



## COMPUTING CURRICULUM COVERAGE

## COMPUTING INTENT

Technology is a quintessential ingredient of modern-day life, developing and transforming the future of the world. Through our computing curriculum, we aim to give our pupils the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to flourish. We want our children to become independent and resilient users of technology, having the confidence and critical problem-solving skills required to create content, write programmes and build systems rather than just being passive users.

We aim to deliver the national curriculum for computing in a balanced, stimulating and creative way, providing children with access to a variety of high quality hardware, software and unplugged resources in order to help them gain an understanding of the foundations, application and implications of computing.

Our curriculum is designed to instil critical thinking, reflective learning and a 'can do' attitude for all our pupils, particularly when engaging with technology and its associated resources. It includes a strong focus on teaching pupils how to use technology safely and responsibly as well as pupils understanding of the importance of governance and legislation regarding how information is used, stored, created, retrieved, shared and manipulated. It is our intent to equip pupils with skills, strategies and knowledge that will enable them to reap the benefits of the online world and technologies whilst being able to minimise risk to themselves or others. Development of computing skills begins in our Foundation stage where we have identified aspects of the Early Years Matters Curriculum which we believe are crucial building blocks for Early Computing.

In line with National Curriculum guidance Computing in KS1 and KS2 is a discrete curriculum subject alongside which pupils are also given opportunities for consolidating and developing computing across the curriculum. With all these elements combined we aim to develop 'digitally competent' learners for a digital age.

# Development Matters EYFS: Developing Early Computing

Nursery

**Early computing skills: developing Logic, Pattern, Abstraction, Algorithms and Decomposition.**

Children should be taught to:

- anticipate
- Name
- Respond to instructions and begin to order things.
- group and compare.
- Talk about why things happen and how things work

**Early computing skills; developing collaboration, perseverance and digital literacy**

Children should be taught to:

- Remember rules without needing an adult to remind them.
- To recognise, online or offline, that anyone can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask'
- To know that work I create belongs to me.

**Early computing skills; developing tinkering and creating.**

Children should be taught to:

- Explore how things work
- Match their developing physical skills to tasks and activities in the setting, operating simple equipment.

Reception

**Early computing skills: developing Logic, Pattern, Abstraction, Algorithms and Decomposition.**

Children should be taught to:

- anticipate and explain
- spot similarities and differences and work out rules.
- Name and label, working out what is important, sticking to the main theme, ignoring what is not important, creating a summary
- Respond to instructions, ordering things, sequence things, introducing storylines, working out different ways to do things, breaking problems down into steps

**Early computing skills; developing collaboration, perseverance and digital literacy**

Children should be taught to:

- To work with others and take turns.
- Show resilience and perseverance in the face of a challenge.
- Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
- To recognise, online or offline, when makes them feel sad, uncomfortable, embarrassed or upset.
- To identify some simple examples of personal information (e.g. name, address, birthday, age, location).
- To talk about how to use the internet as a way of finding information online.
- To identify devices I could use to access information on the internet.

**Early computing skills; developing tinkering and creating.**

Children should be taught to:

- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
- Explore, use and refine a variety of artistic effects to express their ideas and feelings

# Development Matters EYFS: Developing Early Computing

<b>Early Computing Goals</b>	<b>Early computing skills: developing Logic, Pattern, Abstraction, Algorithms and Decomposition.</b>		<b>Early computing skills; developing collaboration and perseverance.</b>			<b>Early computing skills; developing tinkering and creating.</b>	
	<p>Children should be taught to:</p> <ul style="list-style-type: none"> <li>anticipate and explain</li> <li>group, compare, spot similarities and differences and work out rules.</li> <li>Name and label, working out what is important, sticking to the main theme, ignoring what is not important, creating a summary</li> <li>Respond to instructions, ordering things, sequence things, introducing storylines, working out different ways to do things, breaking problems down into steps</li> </ul>		<p>Children should be taught to:</p> <ul style="list-style-type: none"> <li>play and work collaboratively</li> <li>to not give up.</li> </ul>			<p>Children should be able taught to:</p> <ul style="list-style-type: none"> <li>play and explore,</li> <li>create, check and fix things</li> </ul>	
	<p><b>Vocabulary:</b> first, next, before, later, soon, after, steps, last, order, parts, same, different, pattern, rule, important, group, order, instructions, sequence</p>		<p><b>Vocabulary:</b> turn, work together, information, internet</p>			<p><b>Vocabulary:</b> test, check, change. create, computer, screen, button, control, iPad, tablet, app (application).</p>	
<b>Related Early Learning Goals</b>	<b>Listening, Attention and Understanding</b>	<b>Speaking</b>	<b>Self Regulation</b>	<b>Managing Self</b>	<b>Building Relationships</b>	<b>Fine Motor Skills</b>	<b>Creating with Materials</b>
	<ul style="list-style-type: none"> <li>Listen attentively and respond to what they hear with relevant questions, comments and actions during whole class discussions and small group interactions;</li> <li>Make comments about what they have heard and ask questions to clarify their understanding; - Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.</li> <li>Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary;</li> <li>Offer explanations for why things might happen, making use of recently introduced vocabulary</li> <li>Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.</li> </ul>		<ul style="list-style-type: none"> <li>Set and work towards simple goals,</li> <li>Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.</li> <li>Be confident to try new activities and show independence, resilience and perseverance in the face of challenge;</li> <li>Work and play cooperatively and take turns with others;</li> </ul>			<ul style="list-style-type: none"> <li>Use a range of small tools</li> <li>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;</li> <li>Share their creations, explaining the process they have used;</li> </ul>	

# Computing: Key Stage 1

		Digital Literacy(Implications)
<b>Year 1</b>	<b>Computer Systems and Networks</b>	<b>Safe use</b>
	<i>Pupils should be taught to recognise common uses of information technology beyond school</i>	<i>Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies</i>
	<p><b>Technology Around us</b></p> <ul style="list-style-type: none"> <li>• Find examples of technology in the classroom.</li> <li>• To identify a computer and its main parts</li> <li>• Name the main parts of a computer: screen, base unit, mouse/trackpad and keyboard</li> <li>• Switch on and log on a computer.</li> <li>• To use a mouse in different ways: to open a programme, click and drag and create a picture</li> <li>• Use a keyboard to type e.g. their name</li> <li>• To use a keyboard to edit text e.g. delete letters and use arrow keys to move the cursor.</li> <li>• Save and open their work</li> <li>• To create rules for using technology responsibly</li> </ul>	<p><b>Health, well-being and lifestyle</b></p> <ul style="list-style-type: none"> <li>• To give examples of rules to keep myself safe when using technology both in and beyond the home.</li> <li>• <b>Copyright and ownership</b></li> <li>• To explain why work I create using technology belongs to me and say why.</li> <li>• To save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content).</li> <li>• To understand that work created by others does not belong to me even if I save a copy.</li> <li>• <b>Privacy and security</b></li> <li>• To explain that passwords are used to protect information, accounts and devices.</li> <li>• To recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names).</li> <li>• To explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.</li> </ul>
	<p><b>Vocabulary:</b></p> <p><b>computer, screen, i-Pad, app (application), button, control</b> (* From EYFS)  mouse, trackpad, keyboard, screen, double-click,  Typing, open, save, file, personal information, trusted adult, password, username, log in.</p>	
<p><b>Links:</b>  Education for a Connected World  -<i>Copyright and ownership</i>  -<i>Health, well-being and lifestyle</i></p>	<p><b>Assess using Project Evolve Y1 Knowledge maps and plan safe use coverage accordingly.</b></p>	

# Computing: Key Stage 1

## Information Technology (Applications)

		Creating Media	Data	
<p><i>Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve digital content</i></p>				
<b>Year 1</b>	<b>Digital Painting</b> <ul style="list-style-type: none"> <li>To describe what different freehand tools do.</li> <li>To use the shape and line tools.</li> <li>To make careful choices when painting a digital picture</li> <li>To explain why I chose the tools I used.</li> <li>To use a computer on my own to paint a picture</li> <li>To compare painting a picture on a computer and on paper</li> </ul>	<b>Digital Writing</b> <ul style="list-style-type: none"> <li>To use a computer to write.</li> <li>To add and remove text on a computer.</li> <li>To identify that the look of text can be changed on a computer</li> <li>To make careful choices when changing text</li> <li>To use bold, italic, underline and C.Ls</li> <li>To select a word by double-clicking and all of the text by clicking and dragging.</li> <li>To explain why I used the tools that I chose</li> <li>To compare typing on a computer to writing on paper</li> </ul>	<b>Grouping Data</b> <ul style="list-style-type: none"> <li>To label objects</li> <li>To identify that objects can be counted</li> <li>To describe objects in different ways</li> <li>To count objects with the same properties</li> <li>To compare groups of objects</li> <li>To answer questions about groups of objects</li> </ul>	
	<b>Vocabulary:</b> paint, program, tool, paintbrush, erase, fill, undo, shape tools, line tool, brush style, brush size, colour  word processor, keyboard, keys, letters, type, space, backspace, text, cursor, toolbar, bold, italic, underline, mouse, select, font, format, undo, redo.	<b>Vocabulary:</b> object, label, group, search, image, property, colour, size, shape, value, data set.		
	<b>Links:</b> Art	<b>Links:</b> Writing Education for a Connected World: -Privacy and Security	<b>Links:</b> Education for a Connected World: - Copyright and ownership	

# Computing: Key Stage 1

## Computer Science (Foundations)

### Programming

*Pupils should be taught to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions*

*Pupils should be taught to create and debug simple programs*

*Pupils should be taught to use logical reasoning to predict the behaviour of simple programs*

#### **Moving a Robot**

- To explain what a given command will do
- To combine forwards and backwards commands to make a sequence
- To combine four direction commands to make sequences
- To plan a simple program

#### **Programming Animations**

- To choose a command for a given purpose
- To show that a series of commands can be joined together
- To identify the effect of changing a value
- To explain that each sprite has its own instructions
- To design the parts of a project
- To use my algorithm to create a program

#### **Links:**

*Education for a Connected World  
-Privacy and Security*

#### **Vocabulary:**

forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, algorithm, program, route, Bee-bot  
sprite, programming, area, block, start block, run, background, delete, reset, predict, effect, change, value, programming blocks

Year 1

# Computing: Key Stage 1

		Digital Literacy(Implications)
<b>Year 2</b>	<b>Computer Systems and Networks</b>	<b>Safe use</b>
	<p><i>Pupils should be taught to recognise common uses of information technology beyond school, How is information technology (IT) being used for good in our lives? How does its use in places such as shops, libraries, and hospitals benefit us?</i></p>	<p><i>Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. They will learn about responsible use of technology, and how to make smart choices when using it</i></p>
	<ul style="list-style-type: none"> <li>• To recognise the uses and features of information technology</li> <li>• To identify that a computer is a part of information technology</li> <li>• To identify the uses of information technology in the school</li> <li>• To identify information technology beyond school</li> <li>• To explain how information technology helps and benefits us looking at bar codes in more detail.</li> <li>• To explain how to use information technology safely</li> <li>• To recognise that choices are made when using information technology</li> <li>• To move and re-size images.</li> </ul>	<p><b>Health, well-being and lifestyle</b></p> <ul style="list-style-type: none"> <li>• To recognise how to use information technology responsibly.</li> <li>• To recognise some of the choices that are made when using information technology.</li> <li>• To know how guidance and rules help me and know where to go to for help is concerned.</li> </ul> <p><b>Self image and Identity</b></p> <ul style="list-style-type: none"> <li>• I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help.</li> </ul> <p><b>Privacy and security</b></p> <ul style="list-style-type: none"> <li>• To explain how passwords can be used to protect information, accounts and devices.</li> <li>• To explain and give examples of what is meant by 'private' and 'keeping things private'.</li> <li>• To describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).</li> <li>• To explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).</li> </ul> <p><b>Managing online information</b></p> <ul style="list-style-type: none"> <li>• To identify that some images are not real/fake</li> </ul>
	<p><b>Vocabulary:</b>  <b>Technology, computer, mouse, trackpad, keyboard, screen, double-click, typing, open, save, file, personal information, trusted adult, password, username, log in.</b>            (*from Y1)            Information technology(IT), devices, USB, barcode, scanner, scan, click and drag, re-size, document, enter, return, icon, download, private, responsible, digital, avatar, identity, age restrictions, fake, permission</p>	
<p><b>Links:</b>            Education for a Connected World:  <i>Health, well-being and lifestyle</i></p>	<p><b>Assess using Project Evolve Y2 Knowledge maps and plan safe use coverage accordingly.</b></p>	



# Computing: Key Stage 1

## Information Technology (Applications)

		Creating Media	Data	
<p><i>Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve digital content.</i></p>				
<b>Year 2</b>		<ul style="list-style-type: none"> <li>To use a digital device to take a photograph</li> <li>To make choices when taking a photograph</li> <li>To describe what makes a good photograph</li> <li>To decide how photographs can be improved</li> <li>To use tools to change an image</li> </ul>	<ul style="list-style-type: none"> <li>To say how music can make us feel</li> <li>To identify that there are patterns in music</li> <li>To show how music is made from a series of notes</li> <li>To create music for a purpose</li> <li>To review and refine my musical pattern on a computer</li> <li>To save my work and re-open it</li> </ul>	<ul style="list-style-type: none"> <li>To recognise that we can count and compare objects using tally charts</li> <li>To recognise that objects can be represented as pictures</li> <li>To create a pictogram.</li> <li>To select objects by attribute and make comparisons</li> <li>To recognise that people can be described by attributes</li> <li>To explain that we can present information using a computer</li> </ul>
		<p><b>Vocabulary:</b>  <b>Image, background, save, file</b> (*Y1) device, camera, photograph, capture, digital, landscape, portrait, framing, subject, compose, flash, focus, editing, filter, format, select, effect, colour, hue, adjustments, version</p>	<p><b>Vocabulary:</b>  <b>open</b> (*from KS1) , edit</p>	<p><b>Vocabulary:</b>  <b>data, object, group</b> (*From Y1) , enter, attribute, tally chart, pictogram, block diagram</p>
		<p><b>Links :</b>            art  <i>Education for a Connected World</i>            - Self image and identity</p>	<p><b>Links :</b>            music  <i>Education for a Connected World</i>            - Copyright and Ownership</p>	<p><b>Links :</b>            maths  <i>Education for a Connected World</i>            - Privacy and Security</p>

# Computing: Key Stage 1

## Computer Science (Foundations)

### Programming

*Pupils should be taught to understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions*

*Pupils should be taught to create and debug simple programs*

*Pupils should be taught to use logical reasoning to predict the behaviour of simple programs*

#### **Robot Algorithms.**

- To describe a series of instructions as a sequence
- To explain what happens when we change the order of instructions
- To use logical reasoning to predict the outcome of a program (series of commands)
- To explain that programming projects can have code and artwork
- To design an algorithm
- To create and debug a program that they have written

#### **An Introduction to Quizzes.**

- To explain that a sequence of commands has a start
- To explain that a sequence of commands has an outcome.
- To create a programme using a given design.
- To change a given design.
- To create a programme using my own design.
- To decide how my project can be improved.

#### **Vocabulary:**

**instruction, algorithm, program, commands, prediction, route, design, run, start, clear** (\*Y1) sequence, order, unambiguous, debugging, outcome, actions, modify, features, evaluate

#### **Links:**

*Education for a Connected World*  
- Copyright and ownership

**Year 2**

# Computing: Key Stage 2

		Digital Literacy (Implications)
<b>Year 3</b>	<b>Computer Systems and Networks</b>	<b>Safe use</b>
	<i>Pupils should be taught to 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</i>	<i>Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. They will learn about responsible use of technology, and how to make smart choices when using it</i>
	<ul style="list-style-type: none"> <li>• To explain how digital devices function</li> <li>• To identify input and output devices.</li> <li>• To recognise how digital devices can change the way we work</li> <li>• To explain how a computer network can be used to share information</li> <li>• To explore how digital devices can be connected</li> <li>• To recognise the physical components of a network</li> </ul>	<p><b>Copyright and Ownership</b></p> <ul style="list-style-type: none"> <li>• To explain why copying someone else's work from the internet without permission isn't fair and can explain what problems this might cause.</li> </ul> <p><b>Managing online information</b></p> <ul style="list-style-type: none"> <li>• To know how to use key phrases in search engines to gather accurate information online.</li> <li>• To explain what autocomplete is and how to choose the best suggestion.</li> <li>• To explain the difference between a 'belief', an 'opinion' and a 'fact. and give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories etc.</li> </ul>
	<b>Vocabulary:</b> digital device, input, process, output, program, digital, non-digital, connection, network, network switch. server, wireless access point, network cables, network sockets, secure, search, reliable, report, fair, ownership	<b>Vocabulary:</b> copyright
	<b>Summative Assessment</b>	<b>Assess using Project Evolve Y3 Knowledge maps and plan safe use coverage accordingly.</b>

# Computing: Key Stage 2

## Information Technology (Applications)

### Creating Media

### Data

*Pupils should be taught to 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*

#### Stop-frame animation

- To explain that animation is made up of a sequence of images (drawings or photographs).
- To relate animated movement with a sequence of images
- To plan an animation
- To identify the need to work consistently and carefully
- To review and improve an animation
- To evaluate the impact of adding other media to an animation

#### Desktop Publishing

- To recognise how text and images can be used together to convey information
- To recognise how text and layout can be edited.
- To choose appropriate page settings
- To add content to a desktop publishing publication
- To consider how different layouts can suit different purposes
- To consider the benefits of desktop publishing

#### Branching Databases

- To investigate questions with yes/no answers
- To identify the object attributes needed to collect relevant data
- To create a branching database
- To explain why it is helpful for a database to be well structured
- To identify objects using a branching database
- To compare the information shown in a pictogram with a branching database

#### Rubric Assessment

#### Summative Assessment

#### Vocabulary:

**image, photograph, sequence** (\*from year 2), animation, flip book, stop frame animation, frame, onion skinning, media, import, transition.

#### Vocabulary:

**text, images, font, landscape, portrait**, (\*from KS1), font style, template, orientation, placeholder, layout, content, desktop publishing, copy, paste,

#### Vocabulary:

**attribute, value, objects, pictogram** (from KS1), table, database, branching database, selecting, decision tree

#### Links:

Education for a Connected World:  
*Copyright and Ownership Managing Online Information*

#### Links:

English

#### Links:

Science

Year 3

# Computing: Key Stage 2

## Computer Science (Foundations)

### Programming

*Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts*

*Pupils should be taught to use sequence, selection, and repetition in programs; work with variables and various forms of input and output*

*Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs*

#### Sequence in Music

- To explore a new programming environment
- To identify that commands have an outcome
- To explain that a program has a start
- To recognise that a sequence of commands can have an order
- To change the appearance of my project
- To create a project from a task description

#### Rubric Assessment

#### Events in Action

- To explain how a sprite moves in an existing project
- To create a program to move a sprite in four directions
- To adapt a program to a new context
- To develop my program by adding features
- To identify and fix bugs in a program
- To design and create a maze-based challenge

#### Vocabulary:

**programming, blocks, commands, code, sprite, sequence, algorithm, bug, debug, design, resize, run** (\*from KS1) costume, stage, backdrop, motion, point in direction, go to, glide, event, action, order, logic, extension block, pen up, set up, errors

#### Links:

Education for a Connected World  
- Copyright and ownership  
- Managing online information

#### Links:

Year 3

# Computing: Key Stage 2

## Digital Literacy(Implications)

### Computer Systems and Networks

*Pupils should be taught to 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*

- To describe how networks physically connect to other networks
- To recognise how networked devices make up the internet
- To outline how websites can be shared via the World Wide Web (WWW)
- To describe how content can be added and accessed on the World Wide Web (WWW)
- To recognise how the content of the WWW is created by people
- To evaluate the consequences of unreliable content

#### Summative Assessment

#### Vocabulary:

**permission, download, website** (\* from KS1) **ownership, network, network switch, wireless access point (WAP), internet, World Wide Web, permission** (\* from Year 3) internet, router, network security, server, website, web page, web address, routing, web browser, content, links, files, adverts, sceptical, verify, fake news, positive online communication, online persona, victim, report, block, CEOP, Childline

### Safe use

*Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. They will learn about responsible use of technology, and how to make smart choices when using it*

#### Managing online information

- I can analyse information to make a judgement about probable accuracy, and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.
- I can explain what is meant by fake news, e.g. why some people will create stories or alter photographs and put them online to pretend something is true when it isn't.
- I can describe ways of identifying when online content has been commercially sponsored or boosted, (e.g. by commercial companies or by vloggers, content creators, or influencers).
- I can describe how fake news may affect someone's emotions and behaviour, and explain why this may be harmful.

#### Copyright and Ownership

- When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it.
- I can give some simple examples of content which I must not use without permission from the owner, e.g. videos, music, images.

#### Self Image and Identity

- To describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.
- To explain that others online can pretend to be someone else, including my friends, and suggest reasons why they might do this.

**Assess using Project Evolve Y3 Knowledge maps and plan safe use coverage accordingly.**

Year 4

# Computing: Key Stage 2

## Information Technology (Applications)

### Creating Media

### Data

*Pupils should be taught to 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*

#### Audio Editing

- To identify that sound can be digitally recorded.
- To use a digital device to record a sound
- To explain that a digital recording is stored as a file.
- To explain that audio can be changed through editing.
- To show that different types of audio can be combined and played together.
- To evaluate choices made.
- To evaluate editing choices made.

#### Photo Editing

- To explain that digital images can be changed.
- To change the composition of an image.
- To describe how images can be changed for different uses
- To make good choices when selecting different tools
- To recognise that not all images are real
- To evaluate how changes can improve an image

#### Data logging

- To explain that data gathered over time can be used to answer questions
- To use a digital device to collect data automatically
- To explain that a data logger collects 'data points' from sensors over time
- To use data collected over a long duration to find information
- To identify the data needed to answer questions
- To use collected data to answer questions

#### Rubric Assessment

#### Rubric Assessment

#### Rubric Assessment

#### Vocabulary:

**open, save, file, edit, speaker, headphones, record** (\*from KS1) **input, output**, (\*from Y3), audio, playback, pause, podcast, selection, mixing, time shift, export, MP3

#### Vocabulary:

**Image, edit, undo, save, select, digital, compose, composition, effects, colours, hue, adjustments, version, font style** (\*from KS1) **copyright** (\*from Y3), arrange, crop, pixels, rotate, flip, hue/saturation, sepia, illustrator, vignettere, touch, clone, recolour, magic wand, select, adjust, sharpen, brighten, composite, alter, background, foreground, publication, elements, original, border, layer

#### Vocabulary:

**data**, (\*from KS1) **table, input, device**, (\*from Y3), data logger, sensor, data point, interval, analyse, data set, import, export

#### Links:

Education for a Connected World:  
-Copyright and Ownership

#### Links:

Maths and Science

Year 4

# Computing: Key Stage 2

## Computer Science (Foundations)

### Programming

*Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts*

*Pupils should be taught to use sequence, selection, and repetition in programs; work with variables and various forms of input and output*

*Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs*

#### Repetition in Shapes

- To identify that accuracy in programming is important
- To create a program in a text-based language
- To explain what 'repeat' means
- To modify a count-controlled loop to produce a given outcome
- To decompose a task into small steps
- To create a program that uses count-controlled loops to produce a given outcome

#### Repetition in Games

- To develop the use of count-controlled loops in a different programming environment
- To explain that in programming there are infinite loops and count controlled loops
- To develop a design that includes two or more loops which run at the same time
- To modify an infinite loop in a given program
- To design a project that includes repetition

#### Vocabulary:

**program, command, algorithm, design, debug, value, programming, sprite, blocks, code,** (\*from KS1) code snippet, logo commands, pattern, repeat, repetition, loop, count-controlled loop, trace, decompose, procedure, infinite loop, animate, costume, event block, duplicate, modify

#### Links:

Education for a Connected World:

- Copyright and ownership
- Self-image and identity

Year 4



# Computing: Key Stage 2

		Digital Literacy (Implications)
<b>Year 5</b>	<b>Computer Systems and Networks</b>	<b>Safe use</b>
	<i>Pupils should be taught to 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</i>	<i>Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. They will learn about responsible use of technology, and how to make smart choices when using it</i>
	<ul style="list-style-type: none"> <li>• To explain that computers can be connected together to form systems</li> <li>• To recognise the role of computer systems in our lives</li> <li>• To recognise how information is transferred over the internet</li> <li>• To explain how sharing information online lets people in different places work together</li> <li>• To contribute to a shared project online</li> <li>• To evaluate different ways of working together online</li> </ul>	<p><b>Copyright and Ownership</b></p> <ul style="list-style-type: none"> <li>• To assess and justify when it is acceptable to use the work of others.</li> <li>• To give examples of content that is permitted to be reused and know how this content can be found online</li> </ul> <p><b>Self image and Identity</b></p> <ul style="list-style-type: none"> <li>• To explain how identity online can be copied, modified or altered.</li> <li>• To know how to make responsible choices about having an online identity, depending on context.</li> </ul> <p><b>Online relationships</b></p> <ul style="list-style-type: none"> <li>• To describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions. (e.g. gaming communities or social media groups).</li> </ul> <p><b>Online reputation</b></p> <ul style="list-style-type: none"> <li>• To describe ways that information about anyone online can be used by others to make judgments about an individual and why these may be incorrect.</li> </ul>
	<p><b>Summative Assessment</b></p> <p><b>Vocabulary:</b>  <b>digital, input, process, output positive online communication</b> (* from Y3/4), connection, system, protocol, address, packet, slide deck, chat, remix, digital footprint, copyright, infringe, plagiarism, illegal downloads, streaming, hub, social network,</p>	
<p><b>Links;</b>            Education for a Connected World:            -Copyright and ownership</p>	<p><b>Assess using Project Evolve Y5 Knowledge maps and plan safe use coverage accordingly.</b></p>	

# Computing: Key Stage 2

## Information Technology (Applications)

### Creating Media

### Data

*Pupils should be taught to 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*

#### Vector drawing

- To identify that drawing tools can be used to produce different outcomes
- To create a vector drawing by combining shapes
- To use tools to achieve a desired effect
- To recognise that vector drawings consist of layers
- To group objects to make them easier to work with
- To evaluate my vector drawing

#### Video Editing

- To explain what makes a video effective
- To identify digital devices that can record video
- To capture video using a range of techniques
- To create a storyboard
- To identify that video can be improved through reshooting and editing
- To consider the impact of the choices made when making and sharing a video

#### Flat-file databases

- To use a form to record information
- To compare paper and computer-based databases
- To outline how grouping and then sorting data allows us to answer questions
- To explain that tools can be used to select specific data
- To explain that computer programs can be used to compare data visually
- To apply my knowledge of a database to ask and answer real-world questions

#### Rubric Assessment

#### Rubric Assessment

#### Summative Assessment

#### Vocabulary:

**drawing tools, object, toolbar, move, resize, colour, order, copy, paste, duplicate** (\*from KS1/ Y3/4) vector, rotate, duplicate, zoom, align, layers, group, ungroup, reflection, vector drawing

#### Vocabulary:

**video, audio, camera, close up, microphone, lens, import, editing, clip** (\*from KS1/Y3/4) talking head, panning, mid range, long shot, moving subject, side by side, angle, static camera, zoom, tilt, storyboard, split, trim, reshoot

#### Vocabulary:

**data, group, value** (\*From KS1/Y3/Y4) sort, order, database, record, criteria, graph, chart, filter, axis,

#### Links:

Education for a Connected World:  
 - Managing online information  
 -Online relationships  
 -Online reputation  
 -Self-image and identity  
 -Copyright and Ownership

#### Links:

Maths and Science

Year 5

# Computing: Key Stage 2

## Computer Science (Foundations)

### Programming

*Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts*

*Pupils should be taught to use sequence, selection, and repetition in programs; work with variables and various forms of input and output*

*Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs*

Year 5

#### Selection in Physical Computing

- To control a simple circuit connected to a computer
- To write a program that includes count-controlled loops
- To explain that a loop can stop when a condition is met
- To explain that a loop can be used to repeatedly check whether a condition has been met
- To design a physical project that includes selection
- To create a program that controls a physical computing project

#### Rubric Assessment

#### Selection in Quizzes

- To explain how selection is used in computer programs
- To relate that a conditional statement connects a condition to an outcome
- To explain how selection directs the flow of a program
- To design a program which uses selection
- To create a program which uses selection
- To evaluate my program

#### Summative Assessment

#### Vocabulary:

**infinite loop, input, output, repetition, count controlled loop, switch, connect, connection, program, action, debug, algorithm, design, task, test, run** (\*From KS1/ Y3/4) components, Microcontroller, motor, Crumble controller, LED, Sparkle, crocodile clips, battery box, condition, selection, condition, conditional statement, outcomes, implement

#### Links:

Education for a Connected:

-Copyright and ownership

Cross curricular links to science and D.T.

# Computing: Key Stage 2

		Digital Literacy (Implications)
<b>Year 6</b>	<b>Computer Systems and Networks</b>	<b>Safe use</b>
	<i>Pupils should be taught to 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</i>	<i>Pupils should be taught to use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. They will learn about responsible use of technology, and how to make smart choices when using it</i>
	<b>Concepts</b> <ul style="list-style-type: none"> <li>• To identify how to use a search engine</li> <li>• To describe how search engines select results</li> <li>• To explain how search results are ranked</li> <li>• To recognise why the order of results is important, and to whom</li> <li>• To recognise how we communicate using technology</li> <li>• To evaluate different methods of online communication</li> </ul>	<b>Copyright and Ownership</b> <ul style="list-style-type: none"> <li>• To use of search tools to find and access online content which can be reused by others.</li> <li>• To know how to make references to and acknowledge sources I have used from the internet.</li> <li>• <b>Self image and Identity</b></li> <li>• To identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online.</li> </ul>
	<b>Summative Assessment</b>	<b>Managing online information</b> <ul style="list-style-type: none"> <li>• To describe how things shared privately online can have unintended consequences for others. e.g. screen-grabs.</li> <li>• To explain that taking or sharing inappropriate images of someone (e.g. embarrassing images), even if they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this.</li> </ul>
	<b>Vocabulary:</b> <b>search, search engine, Google, links, selection, communication, Internet, plagiarism, infringe, copyright,</b> Bing, Yahoo!, Swisscows, DuckDuckGo, refine, index, web crawler, bot, ranking, optimisation, content creator, public, private, SMS, WhatsApp, blog, Twitter, reference, acknowledge, blocking, antivirus, adware, malware, Trojan, firewall, security updates, cookie, junkmail, pop up blocker, scams, phishing, screen grab, anonymity	<b>Online reputation</b> <ul style="list-style-type: none"> <li>• To explain strategies anyone can use to protect their 'digital personality' and online reputation, including degrees of anonymity.</li> </ul> <b>Privacy and Security</b> <ul style="list-style-type: none"> <li>• To describe how and why people should keep their software and apps up to date, e.g. auto updates.</li> </ul>
<b>Links:</b> Education for a Connected World: <ul style="list-style-type: none"> <li>- Managing online information</li> <li>- Online reputation</li> </ul>	<b>Assess using Project Evolve Y6 Knowledge maps and plan safe use coverage accordingly.</b>	

# Computing: Key Stage 2

## Information Technology (Applications)

### Creating Media

### Data

*Pupils should be taught to 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*

#### 3D Modelling

- To use a computer to create and manipulate three-dimensional (3D) digital objects
- To compare working digitally with 2D and 3D graphics
- To construct a digital 3D model of a physical object
- To identify that physical objects can be broken down into a collection of 3D shapes
- To design a digital model by combining 3D objects
- To develop and improve a digital 3D model

#### Web Page Creation

- To review an existing website and consider its structure
- To plan the features of a web page
- To consider the ownership and use of images (copyright)
- To recognise the need to preview pages
- To outline the need for a navigation path
- To recognise the implications of linking to content owned by other people

#### Spreadsheets

- To identify questions which can be answered using data
- To explain that objects can be described using data
- To explain that formulas can be used to produce calculated data
- To apply formulas to data, including duplicating
- To create a spreadsheet to plan an event
- To choose suitable ways to present data

#### Rubric Assessment

#### Rubric Assessment

#### Summative Assessment

#### Vocabulary:

**2D, 3D, resize, colour, rotate, position, select, duplicate, group, ungroup, placeholder, object, resize, design, modify, evaluate**

3D object, 3D space, view, lift, dimensions, hole

#### Vocabulary:

**Website, web page, browser, media, logo, layout, header, device, evaluate** Hypertext Markup Language (HTML), copyright, fair use, preview, Google sites, breadcrumb trail, navigation, hyperlink, subpage, implication, external link, embed.

#### Vocabulary:

**data, data set, columns, rows, attribute, input, output, duplicate, graph, tools, chart, evaluate,** spreadsheets, data heading, cells, data item, common attribute, format, formula, calculation, cell reference, operation, sigma, results, comparison, software,

#### Links:

Education for a Connected World:  
-Online relationships  
-Copyright and Ownership

#### Links:

Maths and Science

Year 6

# Computing: Key Stage 2

## Computer Science (Foundations)

### Programming

*Pupils should be taught to design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts*

*Pupils should be taught to use sequence, selection, and repetition in programs; work with variables and various forms of input and output*

*Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs*

#### Variables in Games

- To define a 'variable' as something that is changeable
- To explain why a variable is used in a program
- To choose how to improve a game by using variables
- To design a project that builds on a given example
- To use my design to create a project
- To evaluate my project

#### Summative Assessment

#### Sensing

- To create a program to run on a controllable device
- To explain that selection can control the flow of a program
- To update a variable with a user input
- To use an conditional statement to compare a variable to a value
- To develop a program to use inputs and outputs on a controllable device

#### Rubric Assessment

#### Vocabulary:

**change, name, value, variable, set, change, design, event, algorithm, code, task, program, test, debug, evaluate, input output, process, USB, Micro:bit, MakeCode, selection, condition, random, sensing, accelerometer, navigation, step counter**

#### Links:

Education for a Connected World:  
-Privacy and Security  
Science and D.T

#### Links:

Education for a Connected World:  
-Privacy and Security

Year 6