

Year 3 – Connecting computers

Unit introduction

During this unit, learners develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They also compare digital and non-digital devices. Following this, learners are introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. The unit concludes with learners discovering the benefits of connecting devices in a network.

Overview of lessons

Lesson	Brief overview	Learning objectives
1 How does a digital device work?	This lesson introduces the concepts of input, process, and output. These concepts are fundamental to all digital devices.	To explain how digital devices function • I can explain that digital devices accept inputs • I can explain that digital devices produce outputs • I can follow a process
2 What parts make up a digital device?	In this lesson, learners will develop their knowledge of input, process, and output and apply it to devices and parts of devices that they will be familiar with in their everyday surroundings.	To identify input and output devices • I can classify input and output devices • I can model a simple process • I can design a digital device

3 How do digital devices help us?	In this lesson, learners will apply their learning from lessons 1 and 2 by using programs in conjunction with inputs and outputs on a digital device. They will create two pieces of work with the same focus, using digital devices to create one piece of work, and non-digital tools to create the other. Learners will then compare and contrast the two approaches.	To recognise how digital devices can change the way we work - I can explain how I use digital devices for different activities - I can recognise similarities between using digital devices and non-digital tools - I can suggest differences between using digital devices and non-digital tools
4 How am I connected?	Many digital devices are now connected to other digital devices, e.g. computers through wires, tablets through WiFi, and smartphones through mobile phone networks. The benefit of connecting digital devices is that it allows information to be shared between users and systems. This lesson introduces the concept of connections and moving information between connected devices. Learners will learn to explain how and why computers are joined together to form networks.	To explain how a computer network can be used to share information - I can recognise different connections - I can explain how messages are passed through multiple connections - I can discuss why we need a network switch
5 How are computers connected?	This lesson introduces key network components, including a server and wireless access points. Learners will examine each device's functionality and look at the benefits of networking computers.	To explore how digital devices can be connected - I can recognise that a computer network is made up of a number of devices - I can demonstrate how information can be passed between devices

		• I can explain the role of a switch, server, and wireless access point in a network
6 What does our school network look like?	In this lesson, learners will further develop their understanding of computer networks. They will see examples of network infrastructure in a real-world setting and relate them to the activities in the last lesson.	To recognise the physical components of a network • I can identify how devices in a network are connected with one another • I can identify networked devices around me • I can identify the benefits of computer networks

Progression

This unit progresses students' knowledge and understanding of technology by focussing on digital and non-digital devices, and introducing the concept of computers connected together as a network. Following this unit, learners will explore the internet as a network of networks.

Please see the learning graph for this unit for more information about progression.

Curriculum links

[National curriculum links](#)

Computing

- 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

Maths (lesson 1)

- **Number and place value:** Solve number problems and practical problems

Art (lesson 3)

- To improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials

Assessment

Formative assessment

Assessment opportunities are detailed in each lesson plan. The learning objective and success criteria are introduced in the slide deck at the beginning of each lesson and then reviewed at the end. Learners are invited to assess how well they feel they have met the learning objective using thumbs up, thumbs sideways, or thumbs down.

Summative assessment

There are ten multiple choice questions in the quiz at the end of the unit. The questions are drawn from all six lessons. Please see the assessment question and answer documents for this unit.

Subject knowledge

Lesson 1: You will need an understanding of digital and non-digital devices. The key difference is that a digital device is capable of some processing, i.e. it has functions beyond being either on or off. You will also need to be familiar with the concept of input, process, output (IPO) which underpins all digital devices. There are cross-curricular links with maths for IPO which can be referenced during this lesson.

Lesson 2: You will need to be familiar with the inputs and outputs of a range of digital devices and you will need an understanding that devices can have one input which leads to several outputs (e.g. starting a video leads to outputs from the screen and the speaker) and that many inputs can lead to one output (e.g. using a mouse and keyboard to produce a document).

Lesson 3: You will need to be familiar with your chosen digital paint program, including the draw, fill, edit and undo functions.

Lesson 4: You will need a basic understanding of how information (data) flows around a computer network, and how this benefits us. You will also need to know that a network switch manages the way in which data moves around a network.

Lesson 5: This lesson requires further knowledge of a simple school network. It introduces a server, which for the purposes of this lesson is defined as a location to store files (they can, and usually do, carry out more functions than this). It also introduces wireless access points, which send and receive wireless signals from wireless devices such as tablets or laptops. There is likely to be a wireless access point in most classrooms or communal areas in school. It will be connected to the network via a physical cable.

Lesson 6: You will need to be familiar with how the main devices (network switch, server, wireless access point, router, printer/copier) on your school's network are connected with one another and where the devices are located. You may wish to discuss this with the IT technician prior to the lesson.

Enhance your subject knowledge to teach this unit through the following training opportunities:

Online training courses

- [Raspberry Pi Foundation online training courses](#)

Face-to-face courses

- [National Centre for Computing Education face-to-face training courses](#)

Resources are updated regularly — please check that you are using the latest version.

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