

Subject: Computing	Year: 3 – Autumn 1 – Computer Systems & Networks – Connecting Computers
<p>National Curriculum objectives</p> <ul style="list-style-type: none"> • use sequence, selection, and repetition in programs; work with variables and various forms of input and output; • 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; • select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information; <p>Maths</p> <ul style="list-style-type: none"> • Number and place value: solve number problems and practical problems involving these ideas. <p>Art</p> <ul style="list-style-type: none"> • to improve mastery of art and design techniques, including drawing, painting and sculpture with a range of materials [for example, pencil, charcoal, paint, clay]. 	
<p>To begin this unit, the children should have already learnt:</p> <p><u>KS1</u> Computers are a part of Information Technology, which is all around us and its responsible use improves our world in school and beyond. Rules and choices are needed when using information technology to stay safe.</p>	<p>The learning in this unit will prepare the children to learn these things in the future:</p> <p><u>Year 4</u> The internet is a network of networks which needs to be kept secure. and content can be created, accessed, added to and deleted.</p> <p><u>Year 5</u> Information technology includes computers and other interconnected parts working together. Search engines are used to return information on the World Wide Web: these results are ranked based on the search engine’s rules; the results from a search can also be influenced.</p> <p><u>Year 6</u> Data is shared over the internet in packets. The internet facilitates online communication and collaboration: different methods are available – it is important to choose the best strategy for a purpose. Communication can be public or private so choices about what to share must be made.</p>
<p><u>Key Enquiry Question</u> How do digital devices function? How do digital devices differ to non-digital devices? How can using digital devices change how we work? What is the role of a switch, server and WAP in a network?</p>	<p><u>The Big Idea:</u> Digital devices are devices that are capable of processing: they are underpinned by an IPO (input, process, output) and form part of a network, which is made of numerous devices. Information and data can be shared across networks.</p>

To achieve ARE, pupils will need to be secure in the following knowledge:

By the end of this unit, children will know:

- What an input is;
- That a process acts on the inputs;
- That an output is produced by the process and be able to explain it;
- Changing the process can affect the output;
- A digital device is made up of several parts;
- Computer devices can be connected to each other;
- How devices in a network are connected to one another;
- The benefits of computer networks;
- A network is made up of a number of components;
- How information is passed through multiple connections.

Vocabulary:

Technology; man-made; digital; screen; mouse; keyboard; program; click; drag; e-safety; cursor; Information technology; device; barcode; scanner; communication; entertainment; appliances; signal (Introduced in KS1).

Digital device; input; output; process; connection; network; network switch; server; WAP.

By the end of this unit, children will be able to do:

- To identify input and output devices;
- To explain that a computer system accepts an input and processes it to produce an output;
- To describe and explain how a computer network can be used to share information;
- To explain the role of a switch, server and wireless access point in a network;
- To identify network devices around them;
- To describe and explain how networks can be connected to other networks.

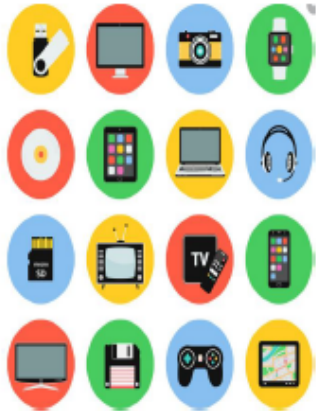
Useful Resources:

Online training courses

[Raspberry Pi Foundation online training courses](#)

COMPUTING SYSTEMS AND NETWORKS KNOWLEDGE ORGANISER

Overview



Digital Devices

- You should already know that Technology is something that has been made by people to help us.
- You should also know that Information technology (I.T.) includes computers and things that work with computers.
- Digital devices are things made for a particular purpose, that use processing.
- Digital devices have an input, process, and output (IPO).
- Information and data can be shared across networks. Many devices are used to create networks.

Digital Devices – Input, Process Output (IPO)

- A device is something that has been made for a particular purpose (it has a special use).
- Digital devices use processing (have a process) There is more than just an on-off function. Digital devices have an input, process, output (IPO)

Input: Something that sends a message to the device. E.g. You press a button on the keyboard.



Input Devices: Keyboard, joystick, mouse, web cam, microphone, touch screen, track ball, digital camera.

Process: The device acts on the message. E.g. The computer follows a program that tells it what to do when the keyboard is pressed.



Output: Something that is sent out by the device. E.g. The letter that you have typed on the screen.



Output Devices: Screen/monitor, printer, headphones, projector, speaker, smartboard.

Networks and Network Devices

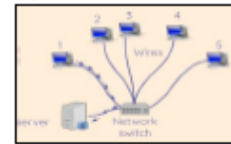
Connections and Networks

- In Computing, a connection describes a link between the computer and something else.
- For example, a computer may be connected to the internet through wires, a mobile data system, or WiFi.
- A computer network is a set of connections that joins computers together.
- The computers in the network can send and receive information to one another.



Network Devices

- Network switch: a device that helps different devices on a network to be connected with each other.
- Server: a computer that manages the network and stores files
- Wireless access point (WAP): a device, connected to a wired network, that sends and receives wireless signals to and from devices.



Why Networks Are Useful

- Computer networks allow us to send and receive information between computers that are in different places.
- Networks can help us to communicate quickly and easily.
- Networks can also join computers to shared devices, like scanners and printers.
- The internet is a global network of computers. Imagine how different life would be without the internet!
- If information is shared on a network, it helps to reduce the risk of data being lost, e.g. if one computer breaks.



Important Vocabulary

Digital Device

Input

Process

Output

Connection

Network

Network Switch

Server

WAP

E-Safety