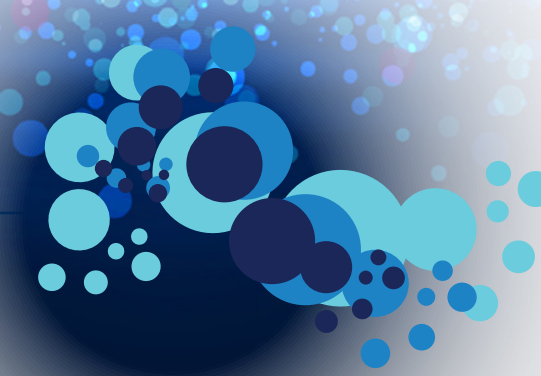


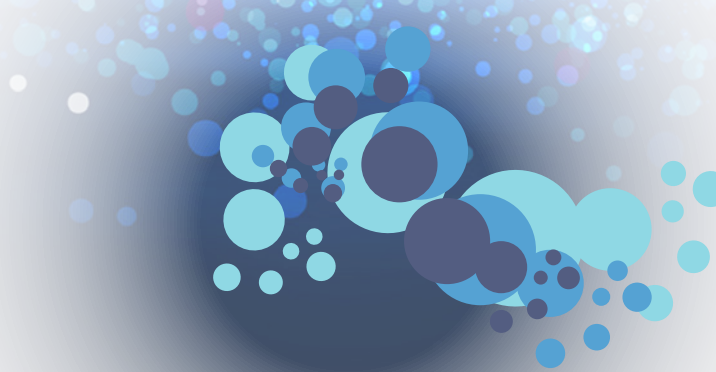
What is a computer system?

Teacher's Notes



Lesson Plan

Length	60 mins	Specification Link	2.1.1	Define a computer system
Learning objective		Be able to define a computer system		
Time (min)	Activity	Further Notes		
5	Introduce the topic. Show students the link to the specification. Explain the purpose and objectives of the lesson.			
5	Watch the video.	The video script suggests that this video could be played with pauses to enable interim discussion with the students. Here the teacher should make their own judgement whether they wish to play it straight through or stop for discussion.		
5	Discuss key aspects of the video with students. Ask questions including: <ul style="list-style-type: none"> • Can you name some examples of computers and computer systems? • What functions do all computers perform, what do they all have in common? 	<p>Typical answers may include</p> <ul style="list-style-type: none"> • Mobile phones, laptops, tablets, smart TV's, burglar alarm systems, theme park ride control, train times etc. • They receive data, process/manipulate data, output a result, store data. Ask students to explain what is stored; answer should include the programming/instructions and the data required to run the computer. 		
5-10	Pupils to complete the interactive activity individually.	Use this opportunity to circulate and assess pupils' responses to gauge understanding, and to provide additional support or challenge to those who need it.		
15	<p>Worksheet 1 – Individual Research</p> <p>This can be carried out in groups of 3-4 where each member researches the answer to a single question; or completed individually by each pupil.</p>			
5	<p>Submission of Worksheet 1</p> <p>There are several options for this:</p> <ol style="list-style-type: none"> 1. Pupils to submit their own worksheet electronically for marking and feedback, or store it for future use. 2. Each group selects a spokesperson who feeds back to the class a summary of the groups responses, or the answer to one of their questions. 3. The teacher selects individuals to feedback either an overall summary or the answer to one of their questions. 			



Time (min)	Activity	Further Notes
15	<p>Worksheet 2 – Exam Style Questions</p> <p>Each pupil to answer their questions individually and to submit for marking.</p>	<p>It is extremely beneficial for students to be able to gain an experience of exam style questions early on. It allows them to get used to the nature of the exam, and provides them with opportunities to perfect their exam technique as well as generating plenty of revision material.</p>
	<p>Extension Challenge/Homework</p> <p>Imagine a scenario where you wake up one morning to find that a cyber attack on the UK has stopped all the computers in the country from working. Describe your day from waking up and going to school, to coming home and to sleep. How would your daily routine be affected?</p>	<p>It is recommended that this task is given as a homework piece and that the teacher asks for an extended piece of writing. This will enable the teacher to assess early on both the students' literary ability and their work ethics. The more able answers will include a discussion of the less obvious computers, e.g. train schedules, alarm clocks, microwaves and washing machines.</p>
5	<p>Plenary</p> <p>On a post-it note write one thing that you learnt today, and one thing you would like to cover in more detail.</p>	<p>Students stick the post-it note on an area dictated by the teacher as they leave the room. After the lesson, the teacher can use the post-it notes to gauge an understanding of the learning made by the class. The second point in particular will provide valuable insight not just into what the students want to learn more about but also areas they found particularly challenging.</p>

WORKSHEET 1 ANSWERS

This worksheet required students to carry out their own independent research, so their answers will vary, particularly in depth. However, some indication is given below as to what their content may include.

1 A Raspberry Pi is a computer, but what is it that makes this computer unique and different to the other standard desktop computers available on today's market?

- Its size
- Extremely low price
- Fast boot-up
- Completely open source, to enable user to modify and adapt both hardware and software as they wish

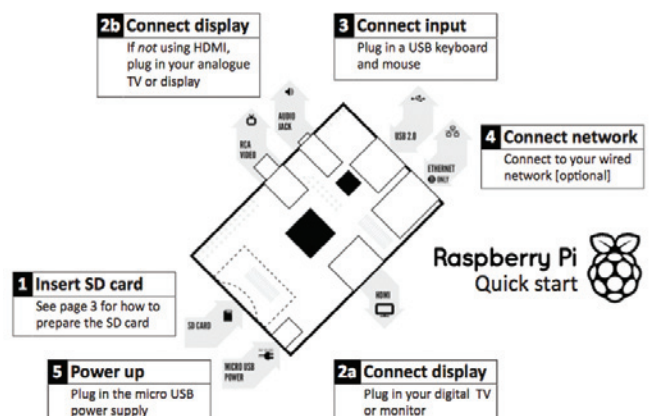
2 Identify the different inputs and outputs available on the Raspberry Pi. For each one, explain its role/function.

Port	Input/Output?	Role/Function
HDMI	OUTPUT	Connect device to display screen
USB	INPUT	Connect keyboard or mouse
Ethernet	I/O	Connect network cable

3 What technology is used to store data on the Raspberry Pi?

SD card to store operating systems and data
512mb RAM

4 Find a picture of the Raspberry Pi. Can you identify and correctly label the different parts?

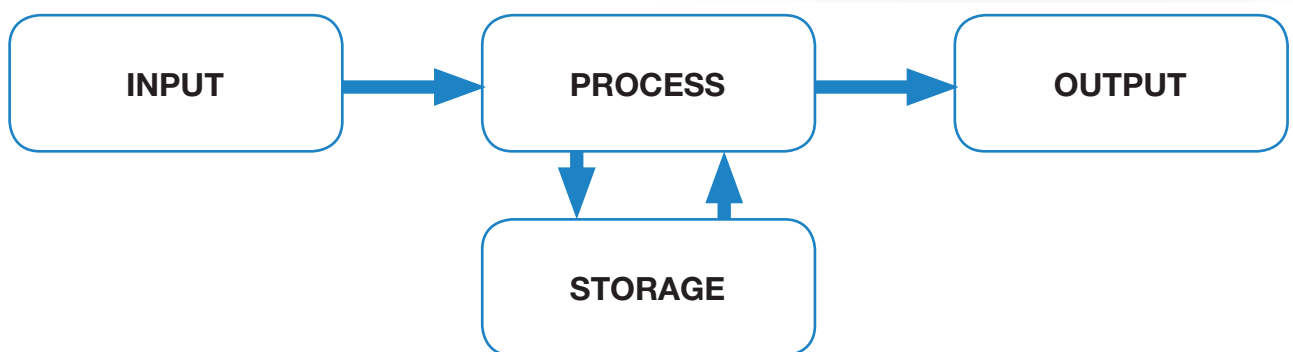


WORKSHEET 2 ANSWERS

1 What is a computer system? (1)

A computer is a device that can receive data; store data; manipulate data; output data.

2 Complete the diagram to show Input, Process, Output and Storage. (5)



3 Give *three* examples of peripherals and state whether they are Input or Output. (3)

Any from:

Input – keyboard, mouse, scanner, microphone, camera

Output – display screen, printer, speakers, printer

4 Computer systems are often embedded in everyday devices. Name *one* of these. (1)

Washing machines, microwaves, cars etc.