

Village Primary School- Computer Curriculum
Computer Systems & Networks



EYFS

Rationale- Children are naturally curious and will explore and interact with a range of real and pretend examples of technology i.e., when a child picks up a calculator and pretends it is a phone or remote control. This hands-on exploration and exposure to real life and pretend technology will give children good exposure and grounding for the rest of the computing curriculum and feed into year 1 and 2 where children use and understand the uses of technology at home and school and how this helps our day-to-day life.

Learning

In Nursery...

In nursery children will be given lots of experiences and resources to help them explore cause and effect i.e., buttons to press, remote controls, role play microwaves, irons, washing machines, telephones, calculators etc.

In Reception...

Reception children will have opportunities to continue exploring real and pretend technology in the environment as well as using things like the iPad to record their work, ColourMagic to draw and the keyboard to write their name, use the photocopier to make copies of their work etc. As a class and in small groups the children will Google things that interest them.

In Year 1...

Year 1 will understand technology used in the classroom and that its purpose is to help them. They will learn to use a mouse/tracker pad and start to show accuracy when moving the cursor. They will use the left button to select and use the keyboard with more accuracy and to start to touch type. This will be done through games and online activities.

Key vocabulary-

Buttons, press, telephone, calculator, mobile phone, tablet, laptop, keyboard, washing machine, Hoover, dishwasher, microwave, oven, kettle, air fryer, iron, torch, egg whisk, TV, Alexa, Siri, photocopier, xbox, DS Switch, mouse, touch screen, visualiser, camera, lightbox, internet, QR codes.

Progression/End Points

Nursery

- Shows skills in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.
- Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets.
- Knows that information can be retrieved from digital devices and the internet.

Village Primary School- Computer Curriculum
Computer Systems & Networks

- Knows how to operate simple equipment, e.g. talks to Alexa, uses a remote control, can navigate touch-capable technology with support.

Reception

- Uses ICT hardware to interact with age-appropriate computer software.
- Can use the internet with adult supervision to find and retrieve information of interest to them.

Village Primary School- Computer Curriculum
Computer Systems & Networks

Rationale- Children have got a good foundation of experiences and exposure to a range of technology. KS1 children need to start understanding that technology used in the home, school and wider world has a specific use and purpose. The learners need to understand the difference between technology and computers and the specific job a computer does. There will be P4C opportunities to talk about if technology is always of benefit and to make links to e-safety. During KS1 they will become more familiar with computer components and develop skills to use a mouse/tracker pad and keyboard. These skills will be practised when creating content and be built upon through other areas of the computing curriculum making links with other subjects such as using keyboard skills to create comics about science topics.

Year 1

Learning

Prior knowledge

Children will have had opportunities to continue exploring real and pretend technology in the environment as well as using things like the iPad to record their work, ColourMagic to draw and the keyboard to write their name, use the photocopier to make copies of their work etc. As a class and in small groups the children will Google things that interest them.

In Year 1...

Year 1 will understand technology used in the classroom and that its purpose is to help them. They will learn to use a mouse/tracker pad and start to show accuracy when moving the cursor. They will use the left button to select and use the keyboard with more accuracy and to start to touch type. This will be done through games and online activities.

In Year 2...

Year 2 children will continue to learn about technology used in the home, school and wider world understanding what makes a computer a computer and what computers do. Technology is helpful and children will learn this but there will be opportunities to discuss how we must be safe on computers (e-safety links) and how not all technology is beneficial.

Key vocabulary-

Technology, 'not-technology', mouse, left button, scroll wheel, tracker pad, keyboard, keys, select, cursor, letters, capital, lowercase, shift, spacebar, typing, home row, click, drag

Progression/ End Points

Village Primary School- Computer Curriculum
Computer Systems & Networks

- To know how to move the cursor and left click to select
- To click and drag to move items.
- To find letters on a keyboard and begin touch typing.

Year 2

Learning

Prior knowledge

Children understood technology used in the classroom and that its purpose is to help them. They learnt to use a mouse/tracker pad and start to show accuracy when moving the cursor. They used the left button to select and used the keyboard with more accuracy and to start to touch type. They used a range of games and online activities.

In Year 2...

Year 2 children will continue to learn about technology used in the home, school and wider world understanding what makes a computer a computer and what computers do. Technology is helpful and children will learn this but there will be opportunities to discuss how we must be safe on computers (e-safety links) and how not all technology is beneficial.

In Year 3...

Children will learn the fundamental idea of input, process and output and how these apply to all digital devices. They 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. Children will have the opportunity to create two pieces of work with the same focus using digital and non-digital tools. They will then be able to compare and contrast the two approaches.

Key vocabulary-

Technology, computer, information, analogue, digital, store, instructions, program, programmed, laptop, desktop, monitor, parts, headphones, modem, router

Progression/ End Points.

Village Primary School- Computer Curriculum
Computer Systems & Networks

Autumn Term

- Understand what makes a computer a computer.
- Understand computers store and follow instructions.
- To spot digital technology in school.
- Understand how different technology helps us.

Lower KS2

Rationale- In year 3 we want children to understand that technology has benefits and that the digital input, process and output of technology can be used throughout school and wider applications. We want our learners to be creators not consumers of technology so understand a range of inputs and outputs and critically evaluate when and where they are best to be used. Children will receive more direct word processing skills namely typing to build on those skills already taught in KS1. Children have a good understanding by year 4 of different technologies including analogue and digital and different inputs and outputs. At this stage understanding what makes up the processing part of the computer is important. This helps children understand how and why technical issues might occur and some ways we might go about solving them. This will root their learning and understanding in real life experiences and possible careers. Alongside this we need children to understand that the information on the internet needs to be treated with a common-sense approach and to do that we need to teach them how search engines work.

Year 3

Learning

Prior knowledge

Children will have learnt about technology used in the home, school and wider world understood what makes a computer a computer and what computers do. Technology is helpful and children will

In Year 3...

Children will learn the fundamental idea of input, process and output and how these apply to all digital devices. They 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. Children will have the opportunity to

In Year 4...

In Year 4 the children will delve into the mechanics of the processors of a computer understanding each component, what it does and the impact if it goes wrong. Alongside this they will start to look at search engines, how they work and how to ensure that facts are correct and not 'fake news'. This work will run alongside and build on e-safety work ensuring children

Village Primary School- Computer Curriculum
Computer Systems & Networks

<p>have learnt this and will have had opportunities to discuss how we must be safe on computers (e-safety links) and how not all technology is beneficial.</p>	<p>create two pieces of work with the same focus using digital and non-digital tools. They will then be able to compare and contrast the two approaches.</p>	<p>understand how search engines work, who can create website content and therefore why they are not always accurate. There might be opportunities for cross curriculum learning i.e. researching a topic accurately.</p>
--	--	---

Key vocabulary-

Input (keyboard, number, letters, sound, film), process, output (sound, film, printer), shortcut, caps lock, shift, ctrl, enter, backspace, arrow keys, esc

Progression/ End Points

- To explain how digital devices function (input, output, processes)
- To identify input and output devices.
- To recognise how digital devices can change the way we work.
- To use a range of keys on the keyboard including control for shortcuts.

Year 4

Learning

<p>Prior knowledge Children will learn the fundamental idea of input, process and output and how these apply to all digital devices. They 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. Children will have the opportunity to create two pieces of work with the same focus using digital and non-digital tools.</p>	<p>In Year 4... In Year 4 the children will delve into the mechanics of the processors of a computer understanding each component, what it does and the impact if it goes wrong. Alongside this they will start to look at search engines, how they work and how to ensure that facts are correct and not 'fake news'. This work will run alongside and build on e-safety work ensuring children understand how search engines work, who can create website content and therefore why they are not always accurate. There might be opportunities for cross curriculum learning i.e., researching a topic accurately.</p>	<p>In Year 5... In Year 5 learners will understand and find out about how computers connect (a network) and what the benefits and negatives are of this. Looking at schools' network and thinking broader to other organisations. There will be P4C opportunities to discuss data and real-life data breeches once children fully understand how a network works. Children will learn how to send emails and how to use it safely (links to e-safety).</p>
---	--	--

Village Primary School- Computer Curriculum
Computer Systems & Networks

They will then be able to compare and contrast the two approaches.

Key vocabulary-

Processor, memory, core processing unit (CPU), fan, hard drive, random access memory (RAM), bytes, billion, gigabytes, graphics card, technician, data, converting, applications, software, files, crash, specification, selected, ranked, discerning, digital content,

Progression/ End Points

- Understand what important parts of inside a computer or mobile device do to help with the performance (CPU, fan, hard drive, RAM, graphics card).
- Understand that memory is measured in bytes and gigabytes.
- Use technologies to find specific pieces of information.
- Understand features of an internet browser.
- Be discerning in evaluating digital content.
- Check the internet for fake news by cross-referencing facts.

Upper KS2

Rationale-

Village Primary School- Computer Curriculum
Computer Systems & Networks

Year 5

Learning

Prior knowledge

In Year 4 the children will delve into the mechanics of the processors of a computer understanding each component, what it does and the impact if it goes wrong. Alongside this they will start to look at search engines, how they work and how to ensure that facts are correct and not 'fake news'. This work will run alongside and build on e-safety work ensuring children understand how search engines work, who can create website content and therefore why they are not always accurate. There might be opportunities for cross curriculum learning i.e. researching a topic accurately.

In Year 5...

In Year 5 learners will understand and find out about how computers connect (a network) and what the benefits and negatives are of this. Looking at schools' network and thinking broader to other organisations. There will be P4C opportunities to discuss data and real-life data breaches once children fully understand how a network works. Children will learn how to send emails and how to use it safely (links to e-safety).

In Year 6...

In year 6 there is an opportunity to draw together all the previous learning and put it into a historical context. Children will see how technology has developed and the speed and impact this has had. Once again P4C can be used to discuss these changes and what it might look like for the future i.e., the use of AI. Children can think about their own technological timeline and compare to members of staff. This will also allow them to think about what their future might look like. Although the history of technology has been dominated by men there is an opportunity to research significant females and minority figures that had a huge impact on technology and STEM.

Key vocabulary-

Computer network, server, wireless devices, wireless access points (WAP), IP address, switches, router, firewall, computers (wired), internet, convert, points, viruses, secure, cloud computing, Google Drive, Microsoft OneDrive, protocol, 'package', bluetooth, email, email address, @email address, inbox, outbox, junk/clutter, address book, attachments, CC and BCC,

Progression/ End Points

- Understand Computer Networks, Internet and Cloud Computing and how they help us.
- What is email and how can we use it safely?

Village Primary School- Computer Curriculum
Computer Systems & Networks

Year 6

Learning

Prior knowledge

In Year 5 learners will understand and find out about how computers connect (a network) and what the benefits and negatives are of this. Looking at schools' network and thinking broader to other organisations. There will be P4C opportunities to discuss data and real-life data breaches once children fully understand how a network works. Children will learn how to send emails and how to use it safely (links to e-safety).

In Year 6...

In year 6 there is an opportunity to draw together all the previous learning and put it into a historical context. Children will see how technology has developed and the speed and impact this has had. Once again P4C can be used to discuss these changes and what it might look like for the future I.e., the use of AI. Children can think about their own technological timeline and compare to members of staff. This will also allow them to think about what their future might look like. Although the history of technology has been dominated by men there is an opportunity to research significant females and minority figures that had a huge impact on technology and STEM.

KS3...

By the end of KS3 learners are expected to:

- understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems
- understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits

Key vocabulary-

Abacus, binary code, microchip, disk drive, floppy disc, compact disc (CD), operating systems, cassettes, virtual reality, USB, DVD, wifi, MP3, Android, Artificial Intelligence (AI), drones.

Progression/ End Points

Village Primary School- Computer Curriculum
Computer Systems & Networks

- Show awareness of how computers and digital technology helps us today.
- Understand how technology has changed over time and represent it as an interactive timeline.
- Understand the impact (positive/negative) technological changes have on society.
Predict how technology will change in the future.
- Understand how computers use information to learn by solving new problems and following new instructions.
- Understand and use examples of machine learning.
- Understand how artificial intelligence is used to perform tasks often only performed by humans.
- Discuss and show awareness of potential dangers of AI.