

**Pioneer Federation**  
**Medium term plan**  
**Cycle B, Term 4**  
**ICT**



**Subject:** Purple Mash unit 4.5 Logo

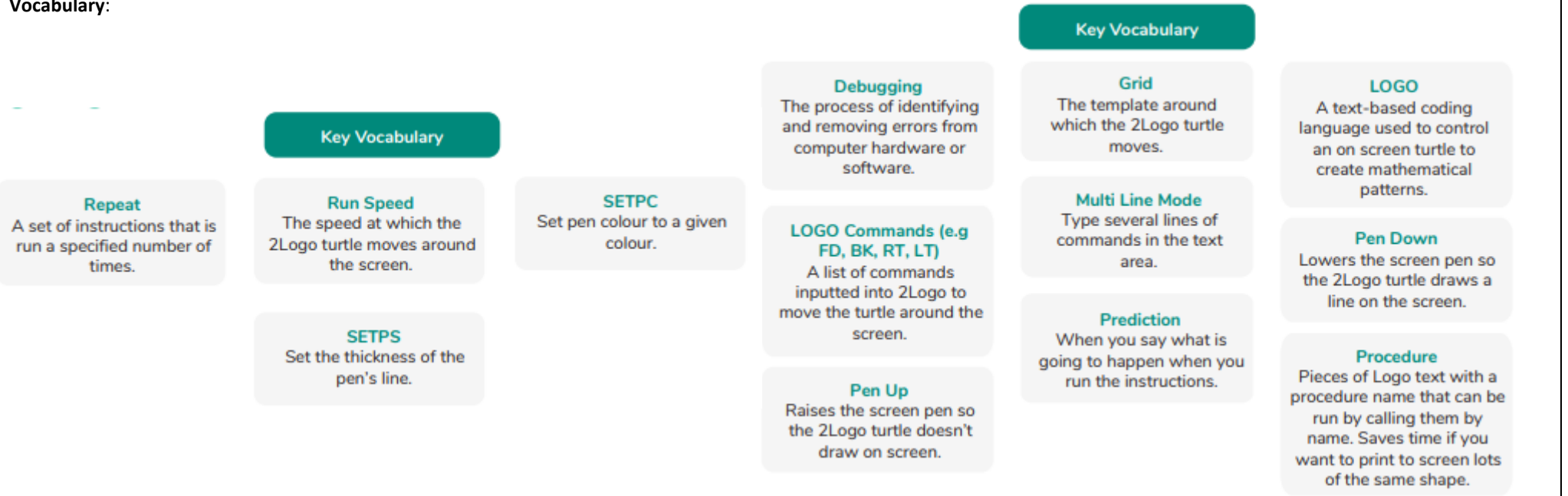
**Key Concept/ Theme:** 2Logo is a text-based coding language used to control an on-screen marker to create mathematical patterns. Children were introduced to turtle patterns using 2Go in year 1. In this unit they will: • Learn common commands and constructs of the Logo programming language. • Develop their ability to compose algorithms for drawing mathematical structures and turn these into Logo code. In the lesson plans, Logo code is written in capital letters to distinguish it from the rest of the text. However, Logo is not case sensitive and lower case can be used as well. There are strong links between Logo and Mathematics, and it might be beneficial to incorporate maths angle and shape work into lessons whilst doing 2Logo work. If children have not used floor turtles or the 2Go program lower down the school, then familiarity with these might be beneficial for some students. Unit 1.5 of the Scheme of Work uses 2Go to develop related concepts on screen. If your children do not have individual logins for Purple Mash, we can help you with this. Contact your school Purple Mash administrator or email us at support@2simple.com. To force links within this document to open in a new tab, right-click on the link and then select 'Open link in new tab'.

**Prior Learning links:**

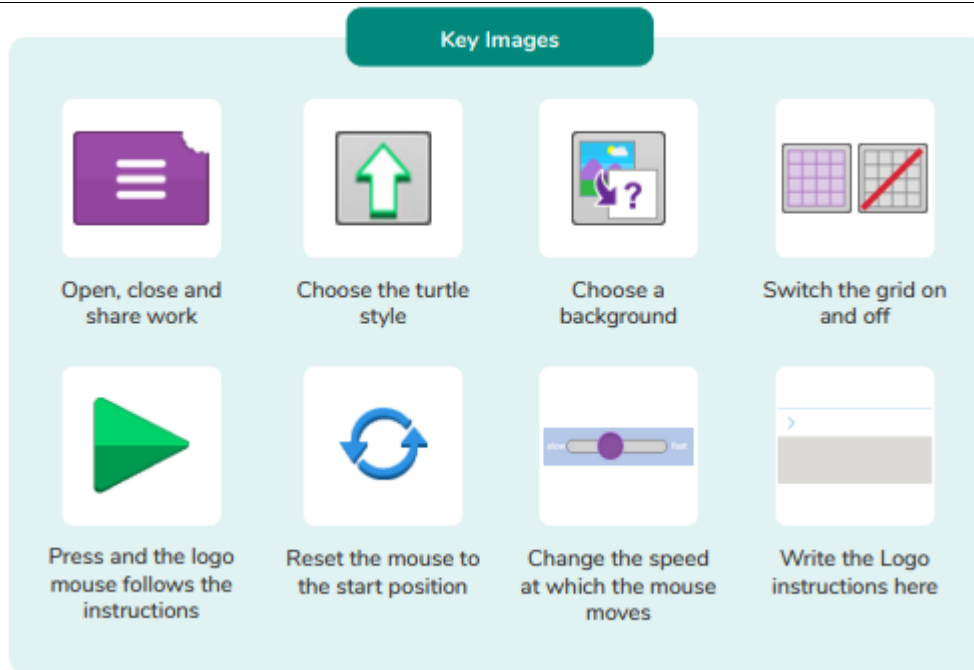
	Cycle A	Cycle B
Year 1/2	Unit 1.4 Lego builders • Logical decision making • Sequencing instructions • Following instructions  Unit 1.7 Coding • Familiarity with a code environment • Logical planning of sequences • Debugging skills  Unit 2.1 Coding • Familiarity with a code environment. • Logical planning of sequences • Debugging skills	Unit 1.5 Maze explorers • Visual use of the Logo programming language. • Program logic and structure  Unit 2.4 Questioning • Logical decision processing • Forward planning to achieve a solution
Year 3/4	Unit 3.1 Coding • Familiarity with a code environment • Logical planning of sequences • Debugging skills  Unit 3.6 Branching databases • Logical decision processing • Forward planning to achieve a solution  Unit 4.1 Coding • Familiarity with code environment • Logical planning of sequences and repetition • Debugging skills	

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**Vocabulary:**



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**Key Images:**

**Resources needed for each lesson – 2dos to set.**

Lesson 1:

- Lesson 1 – Worksheet 1: Print a copy for each child.
- Pencils • You may also want the children to use a protractor.
- 2Logo tool: This is found in the Tools area of Purple Mash.

Lesson 2

- Squared paper
- Optional; individual whiteboards.
- Lesson 2 Worksheet: Print a copy for each child.

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- 2Logo tool: This is found in the Tools area of Purple Mash.

Lesson 3

- Lesson 3 Worksheet: Print a copy for each child.
- Squared paper.
- 2Logo tool: This is found in the Tools area of Purple Mash.

Lesson 4

- Lesson 4 Worksheet: You may want to copy this for children or use it for your own reference.
- 2Logo tool: This is found in the Tools area of Purple Mash.

1.  Unit 4.5  Lesson 1	<p><b>Deeper learning questions: Why is it important to give specific instructions?</b></p> <p><b>Reconnection:</b> Go over online safety. Discuss prior learning. What can they remember about using purple mash.</p> <p><b>LO:</b> To learn the structure of the language of 2Logo. To input simple instructions in 2Logo</p> <p><b>Activity:</b> Go over new vocab for lesson</p> <p>Introduce the children to 2Logo. Explain that 2Logo is a text-based coding language used to control an on-screen marker to create mathematical patterns. Relate this to work that they have done with floor-turtles and on 2Go. Open 2Logo on the whiteboard in single line mode with the speed set to 'slow'. Click on the slide to reveal the function of the buttons. Discuss the possible meaning of the following commands; FD, RT, LT, BK;.</p> <p>Begin familiarising the class with 2Logo commands. Clicking reveals suggestions. Include any more that you want to show the children at this point. Display the slide that goes over 2logo commands</p>
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	<p>You may want to display this slide again when the children work through the tasks. Review and explain some further aspects. Clicking the icon will open the tool. Hand out <b>Lesson 1 - Worksheet 1</b>. Ask for some children to read out their own instructions and see if the class can work together to draw these shapes.</p> <p>Go over vocab and success criteria.</p> <p><b>Extension:</b> Can the children use the 'Pen Up' and 'Pen Down' instructions to draw all the shapes from earlier in the lesson on one screen? <b>Note:</b> <i>It is possible to drag the turtle to a new starting location on the screen, this makes the use of pu and pd less necessary, however they are important commands to grasp as part of the 2Logo language</i></p> <ul style="list-style-type: none"><li>• Earlier in the lesson children learnt that FD 5 RT 90 FD 5 RT 90 FD 5 RT 90 FD 5 RT 90 would make a square shape. Can they use this to work out how they could make a rectangle shape? Perhaps plot first on paper, and then in 2Logo.</li><li>• Could they add to the code for the 's' shape from earlier in the lesson to complete a figure of 8 shape?</li></ul>
2. Unit 4.5 Lesson 2	<p><b>Deeper learning question:</b> Can you unpick the mistakes I made? Where are the errors in the code?</p> <p><b>Reconnection:</b> Go over online safety. Discuss prior learning. What can they remember about using purple mash. Go over prior vocab.</p> <p><b>LO:</b> To use 2Logo to create letter shapes</p> <p><b>Activity</b> Go over new vocab for lesson Show the children the command list. Can the children remember what they all do? Explain how to use the 'Pen Up' and 'Pen Down' instructions when you want the pen to be lifted off the screen and then when you want it to be placed back on the screen. Sample code to show this is <b>FD 2 PU FD 2 PD FD 2 PU FD 2 PD FD 2</b>. Ask the children to predict what they think this will do? They could draw their ideas on an individual whiteboard. Show the video to the children. Were they correct? Tell the class you are going to draw the letter E in 2Logo <b>but deliberately make some mistakes</b> (see the error example) - FD 8 RT 90 FD 4 RT90 PU FD 3 RT 9 PD FD 4 LT 90 FD 4 LT 90 FD4</p> <ul style="list-style-type: none"><li>• When you try to run the code, 2Logo will inform you of an error (no space between RT and 90).</li></ul>

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	<ul style="list-style-type: none"> <li>Click on the line of code to copy it back to the command line then correct the first error and run again <b>but 'forget' to clear the screen first</b>. When you press play another error will be reported.</li> <li>Remind the children of how to clear the screen.</li> </ul> <p>Feign frustration and complain that it's hard to read such a long line of code at once and remember everything. Hopefully, the children will agree with you!  Show the children how you can switch to multi-line mode at the top of the screen.  Show the code entered in single line and multi-line format. Which is easier to edit? Hopefully, the children will say multi line.  Show the code in multi-line format. Where are the errors in the code?</p> <p>Correct the code and so it reads – FD 8 RT 90 FD 4 RT 90 PU FD 4 RT 90 PD FD 4 LT 90 FD 4 LT 90 FD 4</p> <p>Hand out <b>Lesson 2 – Worksheet 1</b> for children to complete.  This is an extension activity. Children should save their work and then look at finished examples they have created. Have they been successful?</p> <p>Go over vocab and Success criteria</p> <p><b>Extension Can you purposely make one wrong for someone to unpick??</b></p>
3.  Unit 4.5  Lesson 3	<p><b>Deeper learning question: Why is the repeat key helpful? Would It always be useful?</b></p> <p><b>Reconnection:</b> Go over online safety. Discuss prior learning. What can they remember about using logos Go over prior vocab.</p> <p><b>LO:</b> To use the Repeat command in 2Logo to create shapes.</p> <p><b>Activity:</b> Go over new vocab for lesson</p> <p>Think back to lesson 1 – Can you remember how to draw a square in 2Logo?</p> <p>Look carefully at the instructions. Which code is repeated and how many times?</p> <p>Looking at the code FD 5 RT 90 is repeated 4 times</p> <p>Introduce the repeat command.</p> <p>Hand out <b>Lesson 3 – Worksheet 1.</b> to direct the activity.</p>

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	<p>Recap vocab and success criteria.</p> <p><b>Extension</b></p> <p><b>Use the background button to place a shape background on your 2Logo screen.</b></p> <p><b>Use the 'REPEAT' function to draw copies of the shape on the screen.</b></p>
3. Unit 4.5 Lesson 4	<p><b>Deeper learning question: How do you think you could draw 2 squares next to each other using the square procedure? Work out how to make a procedure to draw a row of 5 squares?</b></p> <p><b>Reconnection:</b> Go over online safety. Discuss prior learning. What can they remember about using logos Go over prior vocab.</p> <p><b>LO:</b> To use and build procedures in 2Logo</p> <p><b>Activity:</b> Go over new vocab for lesson</p> <p>Discuss the points:</p> <p>If you created your initials in Logo, think back to how you did this.</p> <p>Did you write the code to do one letter, then saved and reset the screen and then wrote the code to do a different letter?</p> <p>It would be quite time consuming to do this for a whole word (or sentence). If your name was Barbara, then it would be useful to be able to repeat the code for the 'B', 'A' and the 'R' several times without re-writing it.</p> <p>Go over the stages for Writing procedures</p> <p>Go over how to run a procedure</p> <p>Discuss how you could draw 2 squares next to each other</p> <p>Challenge them to draw 5 in a row</p>

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2 On your own device, write procedures for the following shapes and save them in a file:

2 square

2 triangle

2 hexagon

2 row of squares

This is a procedure called SqFlower.

Create this as a class – **DO NOT RUN IT YET! REPEAT 18**

**[ SQUARE**

**RT 20]**

Predict what this will draw.

Run the code or click for the result on this screen.

Show the class how to change oen colour and size

Direct the activity. Hand out Lesson 4 – worksheet 1 for examples.

Recap vocab and success criteria.

**Extension Create a pattern without running it and predict what it will create.**

**End of unit quiz & reflect on gaps from the unit:**

Unit 4.5 Quiz – found on unit page on PM

Questions:

Fill in the blanks to describe what logo is

Which program launches logo on purple mash?

What does this button on Logo do?



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	<p>Which of these instructions will move the turtle forward?</p> <p>Match the instruction to the shortcut.</p> <p>Why won't this instruction work?</p> <p>Which of these instructions will draw a square in Logo?</p> <p>Why won't this instruction work in Logo?</p> <p>In Logo what is meant by the term 'Procedure'?</p>
<p><b><u>End Points:</u></b></p> <p>What is Logo? Logo is a text-based coding language used to control an on-screen turtle to create mathematical patterns.</p>	
<p><b><u>Evaluation:</u></b> What have the end of unit quizzes, pupil self-reflections and termly work told you about what the children can remember and recall? What are the gaps? Ensure that the areas that need further reinforcement are documented in the next subject unit MTP. <b>Plan in time to revisit gaps within units, determined by the quizzes.</b></p> <ul style="list-style-type: none"> <li>•</li> </ul>	



<b>Subject:</b> Purple Mash unit 4.8 Hardware Investigators		
<b>Key Concept/ Theme:</b> • To understand the different parts that make up a computer. • To recall the different parts that make up a computer		
<b>Prior Learning links:</b>		
	Cycle A	Cycle B
Year 1/2	Unit 1.9 Technology outside school • Developing ideas about the concept of technology that we are surrounded by and its purpose • Understanding that many devices use computational technology	

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	Unit 2.5 Effective searching • Exploration of what the Internet is and how devices allow connections to access functions and the World Wide Web • Searching and sharing	
Year 3/4	Unit 3.5 Email • Using device functions for 2-way communication via the World Wide Web	

**Key Vocabulary**

**Components**

Parts inside the computer casing.

**CPU**

The 'brains' of the computer, where all the calculations take place.

**Graphics Card**

Also known as a video card and used for displaying images.

**Hard Drive**

Where the computer stores all your documents, pictures, games and videos.

**Input**

How information enters the computer.

**Motherboard**

Main printed circuit board of the computer.

**Network Card**

Used to connect the computer to a network such as the Internet.

**Output**

Where information leaves the system.

**Peripherals**

Parts that are attached to the computer case.

**RAM**

Allows programs to store information to help the computer run quickly.

**Software**

The programs that run on the computer.

**Vocabulary:**

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Key Images



Motherboard



CPU



RAM



Graphics card



Network card



Monitor



Speakers



Keyboard



Mouse

Key Images:

**Resources needed for each lesson – 2dos to set.**

**Lesson 1:**

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- Set Parts of a Computer pairs game. as a 2Do for your class. You can select the suggested following computing objectives when setting the 2Do to make future assessment easier.

You can select the following objectives when setting the 2Dos to make future assessment easier:

Year:	Y4	▼	
Subject:	Computing	▼	
Strand:	Computer Science	▼	
systems; solve problems by decomposing them into smaller parts.			
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.			<input type="checkbox"/>
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.			<input type="checkbox"/>
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.			<input checked="" type="checkbox"/>

- If you have a school technician who can supply any parts from computers for children to examine or even demonstrate dismantling a computer for the class, this will add to the experience.
- If you have computers such as Raspberry Pis or Micro:bits in school, you can compare these to the desktop computer while talking about their features.

**Lesson 2**

- Set Computer Hardware leaflet as a 2Do for your class. You can select the suggested following computing objectives when setting the 2Do to make future assessment easier.

Year:	Y4	▼	
Subject:	Computing	▼	
Strand:	Computer Science	▼	
systems; solve problems by decomposing them into smaller parts.			
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.			<input type="checkbox"/>
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.			<input type="checkbox"/>
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.			<input checked="" type="checkbox"/>

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1.  Unit 4.8  Lesson 1	<p><b>Deeper learning questions: How have computers changed? Would different computers have different parts?</b></p> <p><b>Reconnection:</b> Go over online safety. Discuss prior learning – what do they know about computers? Can they name any parts?</p> <p><b>LO:</b> To understand the different parts that make up a desktop computer</p> <p><b>Activity:</b> Go over new vocab for lesson</p> <p>Have children heard the words ‘hardware’ and ‘software’ and do they know what they mean or the difference between them. Show the definition.</p> <p><b>Click the icon to open 2Connect and begin a mind map to see what children already know. Use the next slides to add to this knowledge and return to the mind map at the end to complete it. Click on the button to reveal some suggested answers but do not do this before looking at slides 6-15.</b></p> <p>Look at the different parts that make up a computer. Add to the 2Connect file.</p> <p>Ask the children to complete the Parts of a computer pairs game. This is a pairs game where the children match the image to the description. This activity may need to be set as a 2Do before the lesson.</p> <p>Go over vocab and success criteria.</p> <p><b>Extension: Look at the completed 2Connect file.</b> <b>Add more detail to this file and think about other ways of controlling the input of information.</b> <b>Here are some examples:</b> <b>Audio (Alexa / Siri / etc)</b> <b>Sensor (Wii / Microsoft Kinect / sensory trackball)</b> <b>What other ways can you think of results being outputted?</b> <b>Printer / Audio (Spoken or otherwise)</b></p>
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<p>2.</p> <p>Unit 4.8</p> <p>Lesson 2</p>	<p><b>Deeper learning question:</b> What makes a good leaflet? Why is it important to know about the parts?</p> <p><b>Reconnection:</b> Remind children of online safety rules. Go over previous words encountered last lesson.</p> <p><b>LO:</b> To recall the different parts that make up a computer.</p> <p><b>Activity:</b> Go over new vocab for lesson</p> <p>Show the images to the children and then see if they can recall what the different parts of a computer do. Ask the children to make notes as they will need them for the main activity.</p> <p>Show the children the file Computer Hardware Leaflet. Draw their attention to the following features:</p> <ul style="list-style-type: none"><li>• How to turn the pages and turn the leaflet over.</li><li>• How to add text boxes and pictures.</li><li>• If you click on the green cross on a picture box, it takes you to the photo gallery; click on an image to use it.</li><li>• There is a checklist to help them remember the different parts of the computer.</li></ul> <p>Children should produce a leaflet about parts of the computer.</p> <p>Go over vocab and Success criteria</p> <p><b>Extension:</b> Complete the quiz from last week. Save in a shared folder and then answers their classmates' quizzes.</p>
	<p><b>End of unit quiz &amp; reflect on gaps from the unit:</b></p> <p>Unit 4.8 Quiz – found on unit page on PM</p> <p>Questions:</p> <p>Identify the peripheral devices by matching each one with its name.</p> <p>Look carefully at the list of hardware. Each one can be defined as a component or a peripheral contingent on whether it is externally connected to a computer or inside a computer.</p> <p>Identify the hardware item by matching it with its name</p>

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fill in the gaps to make the sentence make sense.

Match vocab to definition

Match vocab to picture

Decide on which statement is true and which is false regarding monitors.

Jama has written down all the things that he believes are true about motherboards. Can you select the statements which are true?

**End Points:**

What is the difference between hardware and software? Hardware refers to the physical parts of a computer or device. The parts inside the computer casing are often called the components. The parts that are attached to the computer case are called peripherals. Software describes the programs that run on the computer.

**Evaluation:** What have the end of unit quizzes, pupil self-reflections and termly work told you about what the children can remember and recall? What are the gaps? Ensure that the areas that need further reinforcement are documented in the next subject unit MTP. **Plan in time to revisit gaps within units, determined by the quizzes.**

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