



Bugle School

Aspire Academy Trust







































Computing Curriculum



Computing Overview



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Computer Science: Hardware 	Computer Science: Programming 	Digital Literacy 	Digital Literacy 	Information Technology 	Information Technology 
Year 2	Computer Science: Programming & Hardware 	Computer Science: Programming & Hardware 	Digital Literacy 	Digital Literacy 	Information Technology 	Information Technology 
Year 3	Digital Literacy 	Digital Literacy 	Computer Science: Programming & Hardware 	Computer Science: Programming & Hardware 	Information Technology 	Information Technology 
Year 4	Digital Literacy 	Digital Literacy 	Computer Science: Programming & Hardware 	Computer Science: Programming & Hardware 	Information Technology 	Information Technology 
Year 5	Digital Literacy 	Digital Literacy 	Computer Science: Programming & Hardware 	Computer Science: Programming & Hardware 	Information Technology 	Information Technology 
Year 6	Digital Literacy 	Digital Literacy 	Computer Science: Programming & Hardware 	Computer Science: Programming & Hardware 	Information Technology 	Information Technology 



Computing: Progression of Knowledge and Understanding



Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science						
Programming	<p>I can understand and create algorithms in order (<i>steps or rules as instructions, e.g. how to make a sandwich</i>)</p> <p>I understand that algorithms must be precise and accurate</p>	<p>I can predict the behaviour of simple programs</p> <p>I can create and run a program (an algorithm or multiple algorithms that can be understood by a computer)</p> <p>I can debug (find and fix a problem) within a simple program</p>	<p>I can use selection in my programs. (Also known as conditionals or When / Then statements). (<i>e.g. When space bar is pressed, then sprite jumps</i>)</p> <p>I can use repetition (sometimes referred to as loops) in my programs.</p>	<p>I can create variables within my programs (<i>e.g. a timer, score</i>)</p> <p>I can debug programs multiple times to accomplish specific goals</p>	<p>I can write code that uses variables as a condition for selection (<i>e.g. use a variable to select which lighting pattern will run on a set of traffic lights</i>)</p> <p>I can decompose (break into smaller chunks) a programming problem</p>	<p>I can use a random function in my code for purposeful effect (<i>e.g. a program randomly chooses a number from 1-4 and displays a corresponding statement</i>)</p> <p>I can produce a multi-function, debugged program that uses variables, selection and repetition.</p>
Controlling hardware and machines	<p>I can identify the major parts of digital devices (<i>e.g. keyboard, screen, power, batteries, touchscreen, power button and trackpad</i>)</p>	<p>I understand that digital devices run programs that have been created by humans</p>	<p>I can identify inputs of common computing devices (<i>e.g. keyboard, temperature sensor, tilting a device</i>)</p> <p>I can identify the outputs of common computing devices (<i>e.g. display on a screen, Bluetooth signal, print</i>)</p>	<p>I can control or simulate programmable hardware (<i>e.g. a Sphero robot</i>)</p>	<p>I can create code that acts on multiple inputs</p> <p>I can create code that produces multiple outputs</p>	<p>I can program and debug multiple functions on programmable hardware (<i>e.g. with a Microbit</i>)</p>



Computing: Progression of Knowledge and Understanding



Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Information Technology						
Operate, Understand and Implement	<p>I can use apps and websites to help my learning</p> <p>I can save and find work that I have produced (includes auto-save)</p> <p>I can move a cursor with the trackpad and click on an icon</p>	<p>I can type and edit text</p> <p>I can use two-finger scrolling on a touchpad</p> <p>I understand that emails and other digital communications can be sent and received from various types of digital device</p>	<p>I know how to search for items on the internet</p> <p>I can use technology to organise and manipulate digital content</p> <p>I can type to achieve a specific goal</p> <p>I can perform a two-finger click to access additional options</p>	<p>I can present collected information or data to a group or audience</p> <p>I can type to achieve a specific goal, including accurate punctuation and spelling check</p> <p>I can use technical vocabulary to describe how computing equipment and networks function, including storage (e.g. USB drives, Google drive), apps and the world wide web</p>	<p>I can edit and improve on-screen writing, including digital thesaurus use</p> <p>I can collaborate meaningfully with networked technologies (for example, within a shared document or shared workspace)</p> <p>I can combine a variety of software (programs that run on computers) to accomplish given goals</p>	<p>I can collect and analyse data or information using technology (e.g. use a spreadsheet to produce a graph)</p> <p>I can make document layout and design decisions based on purpose (e.g. format a formal letter)</p> <p>I can re-order on-screen sentences for clarity, purpose or effect</p>
	Multimedia and Sound	<p>I can use a digital device to capture photos (e.g. with an iPad)</p>	<p>I can use technology to capture and manipulate (position, re-size, rotate) photos as part of a piece of work</p>	<p>I can create video as part of my learning (e.g. using an iPad)</p> <p>I can create an animation (e.g. stop-frame animation on an iPad)</p>	<p>I can create sound, music or a podcast using digital technology</p> <p>I can create a 3D graphic using computer-aided design software (e.g. using Tinkercad)</p>	<p>I can edit video, bringing together different media elements (e.g. stills, video, captions and sound) to produce an effective final product</p> <p>I can storyboard and create an animation</p>



Computing: Progression of Knowledge and Understanding



Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy						
Self-image and Identity	<i>If something happens that makes me feel sad, worried, uncomfortable or frightened I can say how and when to speak to an adult I can trust.</i>	<i>I can describe ways in which people might make themselves look different online.</i>	<i>I can describe ways in which media can shape ideas about gender.</i>	<i>I can explain how my online identity can be different to the identity I present in 'real life'.</i>	<i>I can explain how identity online can be copied, modified or altered.</i>	<i>I can explain how I can represent myself in different ways online.</i>
Online relationships	<i>I can know some ways in which the internet can be used to talk.</i>	<i>I can explain some risks of communicating online with others I don't know well.</i>	<i>I can explain how mine and other people's feelings can be hurt by what is said or written online.</i>	<i>I can explain what it means to 'know someone' online and why this might be different from knowing someone in real life.</i>	<i>I can explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming).</i>	<i>I can demonstrate how I would support others (including those who are having difficulties) online.</i>
Online reputation	<i>I can say which information I should not put online without asking a trusted adult first.</i>	<i>I can explain how information put online about me can last for a long time.</i>	<i>I know who I should ask if I am not sure if I should put something online.</i>	<i>I can describe how others can find out information about me by looking online.</i>	<i>I can describe ways that information about people online can be used by others to make judgments about an individual.</i>	<i>I can describe some simple ways that help build a positive online reputation.</i>
Online bullying	<i>I can say how to behave online in ways that do not upset others</i>		<i>I can describe rules about how to behave online and how I follow them.</i>	<i>I can explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).</i>	<i>I can explain how I would report online bullying on the apps and platforms that I use.</i>	<i>I can identify a range of ways to report concerns both in school and at home about online bullying.</i>



Computing: Progression of Knowledge and Understanding



Strand	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy						
Managing online information	<i>I can identify devices I could use to access information on the internet.</i>	<i>I can show how to move around a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).</i>	<i>I can evaluate digital content and can explain how I make choices from search results.</i>	<i>I can analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'</i>	<i>I can explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true.</i>	<i>I can demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important.</i>
Health, well-being and lifestyle	<i>I can explain rules to keep us safe when we are using technology both in and beyond the home.</i>	<i>I can explain how the rules for keeping us safe work when using technology.</i>	<i>I can identify when I might need to limit the amount of time I use technology.</i>	<i>I can describe ways technology can affect healthy sleep and can describe some of the issues.</i>	<i>I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.</i>	<i>I can assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise).</i>
Privacy and security	<i>I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location).</i>	<i>I can explain why I should always ask a trusted adult before I share any information about myself online.</i>	<i>I can describe simple strategies for creating and keeping passwords private.</i>	<i>I can explain how internet use can be monitored.</i>	<i>I can explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.</i>	<i>I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).</i>
Copyright and ownership	<i>I can name my work so that others know it belongs to me.</i>	<i>I can see that content on the internet may belong to other people.</i>	<i>I can explain why copying someone else's work from the internet without permission can cause problems.</i>	<i>I can assess and justify when it is acceptable to use the work of others.</i>	<i>I can demonstrate the use of search tools to find and access online content which can be reused by others.</i>	<i>I can demonstrate how to make references to and acknowledge sources I have used from the internet.</i>

Computing Skills Knowledge Organiser: Year 1

Computer Science: Hardware

I can identify the major parts of digital devices: keyboard, screen, power, batteries, touchscreen, power button, and trackpad

I can identify devices I could use to access information on the internet

Information technology:

Operate Understand and Implement

I can use **apps** and websites to help my learning
I can **save** and find work that I have produced (includes auto-save)

I can move a **cursor** with the **trackpad** and click on an icon

Computer Science: Programming

I can understand and create **algorithms** (steps or rules as instructions) in order.















I understand that algorithms must be precise and accurate.

(See Primary Computing lessons)

Information technology: Multimedia and Sound

I can use a digital device to take photos

Key Vocabulary

Algorithm	Step or rule as an instruction
digital devices 	Anything using electricity or batteries
keyboard 	letters to type on a computer
screen 	a way of seeing what is happening on the device
touchscreen 	a way of controlling the device
batteries 	Give the device power
power button 	how to turn the device on
apps (applications)	Programmes that do something: a game
save 	Put your work away in the computer safely
retrieve a file 	Get your work back from the computer
cursor 	A mark on the screen to help click and control
touchpad 	A way to make the cursor move on the screen
click	A way to select things on the screen using the trackpad
photo (photograph) 	A picture made with a camera
internet 	Digital devices connected together
online 	Information on the internet
personal information 	Things about me, like my birthday.
website	A collection of information about one thing

Digital Literacy:

Self-image and identity

If something happens that makes me sad, worried, uncomfortable or frightened, I can say when and how to speak to an adult I can trust.

Online friends:

I know some ways in which the internet can be used to talk.

Online 'me':

I can say which information I should not put online without asking a trusted adult first.

Online bullying:

I can say how to behave online in ways that do not upset others.

My health:

I can say the rules that keep me safe using technology.

My privacy and security:

I can say what personal information is (e.g. name, address, birthday, age, location).

I can name my work so that others know it belongs to me.

Computing Skills Knowledge Organiser: Year 2

Computer Science: Hardware

I understand that **digital devices** run programs that have been created by humans

Information technology:

Operate Understand and Implement

I can **type** and **edit** text

I can use **two-finger scrolling** on a touchpad

I understand that **emails** and other digital communications can be sent and received from various types of digital device

Computer Science: Programming

I can **predict** the behaviour of simple programs

I can create and run a **program**

I can **debug** within a simple program

(See [Primary Computing lessons](#))

Information technology:










Multimedia and Sound

I can use **technology** to capture and manipulate (**position**, **re-size**, **rotate**) photos as part of a piece of work

Key Vocabulary

Year 1: Algorithm, digital devices, keyboard, screen, touchscreens, batteries, power button, apps, save, retrieve a file, cursor, touchpad, click, photo, internet, online, personal information, website.

Key Vocabulary (Year 2)

Programming	A group of rules for computers to follow
Sprite	A controllable character on the screen
Scratch 	a programme to make coding in
debugging 	finding and fixing errors
program	A collection of algorithms carried out by a computer
emails  	A way of communicating with others using the internet
digital communications	Any way of communicating using the internet
manipulate	Change for a purpose
two finger scrolling 	Using two fingers on the touch pad to move up or down the page
home 	A button to take you back to the start page
forward 	A button to take you to the next thing you looked at
back 	A button to take you to the last thing you looked at
hyperlink 	A link that when clicked on will take you to another website or file.

Digital Literacy:

Self-image and identity

I can describe ways in which people might make themselves look different online.

Online relationships:

I can explain some risks of communicating online with others I don't know well.

Online 'me':

I can explain how information put online about me can last for a long time.

Online bullying:

I can describe how to behave online in ways that do not upset others.

Managing online information:

I can show how to move around a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).

My health:

I can explain how the rules for keeping us safe work when using technology.

My privacy and security:

I can explain why I should always ask a trusted adult before I share any information about myself online.

Ownership:

I can see that content on the internet may belong to other people.

Computing Skills Knowledge Organiser: Year 3

Computer Science: Hardware

I can identify **inputs** of common computing devices (e.g. keyboard, temperature sensor, tilting a device)

I can identify the **outputs** of common computing devices (e.g. display on a screen, Bluetooth signal, print)

Information technology: Operate Understand and Implement

I know how to **search** for items on the internet

I can use technology to organise and manipulate **digital content**

I can **type** to achieve a specific goal

I can perform a **two-finger click** to access additional options

Computer Science: Programming

I can use **selection** in my programs. (Also known as **conditionals** or **When / Then** statements). (e.g. **When space bar is pressed, then sprite jumps**)

I can use **repetition** (sometimes referred to as **loops**) in my programs

(See Primary Computing lessons)

Information technology: Multimedia and Sound

I can create **video** as part of my learning (e.g. using an iPad)







I can create an **animation** (e.g. stop-frame animation on an iPad)

Key Vocabulary

Year 1: Algorithm, digital devices, keyboard, screen, touchscreen, batteries, power button, apps, save, retrieve a file, cursor, touchpad, click, photo, internet, online, personal information, website.

Year 2: Programming, Sprite, Scratch, debugging, program, emails, digital communications, manipulate, two finger scrolling, home, forward, back,

Key Vocabulary (Year 3)

repetition (loops)	Repeating a bit of code so it does the same thing.
Selection (Conditionals) 	Coding that makes the computer make a decision. When ... then... If... then...
Input 	A way of interacting with technology.
Output 	A way to get information (or a response) out of technology.
Search 	Finding information needed
Search results	A list of websites or files that contain information relating to your search.
Digital content	Information that you can get on a digital device
two-finger click 	Tapping twice to get extra menus
video 	Recording of things moving
animation	Recording of objects or drawings being moved like a video
media	A way of communicating to lots of people (news, adverts)
identity	What a person is
reputation	What something is well known as being.
copyright ©	A way of showing work is yours.

PSHE CC links with Digital Literacy:

Healthy Me: Piece 5: What to do when something doesn't feel right online.

Relationships: Piece 3: Strategies to stay safe online

Digital Literacy:

Self-image and identity
I can describe ways in which media can shape ideas about gender.

Online relationships:
I can explain how mine and other people's feelings can be hurt by what is said or written online.

Online reputation:
I know who I should ask if I am not sure if I should put something online.

Online bullying:
I can describe rules about how to behave online and how I follow them.

Managing online information:
I can evaluate digital content and can explain how I make choices from search results.

My health:
I can identify when I might need to limit the amount of time I use technology.

My privacy and security:
I can describe simple strategies for creating and keeping passwords private.

Ownership and copyright:
I can explain why copying someone else's work from the internet without permission can cause problems.

Computing Skills Knowledge Organiser: Year 4

Computer Science: Hardware

I can control or simulate programmable hardware
(e.g. a Sphero robot or a microbit)

Sphero Robots are available through the ICT helpdesk, email and book them out in advance of your lesson slots.

The Sphero Edu app is on the iPads and you can download it on your computer. It has activities that can be set.

[Microbits are available in school lessons plans are online.](#)

Information technology:

Operate Understand and Implement

I can present collected information or data to a group or audience

I can type to achieve a specific goal, including accurate punctuation and spelling check

I can use technical vocabulary to describe how computing equipment and networks function, including **storage** (e.g. USB drives, Google drive), apps and the **world wide web**.

Computer Science: Programming

I can create **variables** within my programs (e.g. a timer, score)

I can debug programs multiple times to accomplish specific goals

(See Barefoot Coding lessons)







Key Vocabulary

Year 1: Algorithm, digital devices, keyboard, screen, touchscreen, batteries, power button, apps, save, retrieve a file, cursor, touchpad, click, photo, internet, online, personal information, website.

Year 2: Programming, Sprite, Scratch, debugging, program, emails, digital communications, manipulate, two finger scrolling, home, forward, back, hyperlink

Year 3: Repetition (loops), Selections (Conditionals), Input, output, search, search results, digital content, two-finger click, video, animation, media, identity, reputation

Key Vocabulary (Year 4)

Variables 	Something that will change
Network 	Digital devices connected together
Programmable hardware (eg Microbit, Sphero)  	A piece of equipment that you can code
Storage 	A place to save digital content
World wide web 	A collection of information accessed by the internet

Information technology:

Multimedia and Sound

I can create sound, music or a podcast using digital technology

I can create a **3D graphic** using computer-aided design software (e.g. using [TInkerCAD](#))

Digital Literacy:

Self-image and identity

[I can explain how my online identity can be different to the identity I present in 'real life'.](#)

Online relationships:

[I can demonstrate how I would support others \(including those who are having difficulties\) online.](#)

Online reputation:

I can describe how others can find out information about me by looking online.

Online bullying:

I can explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).

Managing online information:

I can **analyse** information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'

My health:

[I can describe ways technology can affect healthy sleep and can describe some of the issues.](#)

My privacy and security:

[I can explain how internet use can be monitored.](#)

Ownership and copyright:

I can assess and justify when it is acceptable to use the work of others.

Computing Skills Knowledge Organiser: Year 5

Computer Science: Hardware

I can create code that acts on multiple inputs

I can create code that produces multiple outputs

Information technology:

Operate Understand and Implement

I can edit and improve **on-screen writing**, including digital thesaurus use

I can **collaborate** meaningfully with **networked technologies** (for example, within a shared document or shared workspace)

I can combine a variety of **software** (programs that run on computers) to accomplish given goals

Computer Science: Programming

I can write code that uses **variables** as a **condition** for selection (e.g. use a variable to select which lighting pattern will run on a set of traffic lights)

I can **decompose** (break into smaller chunks) a programming problem

(See Primary Computing Lessons)

Information technology:

Multimedia and Sound

I can storyboard and create an animation

I can edit **video**, bringing together different media elements (e.g. stills, video, captions and sound) to produce an effective final product

Key Vocabulary

Year 1: Algorithm, digital devices, keyboard, screen, touchscreen, batteries, power button, apps, save, retrieve a file, cursor, touchpad, click, photo, internet, online, personal information, website.

Year 2: Programming, Sprite, Scratch, debugging, program, emails, digital communications, manipulate, two finger scrolling, home, forward, back, hyperlink

Year 3: Repetition (loops), Selections (Conditionals), Input, output, search, search results, digital content, two-finger click, video, animation, media, identity, reputation

Year 4: Variables, Network, Programmable hardware, Storage, World Wide Web

Key Vocabulary (Year 5)

Software	Programs that run on digital devices (another word for apps)
Decompose	Break something into smaller chunks
Flaming	Sending insulting messages online
Streaming	Video or audio being recorded and received
Platforms	A piece of hardware that websites, apps or programs are run on.

PSHE CC links with Digital Literacy:

Relationships

Piece 2: Online communities, positive and negative consequences

Piece 3: Online communities, rights and responsibilities

Piece 4: Online gaming, rights and responsibilities

Piece 5: Health, screen time

Piece 6: E-Safety for e-communication

Digital Literacy:

Self-image and identity:

I can explain how identity online can be copied, modified or altered.

Online relationships:

I can demonstrate how I would support others (including those who are having difficulties) online.

Online reputation:

I can describe ways that information about people online can be used by others to make judgments about an individual.

Online bullying:

I can explain how I would report online bullying on the apps and platforms that I use.

Managing online information:

I can explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true.

My health:

I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose.

My privacy and security:

I can explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.

Ownership and copyright:

I can demonstrate the use of search tools to find and access online content which can be reused by others.

Computing Skills Knowledge Organiser: Year 6

Computer Science: Hardware

I can program and debug multiple functions on programmable hardware (e.g. with a Microbit)

Sphero Robots are available through the ICT helpdesk, email and book them out in advance of lesson slots.

The Sphero Edu app is on the iPads and you can download it on your computer. It has activities that can be set.

[Microbits are available in school, lessons plans are online.](#)

Key Vocabulary

Year 1: Algorithm, digital devices, keyboard, screen, touchscreen, batteries, power button, apps, save, retrieve a file, cursor, touchpad, click, photo, internet, online, personal information, website.

Year 2: Programming, Sprite, Scratch, debugging, program, emails, digital communications, manipulate, two finger scrolling, home, forward, back, hyperlink

Year 3: Repetition (loops), Selections (Conditionals), Inputs, output, search, search results, digital content, two-finger click, video, animation, media, identity, reputation

Year 4: Variables, Network, Programmable hardware, Storage, World Wide Web

Year 5: Software, Decompose, Flaming, Streaming, Platforms

Information technology:

Operate Understand and Implement

I can collect and analyse data or information using technology (e.g. use a spreadsheet to produce a graph)

I can make document layout and design decisions based on purpose (e.g. format a formal letter)

I can re-order on-screen sentences for clarity, purpose or effect

Key Vocabulary (Year 6)

data	facts and statistics collected together
spreadsheet	A way of collecting information (data) in a table

Information technology: Multimedia and Sound

I can design, create and edit sound, music, or a podcast using digital technology

I can design, create and modify 3D graphics for purpose using computer-aided design software (e.g. using [Tinkercad](#))

Computer Science: Programming

I can use a random function in my code for purposeful effect

I can produce a multi-function, debugged program that uses variables, selection and repetition.

[\(See Primary Computing Lessons\)](#)

PSHE CC links with Digital Literacy:

Celebrating differences Piece 4: How to get help when bullied

Relationships Piece 5: Resist online pressure

Relationships Piece 6: Use technology to communicate positively

Digital Literacy:

Self-image and identity

I can explain how I can represent myself in different ways online.

Online relationships:

I can demonstrate how I would support others (including those who are having difficulties) online.

Online reputation:

I can describe some simple ways that help build a positive online reputation.

Online bullying:

I can identify a range of ways to report concerns both in school and at home about online bullying

Managing online information:

I can demonstrate strategies to enable me to analyse and evaluate the validity of 'facts' and I can explain why using these strategies are important.

My health:

I can assess and action different strategies to limit the impact of technology on my health (e.g. nightshift mode, regular breaks, correct posture, sleep, diet and exercise).

My privacy and security:

I can describe ways in which some online content targets people to gain money or information illegally; I can describe strategies to help me identify such content (e.g. scams, phishing).

Ownership and copyright:

I can demonstrate how to make references to and acknowledge sources I have used from the internet.