Unit 1

What digital technology do we use?

Years ago we did not have digital technology, but now we use it to do many different things. In this unit you will learn what digital technology is and how it has changed over time. Then you will think about what devices might be like in the future.

You will learn how to save and load your work, and how to draw pictures and shapes on a computer. You will plan a new digital device to help solve a problem, and present your digital device to your class.

Key objectives

- To understand that laptop, desktop and tablet computers are types of personal computers that meet different needs.
- To describe the purpose and use of other digital devices such as cameras, games consoles, media players or televisions.
- To make digital content, for example drawing a digital picture.
- To name different types of output hardware including monitors, speakers, printers or output like the sound from speakers.
- To understand how digital technology has changed over time.

Lesson 1
What is digital technology?

In this lesson you will learn what digital technology is.

Key words: digital, input, microchip, output, processor

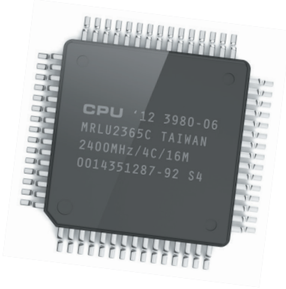
What is **digital** technology?

Talk about your ideas with a partner.

Draw pictures to show your ideas.

These are examples of digital technology. Do you know what they have in common?

Digital technology is any device that has a **microchip**. Another word for a microchip is a **processor**.



A microchip does the thinking, just like our brains!

Input is when we give the microchip instructions.

The microchip follows these instructions. What it does is **output**. This could be a picture on a screen, or sound from a speaker.

The microchip in a calculator works out the answer to a sum.

Activity 1

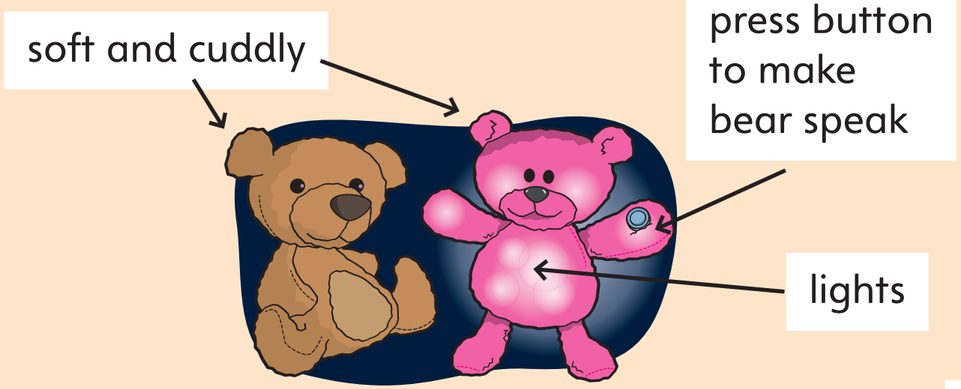
Think about a TV remote. What does it do?

Draw three pictures showing:

1. how to change the channel
2. how to make a TV louder
3. how to turn a TV off.

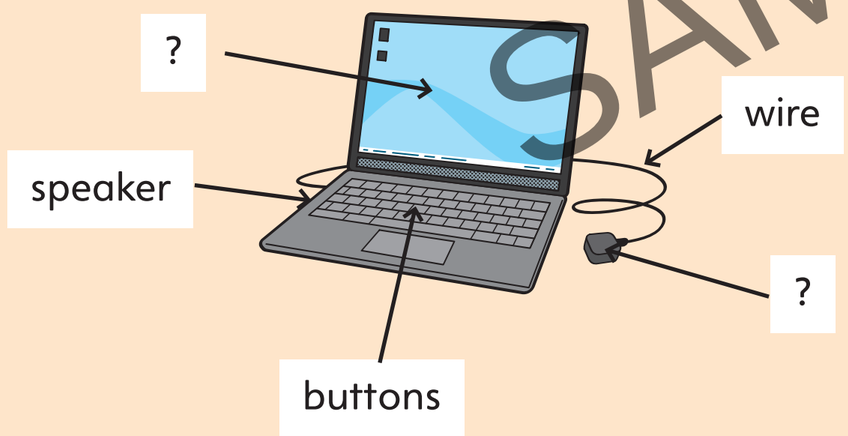
Activity 2

Which toy is a digital device?



Activity 3

This is another digital device. What are the names of all the parts?



Look at the pictures.

Are these things digital devices? How do you know?

Say or write your answers.

If a device uses power or has batteries, it is likely to be digital technology.

- I can say what digital technology is.
- I can name some of the outputs of digital technology.

Lesson 2
Exploring how to draw pictures with a computer

In this lesson you will learn how to make a digital image.

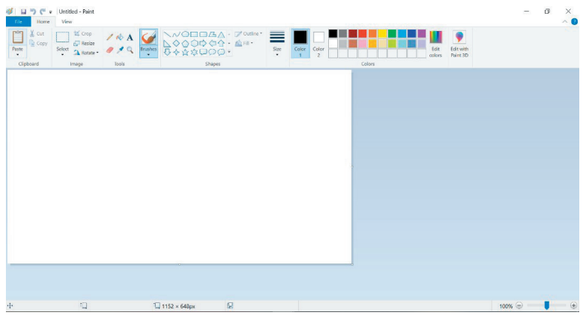
Key words: application, hardware, keyboard, monitor, software

Hardware is things you can touch on a digital device. A **monitor** or a **keyboard** are hardware.

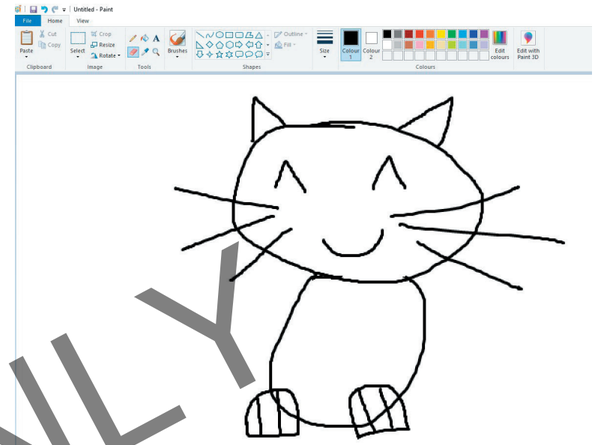
Software is the tools we use on digital devices. Another name for software is an **application**.

You can use software to play games and draw pictures.

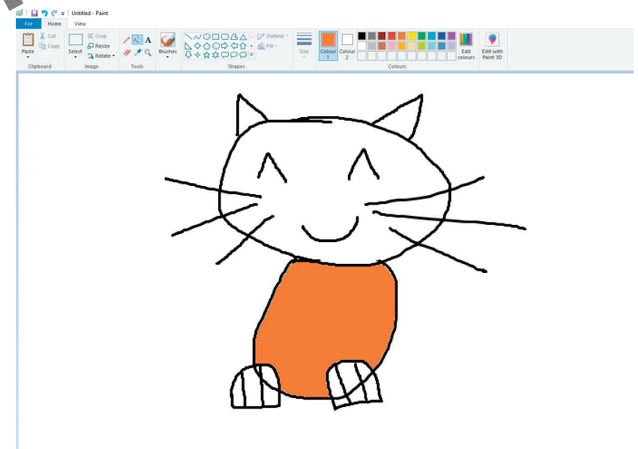
This software is used to draw pictures. It is called Paint.



You can use it to draw anything!



What has the software been used to do?



Activity 1

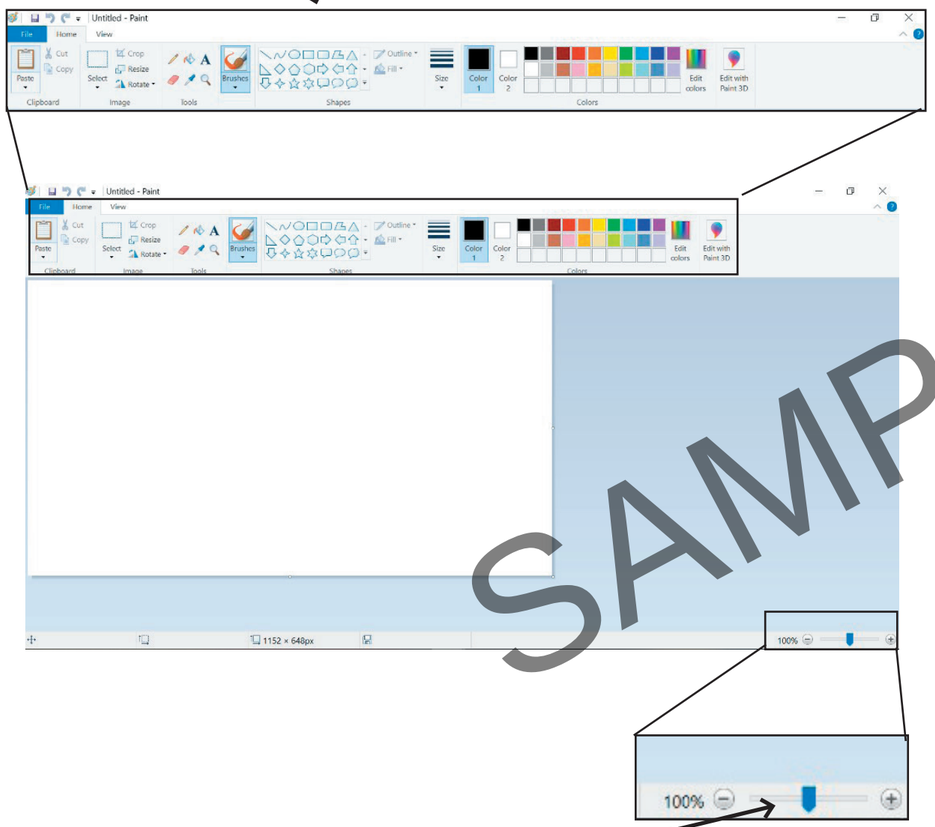
In a group, talk about software that you have used at home.

Talk about software you have used at school.

Using software

We can use this software to do lots of things!

This is the toolbar. It has lots of buttons.
They all do something different.



Click and drag to zoom in or out.

Activity 2

Look at the drawing software with a partner.

Find out what these tools do.

Find out how to do the tasks below.

- Pick a colour to draw with.
- Draw shapes.
- Add text.
- Change the pencil to a brush.
- Save a picture.

Tell your partner one thing you learned about the software.

- I can say what some of the tools can do.
- I can make a digital image.

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Lesson 3
Sorting digital technology

In this lesson you will sort digital devices into groups.

Key words: laptop, smartphone

Can you remember what digital technology means?

In a group, talk about the digital technology you know. Share your ideas with a group.

Activity 1

Which of these digital devices are found at home?

Which are found at school?

Are any in both places?

washing machine

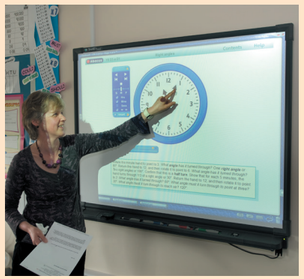
smartphone

games console

remote-control car

laptop

microwave



interactive whiteboard

printer

Activity 2

Sort the devices on pages I2 and I3 into the three groups below.

Write or draw your answers on some paper.

The first one has been done for you.

Things that are fun

Things that are helpful

washing machine

Things that are helpful and fun

There are other ways you could sort these things:

- things that move / things that do not move
- things with a screen / things that do not have a screen
- things with buttons / things that do not have buttons.

Activity 3

With a partner, talk about other ways you could sort the devices.

Talk to a partner. Did you sort things the same way?

- I can think about what makes devices similar.
- I can think about what makes devices different.
- I can sort devices into different groups.

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Lesson 4
Saving and loading work

In this lesson you will learn about saving and loading work.

Key words: load, save

In a group, talk about what saving and loading means. Do you know?

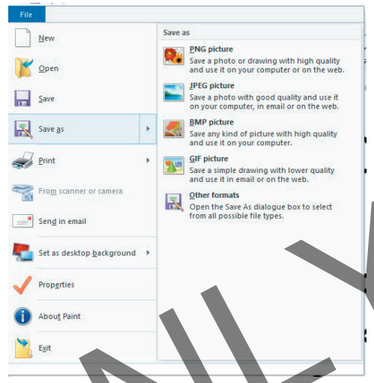
What is saving and loading?

When you **Save**, the computer makes a file which stores all your work.

When you **load** (or open) a file, you are telling the computer to show your stored work.

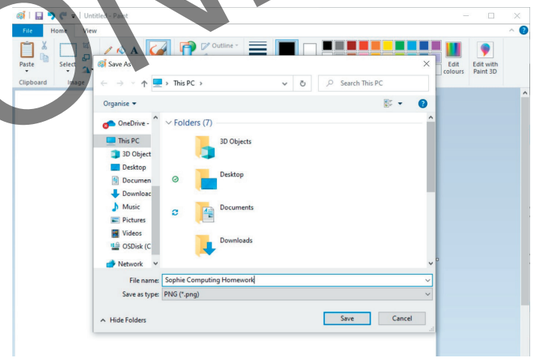
Saving means we do not lose anything when we switch off a device. This means we can go back to it later.

Saving a file

1. 

Click 'File'.

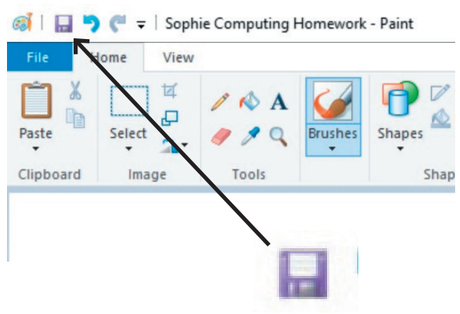
Then click 'Save as'.

2. 

Choose a filename.

Include your name and what the work was about.

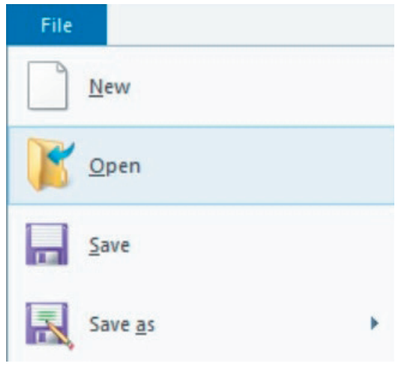
Type in the filename.

3. 

If you make more changes to your work, just click on the save tool.

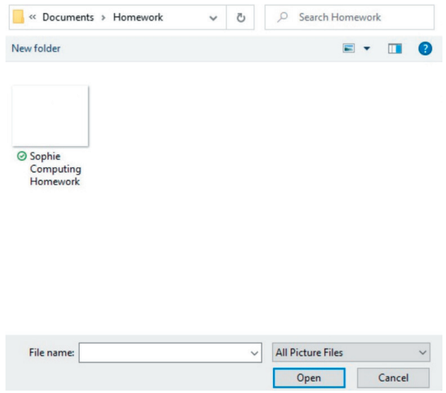
Loading a file

1.



Click ‘File’.
Click ‘Open’.

2.



Find the file you want. Click ‘Open’.

Remember to save your work often! Always save when you have finished.

Activity 1

Answer these questions.

1. These are some filenames. Which is the best filename for a picture of a house?
   - hioiklkjpodjpoklks
   - house picture
   - Anna
   - Ella house picture

2. What happens if you do not save your work? Choose an answer and talk to a partner about it.
   - You have to start again.
   - A teacher will be able to get it back.
   - It will come back on its own.
3. What happens when you click 'Save'? Choose an answer and explain it to a partner.
   - A paper copy of your work is printed.
   - A file for your work is made on the device.
   - The device will switch off.

Tell a partner why it is important to save your work.

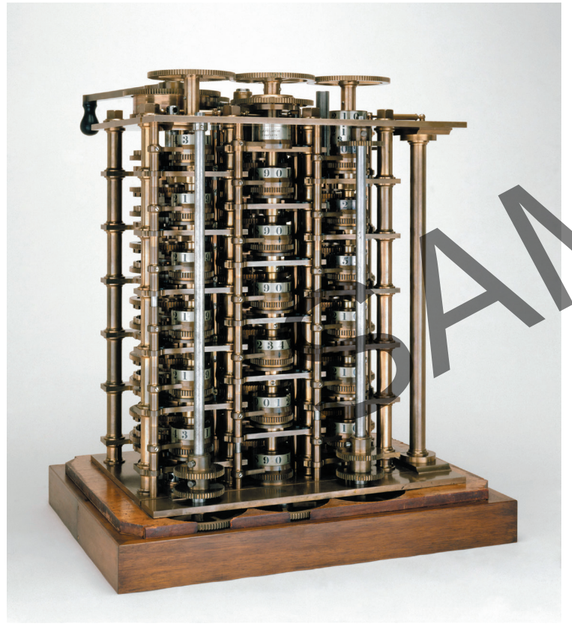
- I can load and save my work.
- I understand why it is important to save my work properly.

Lesson 5
The history of the computer

In this lesson you will find out about the first ever computer.

Key words: personal computer

When do you think the first computer was made? Share your ideas with a partner.



This is the first ever computer. It was made by Charles Babbage in 1823.

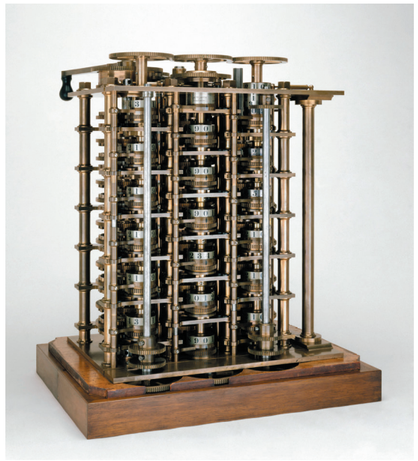
A **personal computer** is a computer used by one person at a time. Sometimes we call it a PC.

This is the first personal computer. It was made in 1973 by John Blankenbaker.

Activity 1

What might a very old computer look like? Draw it and add labels to show what each part does.

Personal computers today are very different. Look at how these computers have changed over time.



Interesting fact! The first computer weighed the same as ten elephants.

Today, computers have more power. They can do things more quickly than old computers.

New computers also cost less money. This means more people can buy them.

Activity 2

Talk to your partner about computers that you can use at home and at school. How are they different? What do you use them for?

Activity 3

Imagine a computer in 100 years' time.

What will it look like? What will it do? Draw a picture and write a sentence to describe it.

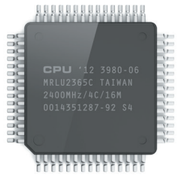
- I understand how computers have changed over time.
- I can name some of the main parts of a computer.
- I understand the term 'personal computer'.

Unit 1
Mid-unit assessment

Write your answers in your notebook.

1 Which of these photos shows a processor?

A



B

C

D

(1 mark)

2 Which of these words is another name for a processor?

A keyboard

B tablet

C microchip

D monitor

(1 mark)

3 You see this tool in the software used to draw pictures.

Which sentence says what this tool does?

A It draws lines.

B It fills a part of the drawing with colour.

C It picks a colour to use.

D It rubs out drawings.

(1 mark)

4 Which of these devices cannot be used for both work and play?

A

B

C

D

(1 mark)

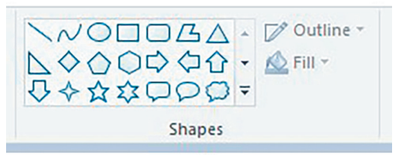
Lesson 6
Using software to draw shapes

In this lesson you are going to learn how to draw and colour shapes.

Key words: colour, digital image, shape

Tell your partner two things you remember about the Paint software from Lesson 2.

1.

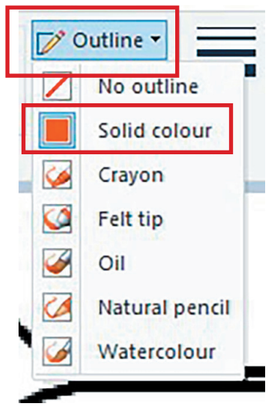


Look at the toolbar.

Click the **shape** you want to draw.

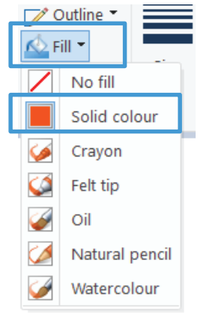
It will turn blue.

2.



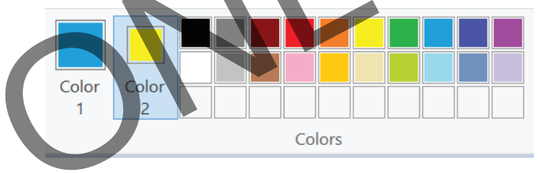
Pick the outline for your shape. Click 'Outline'. Click 'Solid **colour**'.

3.



To choose the colour of the shape, click 'Fill'. Then click 'Solid colour'.

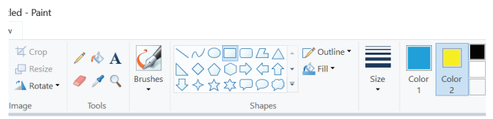
4.



Now pick the colours.

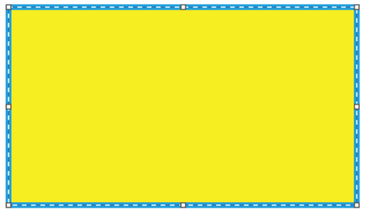
Colour I is the outline colour. Colour 2 is the colour inside the shape.

5.



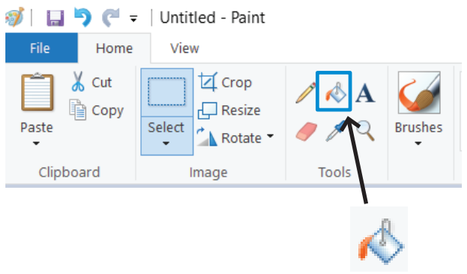
To draw the shape, hold down the left mouse button and drag. Let go of the mouse button when the shape is finished.

6.



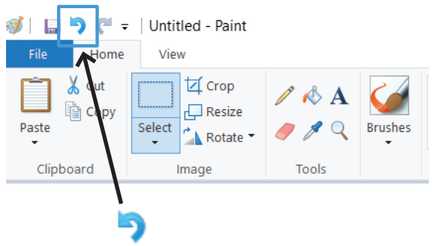
You should see a dotted line with squares on it. Click on a square and drag it to change the shape.

7.



To change the colour of an object use the Fill tool. Click on it. Click the colour you want. Then click on the shape.

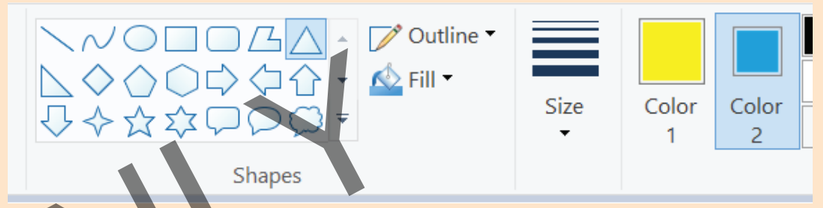
8.



If you make a mistake, click the Undo button, or use the Eraser tool.

Activity 1

What shape would be drawn if the screen looked like this? What colours would it be?



Draw the shape.

Sometimes it is easier to start a new file instead of trying to rub lots of things out.

Tell your partner one thing you enjoy using in this software.

- I can add shapes to my **digital image**.
- I can change the colour of objects.

Lesson 7
Drawing a picture using different brushes and pens

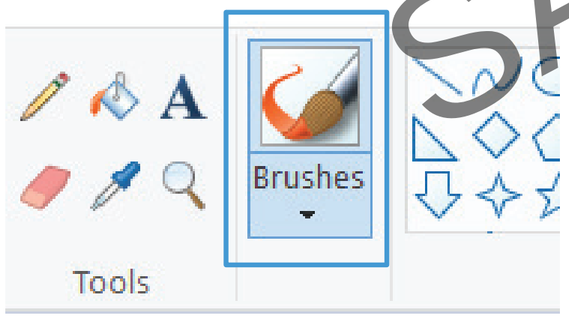
In this lesson you will learn how to use different brushes to change a picture in drawing software.

Key words: brush, pen

Can you remember what you learned about the Paint software from Lesson 6? Tell your partner one thing you remember.

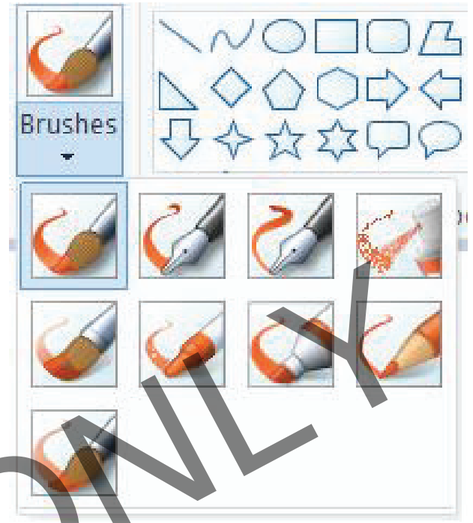
In this lesson, you are going to learn how to use different **brushes** to add detail to a picture.

1.



Click on the Brushes tool.

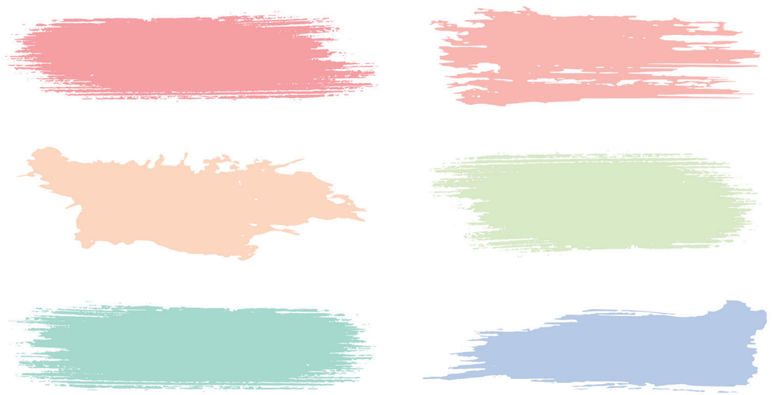
2.

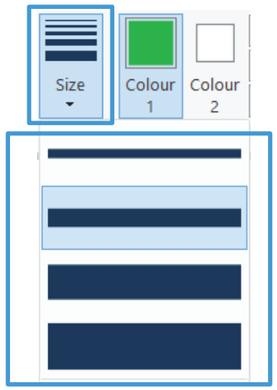


Click on a brush to use it.

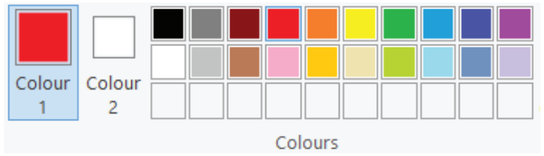
What does it look like when you paint with it?

Try different brushes. Which do you like best?



3. 

To change the size of the brush, click the Size tool. Click on a different line.

4. 

Click 'Colour I'. Click the colour you want the brush to paint.

Activity 1

Look out of the window. Use Paint software to draw what you can see.

Use different brushes and colours to make it look real!

Think about the brushes you have used.

Which brushes would you use to draw a detailed picture? Why?

Which brushes would you use to draw a rough picture? Why?

You may need to use a brush a few times to get interesting effects.

- I know how to select different brushes and **pen** styles.
- I know how to change the size and colour of brushes and pens.
- I can use brushes and pens to make a digital image.

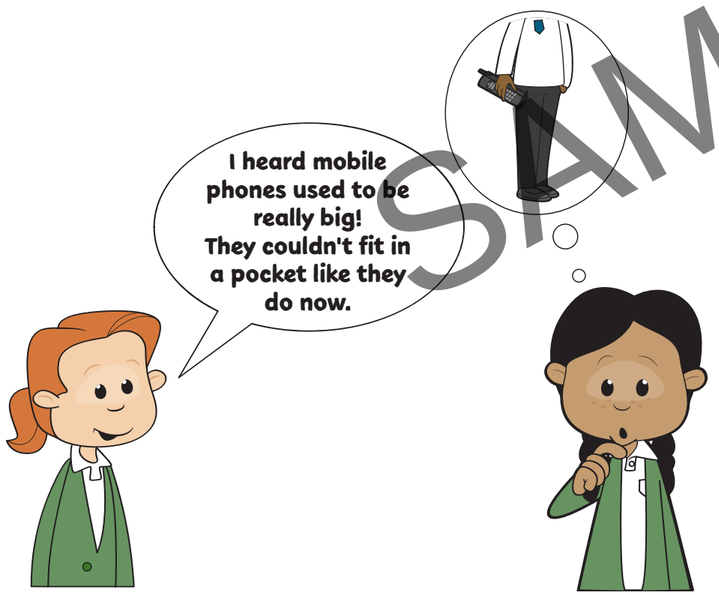
Lesson 8
The history of the mobile phone

In this lesson you will learn about how mobile phones have changed over time.

Key words: mobile phone, modern

Have you ever used a **mobile phone**? What did it look like? What did you use it for?

Talk about your ideas in a group.

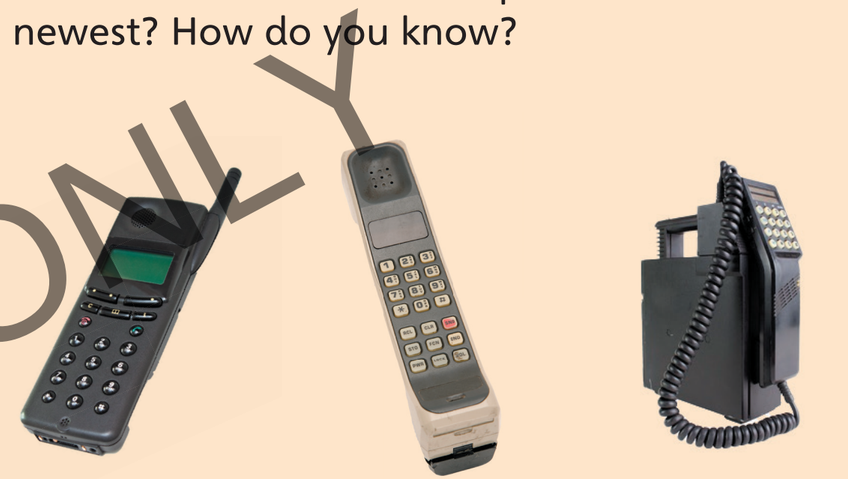


Activity 1

Mobile phones have changed a lot over time.

In a group, look at the pictures.

Which is the oldest mobile phone? Which is the newest? How do you know?

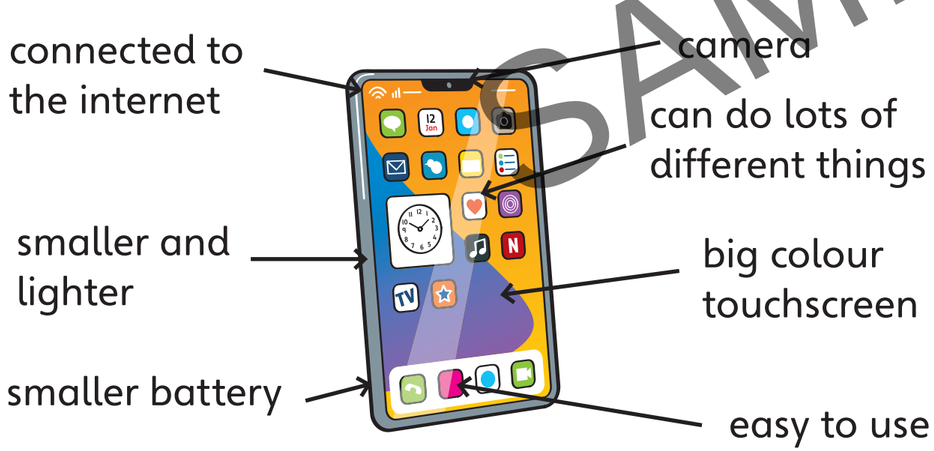


How have mobile phones changed?

Look at the pictures below. How are the phones different?

Old mobile phone

Modern mobile phone



Activity 2

How do you think phones will change in the future? Talk to a partner.

Activity 3

1. Draw the phone you think you will use as a grown-up.
2. Label your drawing clearly.
3. Write a sentence explaining how it is different from **modern** phones.

Tell your partner a difference between an old mobile phone and a modern mobile phone.

- I know what a mobile phone is and what it is used for.
- I know how mobile phones have changed over time.

Lesson 9
Planning a digital device

In this lesson you will think of new devices to solve problems.

Key words: problem, solve

Look at the images below.

In a group, talk about the **problem** that each digital device was invented to **solve**.

Then…

Now…

Solving problems with technology

Washing clothes by hand is hard work! Today we can use a washing machine.

Before traffic lights were invented, people had to direct traffic to stop cars from crashing.

Old telephones had to be plugged in all the time. This meant you had to stay in one place to talk on the phone. Today you can call people from anywhere.

New devices solve problems or make things easier.

Activity 1

Think of things you find hard to do, or that take a long time. Make a list with a partner. Write or draw your ideas.

Activity 2

1. Look at your list from Activity 1. Could you invent a digital device to help you with anything on the list?
2. What will the device need? How will you tell it what to do?
3. Draw a picture of your device and label it clearly. Write a sentence explaining what it is!

Look at the words below to help you.

buttons

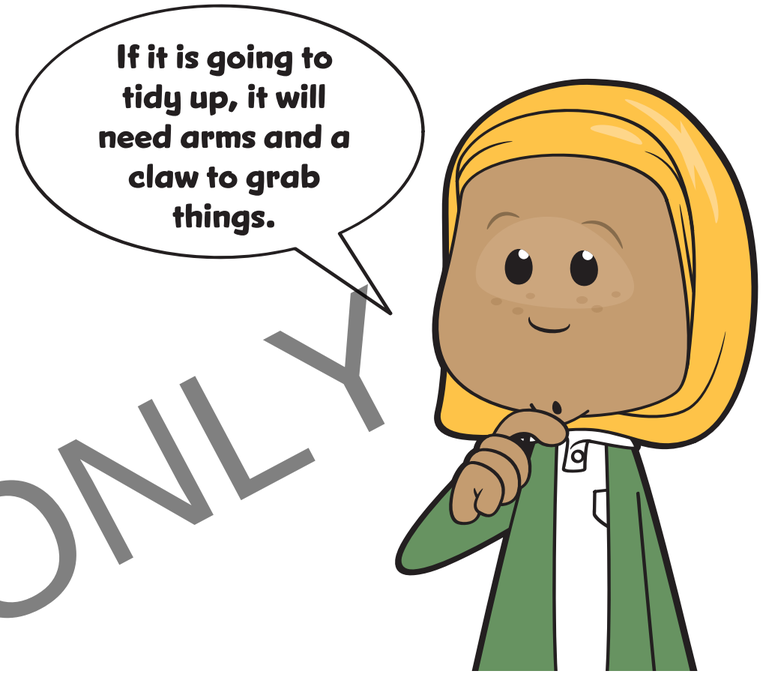
wheels

arms

microphone

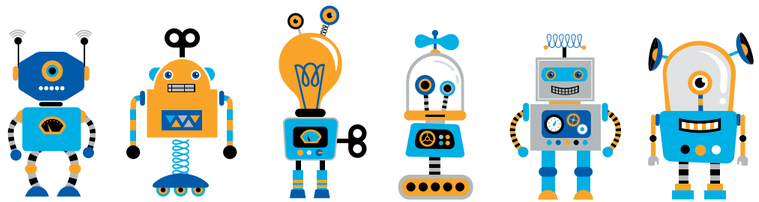
touchscreen

Unit I: What digital technology do we use? Lesson 9



Tell your partner the best thing about your idea.

- I can think of a device to solve a problem.
- I can label my plan for my device.



Lesson 10
Present your ideas

In this lesson you will present your digital device to the class.

Key words: brush, colour, digital, digital image, hardware, input, keyboard, laptop, load, microchip, mobile phone, modern, monitor, output, pen, personal computer, problem, processor, save, shape, smartphone, software, solve

Look at your plan for a digital device from Lesson 9.

You are going to talk about your digital device to a group.

What makes a good presentation?

Activity 1

Plan your talk. Think about what you will say.

- What does your device do?
- What problem does it solve?
- What does it look like? (Point to the different parts.)
- Which part of your device do you like the best? Why?

Practise your talk.

Words you can use:

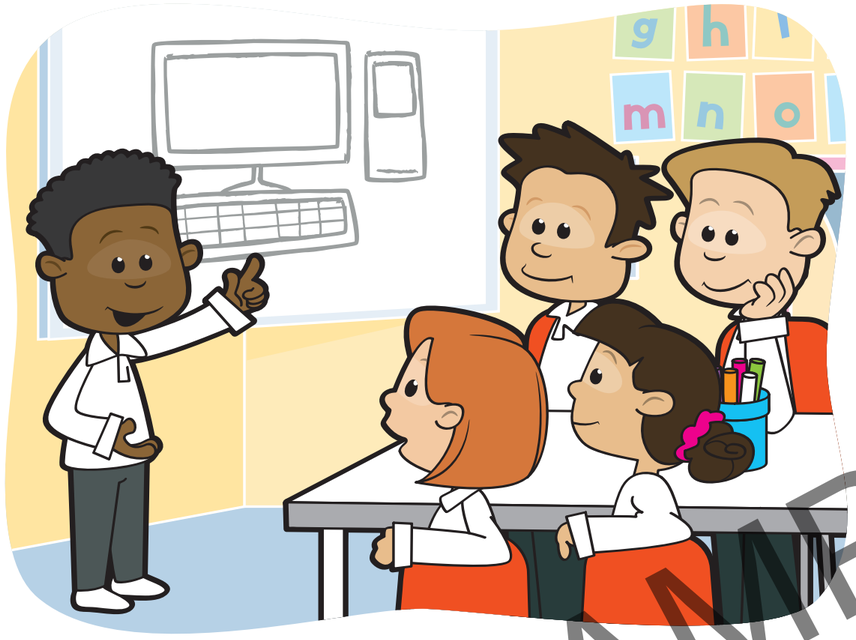
digital, microchip, input, output, monitor, keyboard, software, save, load, shape, colour, problem, solve, mobile phone, modern

Tips for presenting

- Speak clearly and slowly.
- Look at the people you are talking to.
- Smile!

Activity 2

Give your talk!



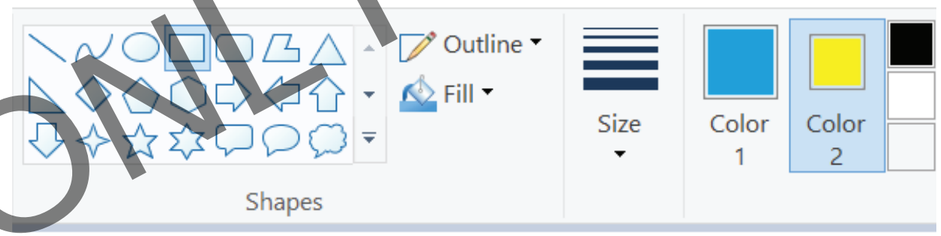
With a partner, talk about these questions.

- What is the best thing you learned about digital technology?
- What would you like to spend more time learning about?
- What could you improve in your presentation?

Unit 1
End-of-unit assessment

Write your answers in your notebook.

1 Someone has clicked on these buttons in a drawing app:



What will the shape be?

A a triangle

B a circle

C a star

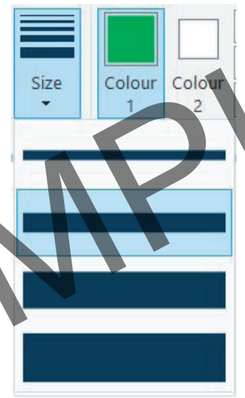
D a rectangle

(1 mark)

2 Look at the pictures. Which ones are digital devices?

(3 marks)

3 In the Paint software, what does the tool with different lines on it do?



A It makes the lines thicker.

B It makes the lines longer.

C It rubs out lines.

D It selects all the lines on the page.

(I mark)

4 Imagine you have drawn a cat. Write a good filename for your artwork.

(I mark)

5 Mobile phones have changed over time. Write sentences or draw a picture to explain what has changed.

(3 marks)

Read the sentences. Do you agree? Think about what you have learned.

- I can identify different digital devices.
- I understand what different digital devices do.
- I can use different digital devices to make content.
- I understand some of the history of digital devices.