

# INSPIRE COMPUTING

*International*

Student Book

**YEAR 1**



Pearson

# **INSPIRE** **COMPUTING**

*International*

Student Book

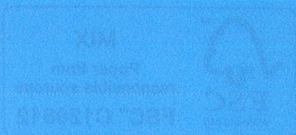
**YEAR 1**

**Daniel Beh**

**Series editor: Paul Clowrey**



**Pearson**



Published by Pearson Education Limited, 80 Strand, London, WC2R 0RL.  
www.pearson.com/international-schools

Copies of official specifications for all Pearson Edexcel qualifications may be found on the website:  
https://qualifications.pearson.com

Text © Pearson Education Limited 2023  
Project managed and edited by Just Content  
Designed and typeset by PDQ  
Picture research by Integra  
Original illustrations © Pearson Education Limited 2023  
Cover design © Pearson Education Limited 2023  
Cover illustration © Beehive/Andrew Pagram

The right of Daniel Beh to be identified as the author of this work has been asserted by him in accordance with the Copyright, Designs and Patents Act 1988.

First published 2023

25 24 23  
10 9 8 7 6 5 4 3 2 1

British Library Cataloguing in Publication Data  
A catalogue record for this book is available from the British Library

ISBN 978 1 292 40421 9

#### Copyright notice

All rights reserved. No part of this publication may be reproduced in any form or by any means (including photocopying or storing it in any medium by electronic means and whether or not transiently or incidentally to some other use of this publication) without the written permission of the copyright owner, except in accordance with the provisions of the Copyright, Designs and Patents Act 1988 or under the terms of a licence issued by the Copyright Licensing Agency, 5th Floor, Shackleton House, 4 Battlebridge Lane, London, SE1 2HX (www.cla.co.uk).

Applications for the copyright owner's written permission should be addressed to the publisher.

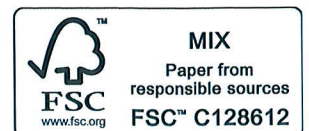
Printed in Slovakia by Neografia

The author and publisher would like to thank the following individuals and organisations for permission to reproduce photographs, illustrations, and text:

**KEY** (t – top, c – center, b – bottom, l – left, r – right)

**I23RF GB LIMITED:** Scanrail 4tr, Rawpixel 4bl, Daniel Ivascu 5b, Destinacigdem 7l, Tanatat Ariyapinyo 12br, Supot Phanna 13tr, Destinacigdem 13br, 24bl, Tanatat Ariyapinyo 25tl, Ari Nousiainen 35tr, Pixelrobot 35bc, Scanrail 35bl, Tanatat Ariyapinyo 68tr, Mikefocus 94br, Scanrail 143r, Natallia Bystraya 167br, Alicephoto 191, Oksana Desiatkina 210, Festiven 211b, Festiven 225, Martialred 268, Junghee Choi 273; **Alamy Stock Photo:** Interfoto/History 22tr, TONY BOXALL/Heritage Image Partnership Ltd 38l, Allan Cash Picture Library 38r, Impress/United Archives GmbH 93t; **Getty Images:** WIN-Initiative/Neleman/Stone vii, WIN-Initiative/Neleman/Stone 2, Science & Society Picture Library/SSPL 20, Mark Madeo/Future 21t, Science & Society Picture Library/SSPL 22tl, Karen Hartman/EyeEm 39r, National Trust 94tl, National Trust 119, Jayk7 138, Chad Baker/The Image Bank 234, Ted Fitzgerald/MediaNews Group/Boston Herald 240, Ted Fitzgerald/MediaNews Group/Boston Herald 245; **Microsoft Corporation:** Microsoft Paint, Used with permission from Microsoft corporation viii, ix, 9t, 9b, 10, 17t, 17c, 17b, 18tl, 18tr, 26t, 26b, 27t, 27c, 27b, 28t, 28c, 28b, 29, 30, 31t, 32t, 32b, 45, 46b, 114, Microsoft Windows 10, Used with permission from Microsoft corporation 192, 197t, 197c, 201, 202, 211t, 211c, 214, 218, 220; **Pearson Education:** Rob Judges 13bl, SRS Global 193t, 195, Ratan Mani Banerjee 197, Prashant Jain/Paarth Creation 212t, Paul Beebee, C/O Beehive Illustrations 190tl, 215cr, PDQ Digital Media Solutions Ltd 165, 190tl, 207, 213, 223tl, 223bl, 223br, 244; © **Turtle Academy:** 267, 269, 271; **Shutterstock:** Ruslan Ivantsov 4tl, KsanderDN 4br, 12bl, 39l, 143c, Oleksiy Mark 5t, 24tl, Iqoncept 7r, 22br, 68tl, 143l, Sergiy1975 7b, BallBall14 13tl, Pikcha 13cl, Maksym Bondarchuk 13cr, Ivan Arkhipov 21b, Iqoncept 22br, Trekandshoot 22bl, Igor Klimov 24tr, Gresei 24br, 25tr, 68br, Voronin76 25bl, Roman Arbutov 25br, VisibleMi 31b, Anna Chelnokova 35tl, Elbud 35tc, Bogdandimages 35br, Marish 41b, Pixelparticle 49, Wacpan 68bl, Robert Haandrikman 88, Sungong 91, Memo Angeles 93c, Javier Garcia 65 93b, Moviestore 94tr, Joe Ruby/Ken Spears/Warner Bros Animation 94bl, Denys Drozd 128, Kotomiti Okuma 140, 145, Siete\_vidas 167tl, Viktor Gladkov 167tr, StevenRussell SmithPhotos 167cl, Wayak 167cr, Steffen Foerster 167bl, FOTOGRIIN 187, Monticello 188, Ecco 193b, 219, 230, Nutkins.J 203, Sudowoodo 205, Olga1818 212b, Roxunlimited 215l, GoodStudio 215C, Wizdata1 215r, Ivana Milic 216, Nikolay132 231.

All other images © Pearson Education



# Contents

## Unit 1: What digital technology do we use?

1 What is digital technology?.....	4
2 Exploring how to draw pictures with a computer.....	8
3 Sorting digital technology ...	12
4 Saving and loading work .....	16
5 The history of the computer.....	20
Mid-unit assessment .....	24
6 Using software to draw shapes .....	26
7 Drawing a picture using different brushes and pens .....	30
8 The history of the mobile phone .....	34
9 Planning a digital device .....	38
10 Present your ideas.....	42
End-of-unit assessment.....	45

## Unit 2: Using apps and software safely

1 Finding out about multi-role devices.....	50
2 Recording digital video.....	54
3 Using multi-role devices at home .....	58
4 Recording a video about multi-role devices.....	60
5 The online world and the offline world.....	64
Mid-unit assessment .....	68
6 Staying safe online.....	70
7 Meeting people online who we do not know.....	72
8 Using apps in positive ways.....	76
9 Planning a video about staying safe online.....	79
10 Recording a video about staying safe online.....	82
End-of-unit assessment.....	85

### Unit 3: My animation project

1 Learning about stop motion animation.....	92
2 Using stop motion animation software.....	96
3 Working as a team to make a stop motion animation .....	100
4 Finding out about onion skinning .....	104
5 Using a storyboard to plan an animation.....	108
Mid-unit assessment.....	112
6 Making a background.....	114
7 Making a model for my animation.....	118
8 Making a stop motion animation.....	122
9 Editing a stop motion animation.....	126
10 Watching stop motion films and giving feedback .....	130
End-of-unit assessment.....	133

### Unit 4: Exploring algorithms

1 Learning about algorithms.....	140
2 How to test an algorithm .....	144
3 Making algorithms.....	148
4 Debugging an algorithm .....	152
5 Following an algorithm with direction words .....	156
Mid-unit assessment.....	160
6 Debugging algorithms with direction words .....	162
7 Making algorithms with direction words .....	166
8 Planning an exercise activity.....	170
9 Making an exercise algorithm .....	174
10 Evaluating the exercise algorithm .....	178
End-of-unit assessment.....	181

## Unit 5: Word processing

1 Learning about word processors .....	188
2 Using a word processor .....	192
3 Using different font sizes and underlining (part 1) .....	196
4 Using different font sizes and underlining (part 2).....	200
5 Using bold and italics in your text (part 1) .....	204
Mid-unit assessment .....	208
6 Using bold and italics in your text (part 2).....	210
7 Using bullet points.....	214
8 Changing the font and using bullet points .....	218
9 Planning a piece of writing.....	222
10 Writing something using a word processor application.....	226
End-of-unit assessment.....	230

## Unit 6: Introducing programming

1 Remembering algorithms and direction words .....	236
2 Writing algorithms to control hardware and software .....	240
3 Making a map for a Bee-Bot .....	244
4 Learning how to use simple code.....	248
5 Making, debugging and following algorithms .....	252
Mid-unit assessment .....	256
6 Making an on-screen turtle move .....	258
7 Writing simple programs to draw shapes.....	262
8 Writing programs to draw shapes in Turtle LOGO .....	266
9 Planning a program to write with Turtle LOGO .....	270
10 Writing letters using Turtle LOGO .....	274
End-of-unit assessment.....	277

## Glossary

# Welcome to Inspire Computing

We are all living in a continually evolving digital world. By supporting learners in becoming confident and knowledgeable users of technology we can ensure you are prepared for the future.

Inspire Computing makes important topics accessible for all learners. You will understand how to stay safe online while still enjoying the freedom to explore the World Wide Web. You will delve deeper into understanding algorithms through creative approaches, exploring networks and systems, and create and film exciting animation projects!

Each topic includes easy to understand theory, real-world examples, and ideas for further investigation. You will also have the chance to show off your knowledge and understanding through supportive assessments and student checkpoints!

## Key objectives

What you will know or be able to do by the end of the unit.

### 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

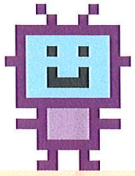
- To understand that laptop, desktop and tablet computers are types of personal computers that meet different needs.
- To identify what a digital device is.
- To understand how to save and load work.
- To make digital content, for example drawing a digital picture.
- To recognise different types of digital technology.
- To understand how digital technology has changed over time.

## Introduction

Here you can find out what this unit will be all about.

## In this lesson you will:

This is what you will know or be able to do by the end of the lesson.




### Key vocabulary


Important words to know.


### Starter

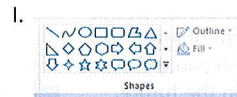
An introduction to the activity or information to start a discussion.

## Lesson 6 Using software to draw shapes

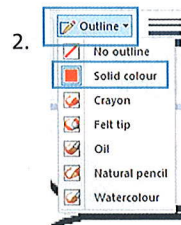
 In this lesson you are going to learn how to draw and colour shapes.

 **Key words:** colour, digital image, shape

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



Look at the toolbar. Select the **shape** you want to draw. It will turn blue.



Pick the outline for your shape. Select 'Outline'. Select 'Solid colour'.

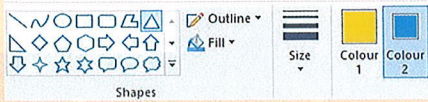
## Key vocabulary

Some tricky words are in **bold**. Find out what these mean in the Glossary at the back of the book.



### 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.

## Activity

You may need to write or draw an answer. You may create a game or work with Scratch. You may work with a partner or on your own.

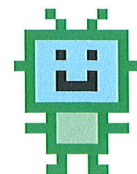
Look out for these boxes for extra information and for key reminders.

## Refresher

To make sure that learning is secure.

## Checklist

A handy list with the key parts of this lesson.









# 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 identify what a digital device is.
-  To understand how to save and load work.
-  To make digital content, for example drawing a digital picture.
-  To recognise different types of digital technology.
-  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.

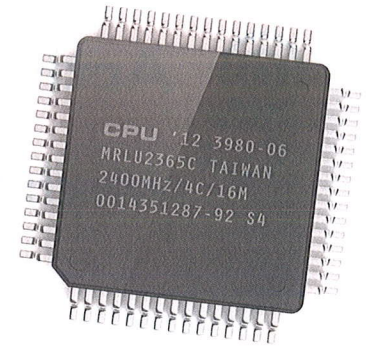
Draw pictures to show your ideas.

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.





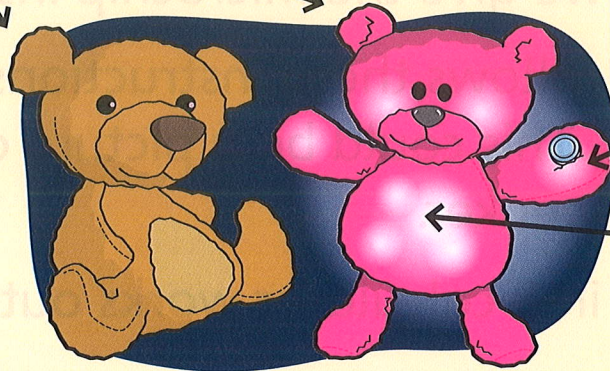
## Activity 2

Which toy is a digital device?

soft and cuddly

press button  
to make  
bear speak

lights



## Activity 3

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

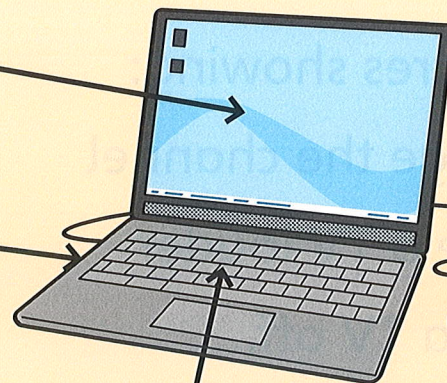
?

wire

speaker

?

buttons





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.

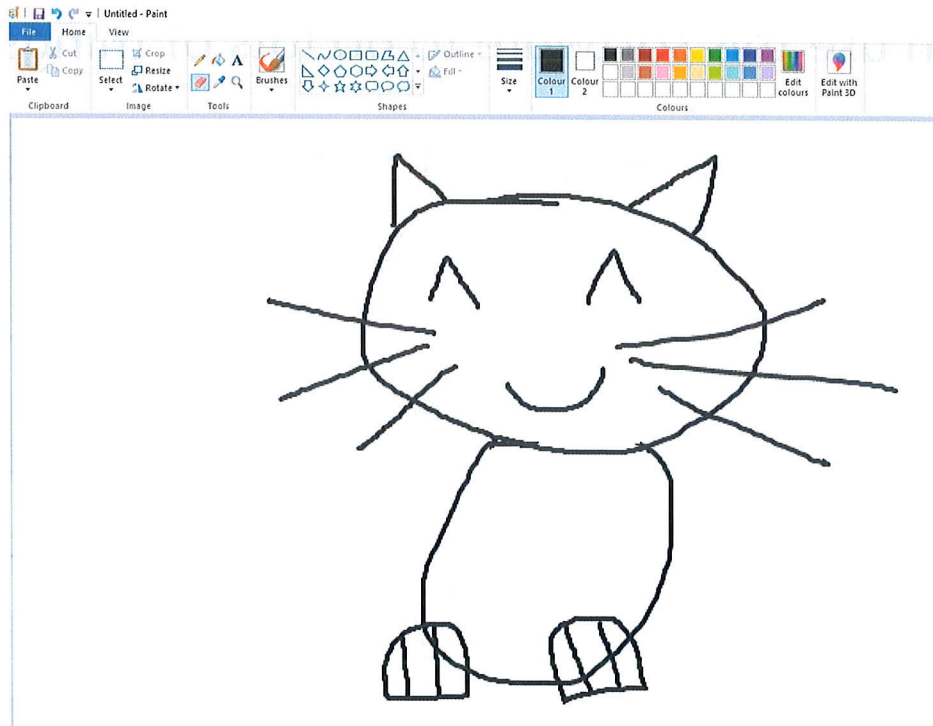


### Activity 1

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

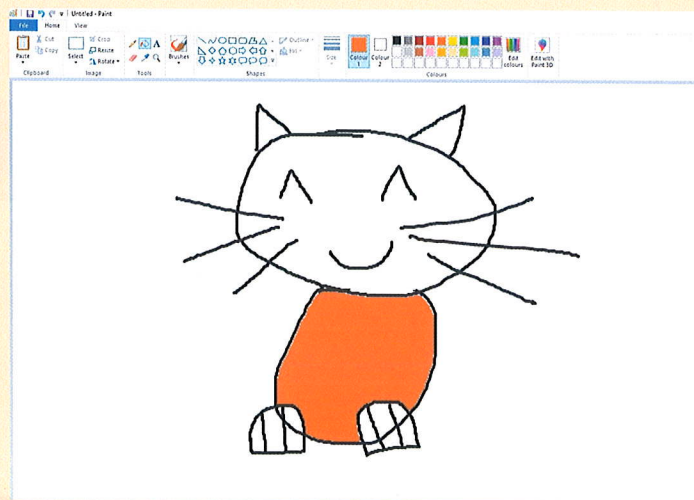
Talk about software you have used at school.

This software is used to draw pictures. It is called Paint. You can use it to draw anything!



## Activity 2

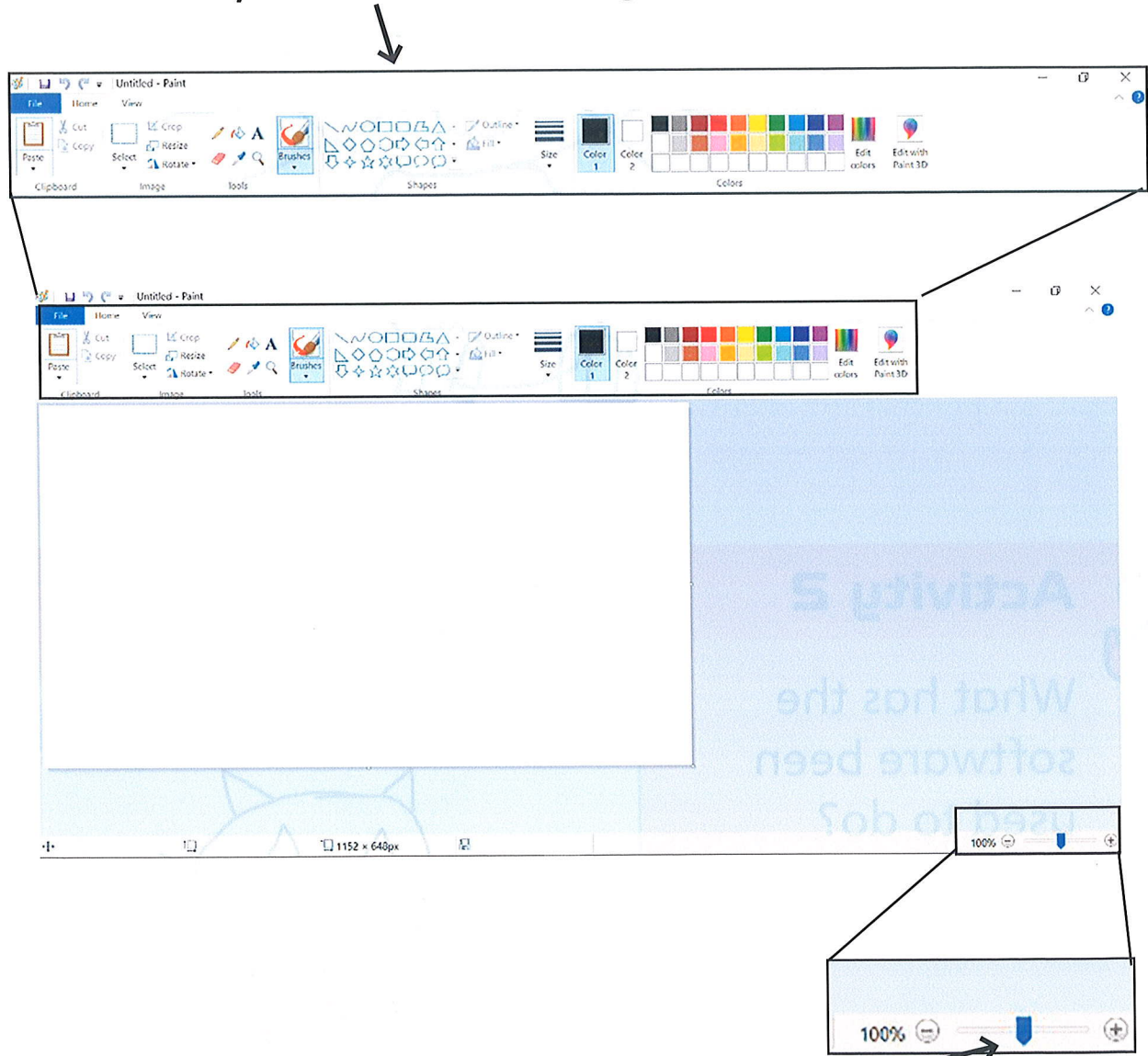
What has the software been used to do?



# 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.



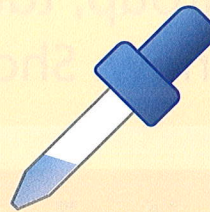
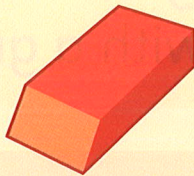
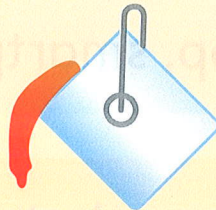
Select and drag to zoom in or out.



### Activity 3

Look at the tools below with a partner.

Discuss what you think these tools may do.



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.



## 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?



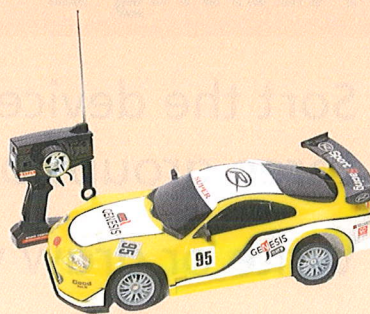
washing machine



smartphone



games console



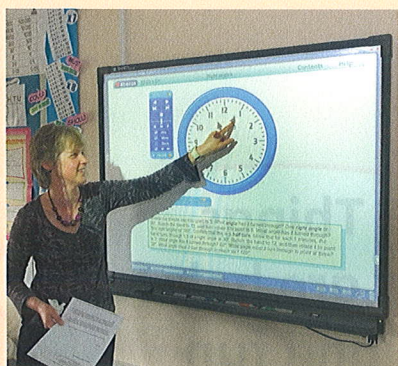
remote-control car



laptop



microwave



interactive whiteboard



printer



## Activity 2

Sort the devices on pages 12 and 13 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 different 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.

## 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?

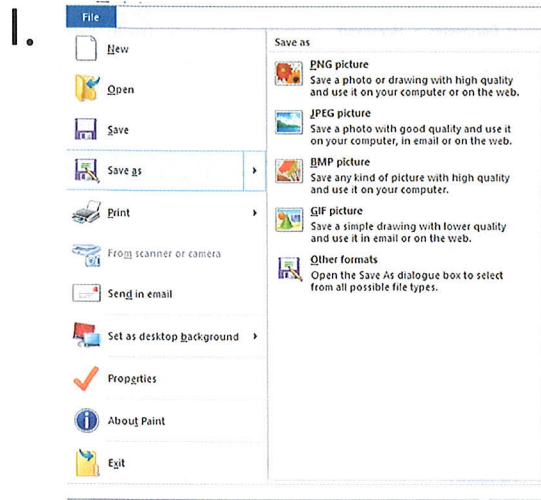
## What is saving and loading?

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

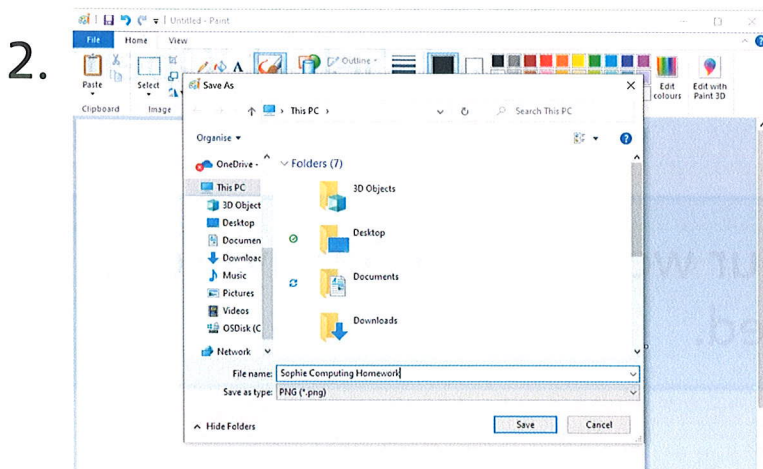
When you **load** (or **open**) a file, you are telling the computer to show your stored work.

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

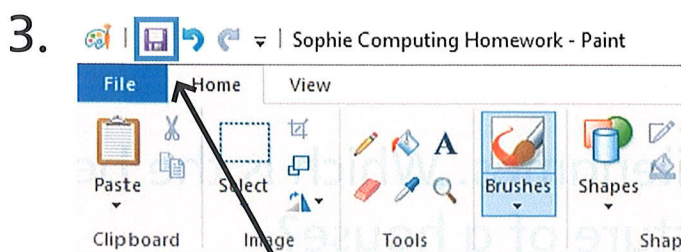
## Saving a file



Select 'File'.  
Then select  
'Save as'.



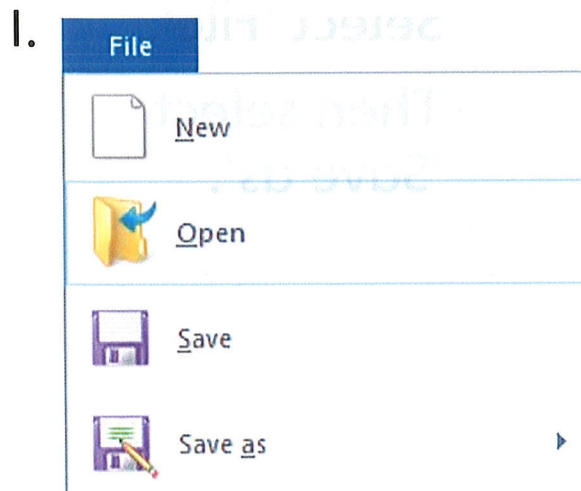
Choose a filename.  
Include your name  
and what the work  
was about.  
Type in the filename.



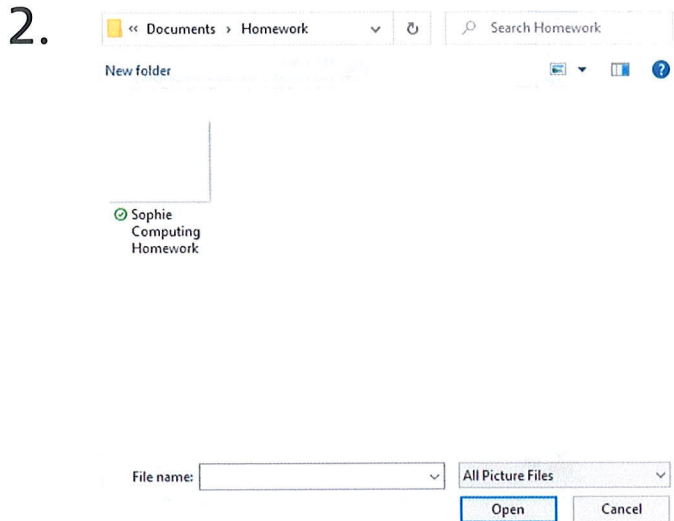
Save tool

If you make more  
changes to your  
work, just press the  
Save tool.

## Loading a file



Select 'File'.  
Select 'Open'.



Find the file you want. Select '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?
 

■ hioiklkjpodjpkllks	■ Anna
■ house picture	■ 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 select '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

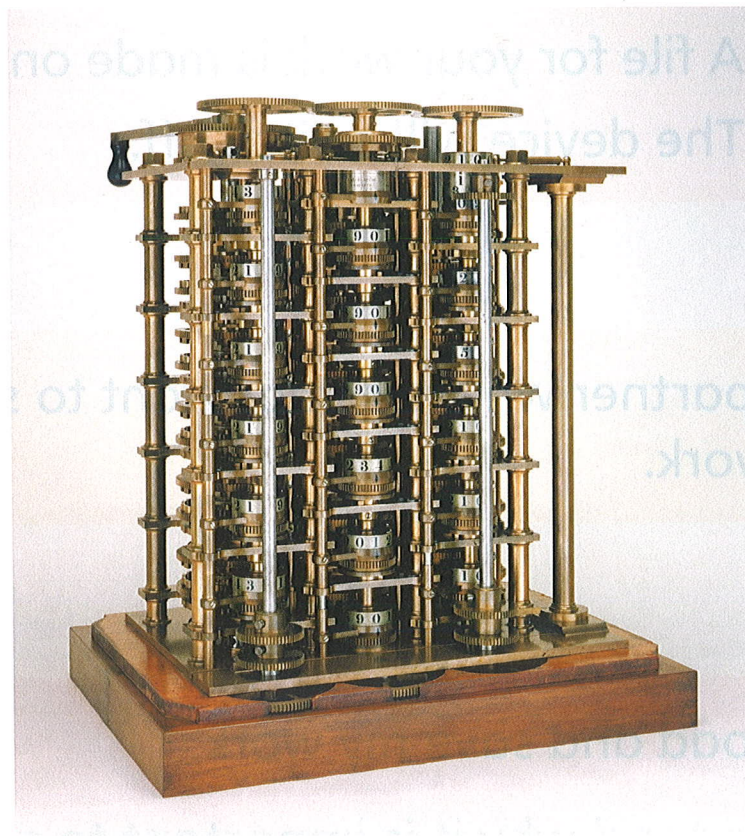


# The history of the computer

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

 Key words: personal computer

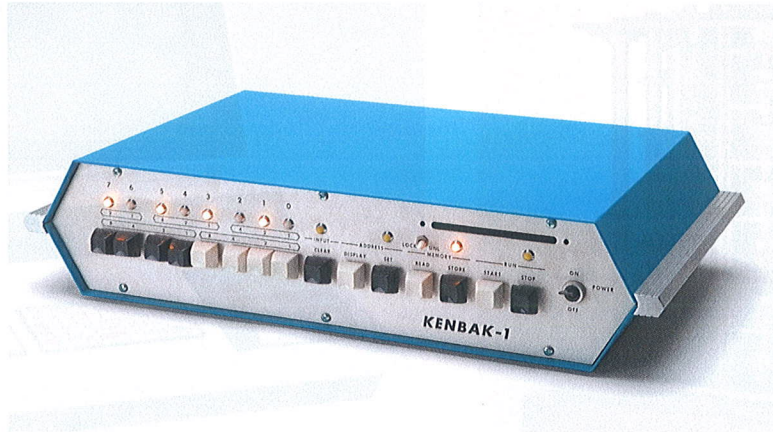
 When do you think the first computer was made? Share your ideas with a partner.



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.

