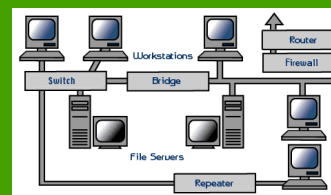


**Ashwell Primary School**  
**Computing Curriculum**  
**Computing Systems and Networks**  
**Progression - Knowledge & Skills Organiser**



**Reception (EYFS) – Computing Systems and Networks**

**Core Knowledge / skills to be acquired:**

**Using a computer & Exploring Hardware**

- To be able to understand what a computer keyboard is and recognise some letters and numbers.
- To know that a mouse can be used to click, drag and create simple drawings.
- To know that to use a computer you need to log in to it and then log out at the end of your session.
- To know that different types of technology can be found at home and in school.
- To know that you can take simple photographs with a camera or iPad.
- To know that you must hold the camera still and ensure the subject is in the shot to take a photo.

**Key Vocabulary:**

**Using a computer**

arrow, click, computer, computer safety, computer tower, cursor, drag, drop, keyboard, left click, letters, lock, log in, log out, lowercase, monitor, mouse, mouse control, move, numbers, paint, password, personal, protect, right click, secure, security, stamp, type, uppercase.

**Exploring Hardware**

batteries, behind, blurred, blurry, buttons, camera, capture, clear, lick, computer, computer tower, crisp, digital camera, dial, digital clock, electricity, electric toothbrush, gallery, hard-drive, image, iPad, keyboard, keys, larger, lens, memory, mobile phones, monitor, motherboard, mouse, off, on, on top of, open, photograph, photographer, picture, point, power, pull, push, record, remote control, shoot, shut, smaller, speaker, still, system fan, tablets, technology, tinker, twist, under, USB stick, walkie-talkies

**Curriculum Enrichment / Cultural Capital Opportunities / key questions**

- What is technology?
- How does technology make our lives easier?

**Prior knowledge / skills this builds on:**

**Physical Development**

- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.

**Literacy**

- Spell words by identifying the sounds and then writing the sounds with letter/s.
- Re-read what they have written to check that it makes sense.

**Mathematics**

- Link the number symbol (numeral) with its cardinal number value.

**What comes next: Improving mouse skills & Skills showcase (Year 1)**

- To know that "log in and log out" means to begin and end a connection with a computer.
- To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.
- To know that passwords are important for security.
- To know that when we create something on a computer it can be more easily saved and shared than a paper version.
- To know some of the simple graphic design features of a piece of online software.
- To know that a spreadsheet is an electronic 'table' for sorting data.

## Year 1 – Computing Systems and Networks

### Core Knowledge / skills to be acquired: Improving mouse skills.

- To know that "log in and log out" means to begin and end a connection with a computer.
- To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.
- To know that passwords are important for security.
  
- *To know that when we create something on a computer it can be more easily saved and shared than a paper version. (Skills Showcase)*
- *To know some of the simple graphic design features of a piece of online software. (Skills Showcase)*
- *To know that a spreadsheet is an electronic 'table' for sorting data.*

### Key Vocabulary:

#### Improving mouse skills

**account**, click, **clipart**, **computer**, drag, drag and drop, **duplicate**, fill, image, **layers**, left-click, log in, log off, mouse, password, predict, redo, resize, right click, screen (monitor), software, **tool**, username, undo

#### Skills showcase

**annotate**, **cells**, **components**, **create**, **data**, debug, **designing**, **digital content**, **digital image**, **document**, **e-document**, **edit**, **editing software**, **editing program**, **evaluate**, **folder**, graphics, input, instructions, log in, photo, program, order, robot, **save**, sequence, **share**, **software**, **spreadsheet**, **table**.

### Curriculum Enrichment / Cultural Capital Opportunities / key questions

- What is technology?
- How does technology make our lives easier?

### Prior knowledge / skills this builds on: Using a computer & Exploring Hardware

- To be able to understand what a computer keyboard is and recognise some letters and numbers.
- To know that a mouse can be used to click, drag and create simple drawings.
- To know that to use a computer you need to log in to it and then log out at the end of your session.
- To know that different types of technology can be found at home and in school.
- To know that you can take simple photographs with a camera or iPad.
- To know that you must hold the camera still and ensure the subject is in the shot to take a photo.

### What comes next:

#### What is a computer? (Year 2)

- To know the difference between a desktop and laptop computer.
- To know that people control technology.
- To know that buttons are a form of input that give a computer an instruction about what to do (output).
- To know that computers often work together.

#### Word Processing (Year 2)

- To know that touch typing is the fastest way to type.
- To know that I can make text a different style, size and colour.
- To know that "copy and paste" is a quick way of duplicating text.

## Year 2 – Computing Systems and Networks

### Core Knowledge / skills to be acquired:

#### What is a computer? (Year 2)

- To know the difference between a desktop and laptop computer.
- To know that people control technology.
- To know that buttons are a form of input that give a computer an instruction about what to do (output).
- To know that computers often work together.

#### Word Processing (Year 2)

- To know that touch typing is the fastest way to type.
- To know that I can make text a different style, size and colour.
- To know that "copy and paste" is a quick way of duplicating text.

### Key Vocabulary:

#### What is a computer? (Year 2)

**battery**, buttons, camera, computer, **desktop**, device, **digital content**, **digital recorder**, **electricity**, input, invention, keyboard, **laptop**, **monitor**, mouse, output, photograph, robot, **scanner**, **screen**, **system**, tablet, **technology**, till, **video**, wire.

#### Word Processing (Year 2)

**back button**, **backspace**, **bold**, **copy**, **copyright**, **cut**, delete, **forward button**, **highlight**, image, import, **italic**, keyboard, keyboard shortcut, **layout**, **navigate**, **paste**, **redo**, search, **space bar**, **text**, **text effects**, **touch typing**, **underline**, **undo**, **word processing**

### Curriculum Enrichment / Cultural Capital Opportunities / key questions

- What is technology?
- How does technology make our lives easier?

### Prior knowledge / skills this builds on: Improving mouse skills. (Year 1)

- To know that "log in and log out" means to begin and end a connection with a computer.
- To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.
- To know that passwords are important for security.
- *To know that when we create something on a computer it can be more easily saved and shared than a paper version. (Skills Showcase)*
- *To know some of the simple graphic design features of a piece of online software. (Skills Showcase)*

### What comes next:

#### Networks (Year 3)

- To know what a tablet is and how it is different from a laptop/desktop computer.
- To know the components that make up a network (Wireless access point/WAP, Network switch, Router, Server and devices).
- To know that a server is central to a network and responds to requests made.
- To know that the internet connects all the networks around the world.
- To know that a router connects us to the internet.
- To know what a packet is and why it is important for website data transfer.

#### Emailing (Year 3)

- To know the roles that inputs and outputs play on computers.
- To understand that email stands for 'electronic mail.'
- To know that an attachment is an extra file added to an email.
- To understand that emails should contain appropriate and respectful content.
- To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together.

## Year 3 – Computing Systems and Networks

### Core Knowledge / skills to be acquired:

#### Networks (Year 3)

- To understand that a network is a group of interconnected devices.
- To know the components that make up a network (Wireless access point/WAP, Network switch, Router, Server and devices).
- To know that a server is central to a network and responds to requests made.
- To know that the internet connects all the networks around the world.
- To know that a router connects us to the internet.
- To know what a packet is and why it is important for website data transfer.

#### Emailing (Year 3)

- To understand that email stands for 'electronic mail.'
- To know that an attachment is an extra file added to an email.
- To understand that emails should contain appropriate and respectful content.
- To know that cyberbullying is bullying using electronics such as a computer or phone.

#### Journey inside a computer (Year 3)

- To know the roles that inputs and outputs play on computers.
- To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together.
- To know what a tablet is and how it is different from a laptop/desktop computer.

### Key Vocabulary:

#### Networks

device, file, internet, network, network switch, packet data, router, server, the cloud, user, Wi-Fi, wired, wireless, wireless access point.

#### Emailing

**attachment, bcc (blind carbon copy) cc (carbon copy), compose, content, cyberbullying, document, domain, download, email, email account, email address, emoji, emotions, fake, font, genuine, hacker, icons, inbox, information, link, log in, log out, negative language, password, personal information, positive language, reply, responsible digital citizen, scammer, settings, send, sign in, spam email, subject bar, theme, tone, username, virus, WiFi**

#### Journey inside a computer

algorithm, **assemble, CPU (central processing unit), data, decompose, desktop, disassemble, GPU (graphics processing unit), hard drive, HDD (hard disk drive), infinite loop, input, keyboard, laptop, memory, microphone, monitor, mouse, output, photocopier, program, QR code, RAM (random access memory), ROM (read only memory), storage, tablet device, technology, touchscreen, touchpad**

### Curriculum Enrichment / Cultural Capital Opportunities / key questions

- What is email? What should I do if I receive an email that makes me upset or scared?
- What information can I send in an email?

### Prior knowledge / skills this builds on:

#### What is a computer? (Year 2)

- To know the difference between a desktop and laptop computer.
- To know that people control technology.
- To know that buttons are a form of input that give a computer an instruction about what to do (output).
- To know that computers often work together.

#### Word Processing (Year 2)

- To know that touch typing is the fastest way to type.
- To know that I can make text a different style, size and colour.
- To know that "copy and paste" is a quick way of duplicating text.

### What comes next:

#### Collaborative Learning (Year 4)

- To understand that software can be used collaboratively online to work as a team.
- To know what type of comments and suggestions on a collaborative document can be helpful.
- To know that you can use images, text, transitions, and animation in presentation slides.

## Year 4 – Computing Systems and Networks

### Core Knowledge / skills to be acquired:

#### Collaborative Learning (Year 4)

- To understand that software can be used collaboratively online to work as a team.
- To know what type of comments and suggestions on a collaborative document can be helpful.
- To know that you can use images, text, transitions, and animation in presentation slides.

### Key Vocabulary:

#### Collaborative Learning

animations, **average**, bar chart, **collaboration**, comment, **contribution**, data, **edited**, email account, **format**, **freeze**, icon, images, **insert**, link, **multiple choice**, **numerical data**, pie chart, **presentations**, **resolved**, **reviewing comments**, share, **slides**, software, **spreadsheets**, **suggestions**, **survey**, **teamwork**, **themes**, **transitions**

### Curriculum Enrichment / Cultural Capital Opportunities / key questions

- What is the difference between hardware and software?
- What is the difference between the Internet and the World Wide Web?
- What is the difference between a LAN and a WAN?
- Who is Tim Berners-Lee?

### Prior knowledge / skills this builds on:

#### Networks (Year 3)

- To understand that a network is a group of interconnected devices.
- To know the components that make up a network (Wireless access point/WAP, Network switch, Router, Server and devices).
- To know that a server is central to a network and responds to requests made.
- To know that the internet connects all the networks around the world.
- To know that a router connects us to the internet.
- To know what a packet is and why it is important for website data transfer.

#### Emailing (Year 3)

- To understand that email stands for 'electronic mail.'
- To know that an attachment is an extra file added to an email.
- To understand that emails should contain appropriate and respectful content.
- To know that cyberbullying is bullying using electronics such as a computer or phone.

#### Journey inside a computer (Year 3)

- To know the roles that inputs and outputs play on computers.
- To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together.
- To know what a tablet is and how it is different from a laptop/desktop computer.

### What comes next:

#### Search engines (Year 5)

- To know how search engines work.
- To understand that anyone can create a website and therefore we should take steps to check the validity of websites.
- To know that web crawlers are computer programs that crawl through the internet.
- To understand what copyright is.

## Year 5 – Computing Systems and Networks

### Core Knowledge / skills to be acquired:

#### Search engines (Year 5)

- To know how search engines work.
- To understand that anyone can create a website and therefore we should take steps to check the validity of websites.
- To know that web crawlers are computer programs that crawl through the internet.
- To understand what copyright is.

### Key Vocabulary:

#### Search engines

algorithm, **appropriate**, copyright, correct, **credit**, **data leak**, **deceive**, **fair**, fake, **inappropriate**, **incorrect**, **index**, information, **keywords**, network, **privacy**, **rank**, **real**, search engine, **TASK**, **web crawler**, website

### Curriculum Enrichment / Cultural Capital Opportunities / key questions

- What is a search engine?

### Prior knowledge / skills this builds on:

#### Collaborative Learning (Year 4)

- To understand that software can be used collaboratively online to work as a team.
- To know what type of comments and suggestions on a collaborative document can be helpful.
- To know that you can use images, text, transitions, and animation in presentation slides.

### What comes next:

#### Bletchley Park and the history of computers (Year 6)

- To understand the importance of having a secure password and what "brute force hacking" is.
- To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.
- To know about some of the historical figures that contributed to technological advances in computing.
- To understand what techniques are required to create a presentation using appropriate software.
- To know that sound clips can be recorded using sound recording software and that sound clips can be edited and trimmed.

#### Exploring AI (Year 6)

- To know that AI is artificial intelligence and is used in everyday life.
- To know that AI is trained on data to recognise patterns and generate outputs.
- To know that AI can be used to generate written content.
- To know that AI can be used to create visual content like pictures.
- To know that AI can help generate basic HTML code to create the structure and layout of a website.
- To know that there are ethical issues surrounding AI, including data privacy, bias and responsible use.

## Year 6 – Computing Systems and Networks

### Core Knowledge / skills to be acquired:

#### Bletchley Park and the history of computers (Year 6)

- To understand the importance of having a secure password and what "brute force hacking" is.
- To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.
- To know about some of the historical figures that contributed to technological advances in computing.
- To understand what techniques are required to create a presentation using appropriate software.
- To know that sound clips can be recorded using sound recording software and that sound clips can be edited and trimmed.

#### Exploring AI (Year 6)

- To know that AI is artificial intelligence and is used in everyday life.
- To know that AI is trained on data to recognise patterns and generate outputs.
- To know that AI can be used to generate written content.
- To know that AI can be used to create visual content like pictures.
- To know that AI can help generate basic HTML code to create the structure and layout of a website.
- To know that there are ethical issues surrounding AI, including data privacy, bias and responsible use.

### Key Vocabulary:

#### Bletchley Park and the history of computers (Year 6)

acrostic code, audio advert, brute force hacking, Caesar cipher, chip and PIN system, cipher, combination, date shift cipher, discovery, invention, Nth Letter Cipher, password, pigpen cipher, scrambled, script, secret, secure, technological advancement, trial and error.

#### Exploring AI (Year 6)

AI, AI generated image, AI generated text, algorithm, applications, argument, authenticity, code, considerations, debate, ethical, fake, generate, HTML, image, implications, instructions, learn, modify, output, patterns, prompt, rebuttal, replace, refine, response, task, trained and webpage.

### Curriculum Enrichment / Cultural Capital Opportunities / key questions

- Bletchley Park virtual visit

### Prior knowledge / skills this builds on:

#### Search engines (Year 5)

- To know how search engines work.
- To understand that anyone can create a website and therefore we should take steps to check the validity of websites.
- To know that web crawlers are computer programs that crawl through the internet.
- To understand what copyright is.

### What comes next:

#### (Key Stage 3 – Computing)

- To understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]