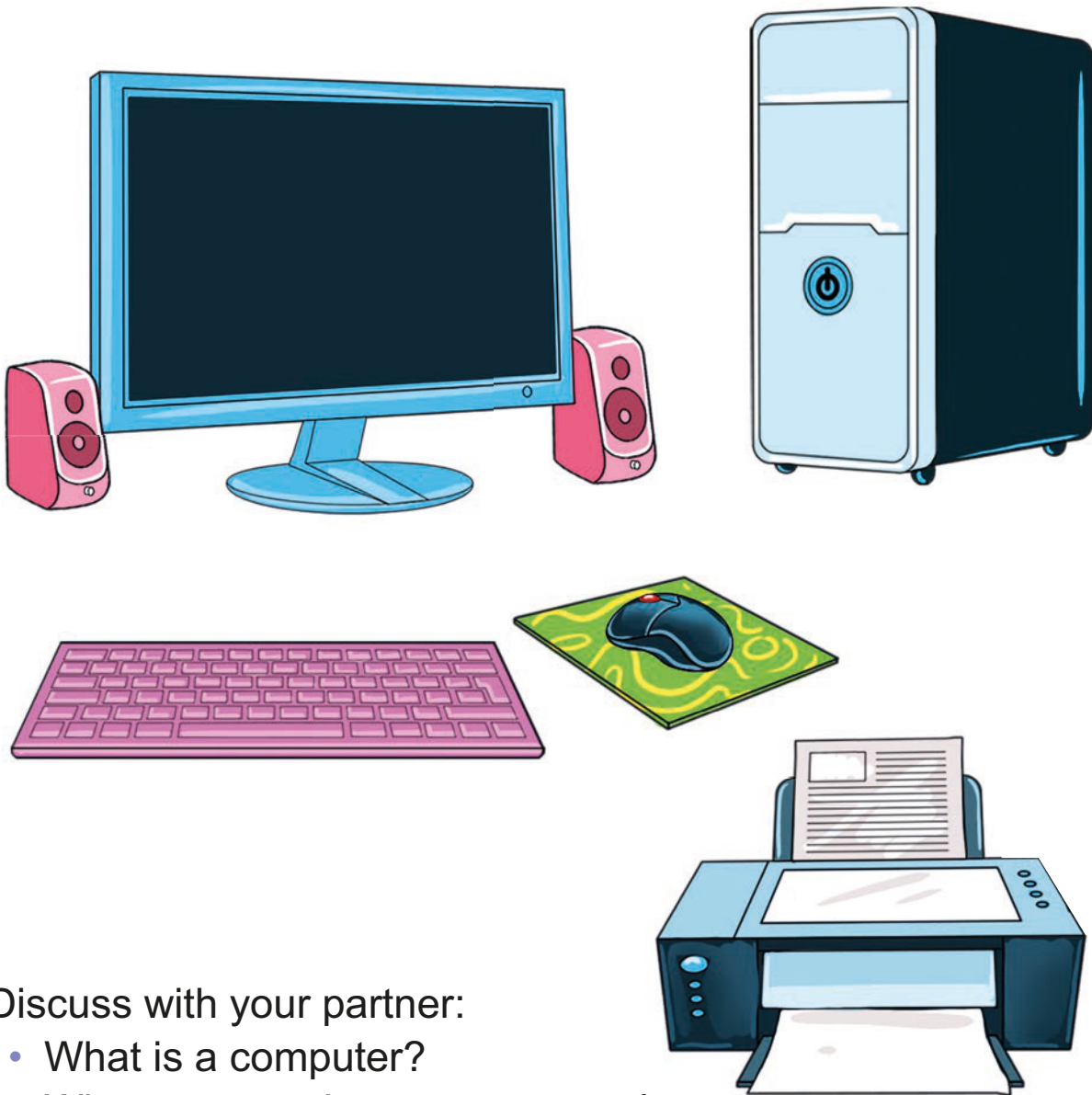


You will learn:

- that computers can be used for different things
- that a computer can run different programs
- about data and information.

Warm up

1 Work in pairs. Can you name the parts of this computer system?



2 Discuss with your partner:

- What is a computer?
- What can you do on a computer?

Do you remember?

Before starting this unit, check that you:

- know your letter sounds.

What is a computer?

Learn

A computer is a machine that can:

- take in data
- do something to the data
- give a result.

A computer cannot think for itself.

A computer will do exactly as it is told.

Computers can be found everywhere.

For example, there are computers in:

- Supermarkets
- Hospitals
- Schools
- Cars.

There are different types of computers.

A desktop computer has a:



You cannot carry it around.

Keyword

data: numbers, words, pictures, sounds or videos



A laptop is smaller than a desktop.
You can carry it around easily.



A tablet is smaller than a laptop.
You can carry it around.
It can do many things a laptop can.
It has a touchscreen.



A smartphone is a small computer.
It can make phone calls.
It is smaller than a tablet.
You can carry it around.
It can do many things a tablet can.
It has a touchscreen.



Which type of computer is the easiest to carry around?



Practise

1 Match each word to each picture.

tablet

desktop

smartphone

laptop



A



B



C



D

2 Which computer is the largest?

3 Which computer is the smallest?

Work in groups of four.

4 Discuss which of these devices are computers:



5 Count the number of **laptops** in the pictures below.



6 Count the number of **smartphones** in the pictures below.



Did you know?

We use computers every day.

Can you name some of the places you have seen computers?



What do we use computers for?

Learn

Computers can do many different things.

We use computers:

For fun:

We can play games, listen to music and watch movies.



To talk or message:

We can talk to our friends and family.



To make things:

We can draw and design things on the computer.



To find out things:

We can search for information about anything.



Computer programs

To do different things, a computer uses different programs.

Apps are also known as

Programs tell the computer what to do.
Different programs do different things.

Keywords

program: instructions for the computer to follow

app: this is another name for a program

For fun:

There are programs to watch videos or play a game.



To talk or message:

There are programs to make video calls or chat.



To make things:

There are programs to draw and paint pictures.



To find out things:

There are programs that let us search.



I use the computer to play games.
What do you use the computer to do?
What type of apps do you use on your computer?



Practise



Work in groups of four.

1 Can you identify the software below and what they are used for?



paint a picture

play a game

watch a video

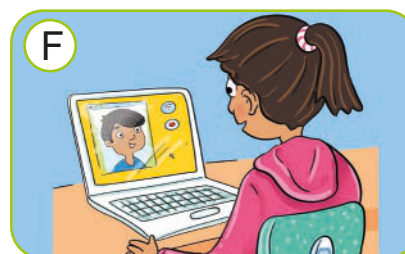
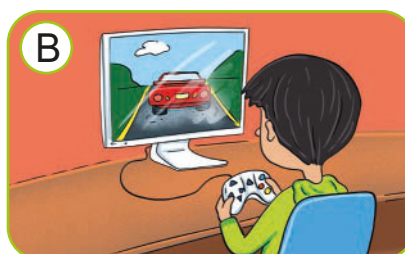
search

chat

2 Match the tasks below to the pictures. Write the letter next to the task. One has been done for you.

☒ D Watching movies ☐ Playing music ☐ Talking to friends

☐ Sending a letter ☐ Playing a game ☐ Doing schoolwork



3 Match the activity with the program.

Write the number of the activity and the letter of the program.

① For writing: We can write letters using our computers.

② For learning: We can learn about things using computers.

③ For school: We can use programs to access school work.

④ For coding: We can write programs using computers.

⑤ For games: We can play games using computers.



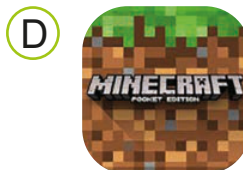
Google Classroom



ScratchJr



Khan Academy Kids*



Minecraft



Microsoft Word

*Khan Academy Kids is a free educational app for children ages 2–8.
Learn more at www.khankids.org.

Input devices

Learn

Input devices let you put data into a computer.

The type of input device depends on the type of data.

Data can be numbers, words, pictures, sounds or videos.

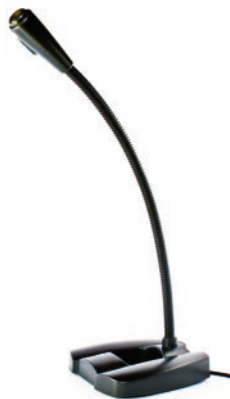
A mouse is used to select things on the screen.



A keyboard is used to input letters and words.



A microphone is used to input sound.



A webcam is used to input video.



Did you know?

Some apps can turn speech into written words.

Practise



1 Circle all the input devices in the picture.



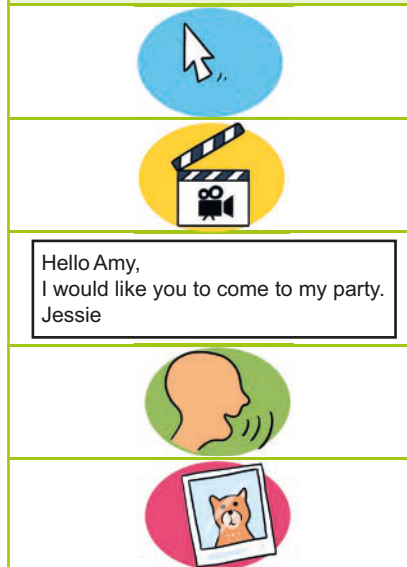
How many did you find?

2 Match the following pictures to the type of information they put into the computer.

Device



Input



Go further



Computers are found inside other devices. They control what the device does.

1 Fill in the blanks using words from the word bank.

mouse video camcorder keyboard camera microphone

a I can use a  _____ to type a letter.

b I take pictures with this device:  _____.

c My  _____ can record a video of my birthday party.

d This



e I use a  _____ to move the pointer on the computer screen.

2 Match the sentences to the apps.

a I use  to watch videos.

ScratchJr

b I use  to write a letter.

Minecraft

c I use  to write computer programs.

Microsoft Word

d I use  to play a game.

An online video service

★ Challenge yourself



Work in groups.

- 1 Find all the types of computers in the room. How many did you find?



- 2 Name the types of computers that you found.
- 3 Which computers are easy to carry around?



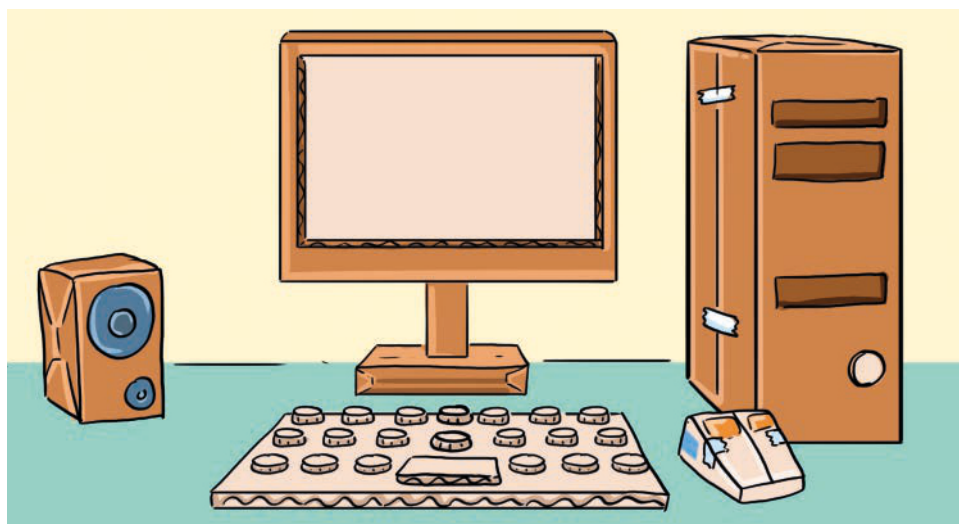
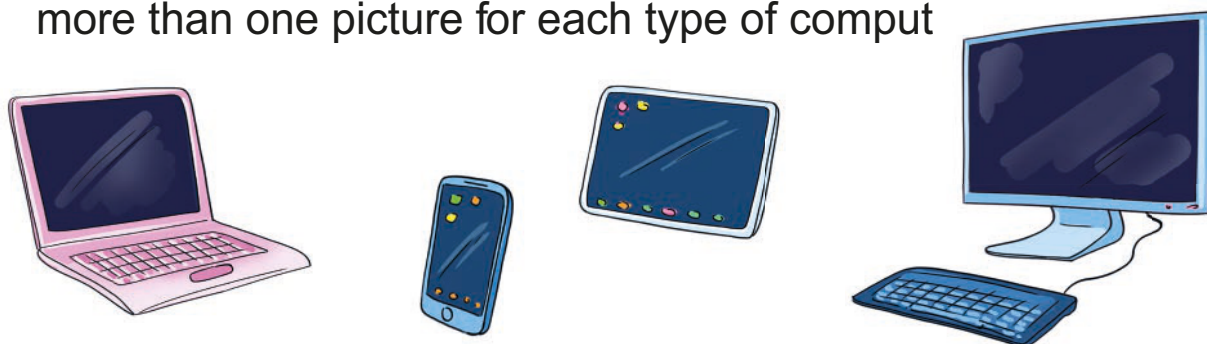
My project

- 1 Find or draw some pictures of the different types of computers that you have learnt about.

You can choose from a:

- desktop computer
- laptop
- tablet
- smartphone.

Create a scrapbook using your images or drawings. You can have more than one picture for each type of comput



- 2 Talk to one of your classmates about:
 - a some of the things you can use a computer for
 - b the programs you would use.

What can you do?

Read and review what you can do.

- ✓ I know that computers can be used for different things.
- ✓ I know that computers can use different programs.
- ✓ I know about data and information.
- ✓ I know about input devices.

Great work! Now you know
how computers are used.



