# Computing  Intent Statement

## ★ INTENT

At Agate Momentum Trust, we understand that technology is a vital part of our students' daily life as they are growing up living their lives seamlessly both online and off. Through our Computing curriculum we want our students to become computational thinkers, effective problem solvers and use their creativity to create purposeful content. We also understand the accessibility opportunities technology can provide for our pupils so while Computing is taught as a discrete subject, we believe that technology has an integral role in teaching and learning across the curriculum and encourage it to be used in other subjects. Agate Momentum Trust wants to fully equip our pupils with the skills, knowledge and understanding to be digitally literate, technologically capable and fully aware of how to stay safe online. We have a number of sets of iPads, Chromebooks and laptops which are used throughout the school to enhance the learning experience for the children as well as access to an ICT Suite which hosts desktop computers.

Today's pupils have to face many positive and exciting opportunities, but also challenges and risks. We believe and ensure that we equip our pupils with the knowledge needed to make the best use of the internet and technology in a safe, considered and respectful way so they are to reap the benefits of these. The e-safety curriculum that we have mapped out will deliver online safety content within our curriculum and embed it within the wider school curriculum. We aim for our pupils to be confident, safe and competent users in an ever-changing digital world. Every year we have staff training sessions on e-Safety which address the latest developments in guidance and best practice.

## ★ IMPLEMENTATION

### LEARNING JOURNEY STRUCTURE

**Each unit of work should provide opportunities to:**
- To identify what children already know, understand and can do and any misconceptions **(Cold Task)**
- **Explicitly teach the vocabulary** identified for each topic
- To be shown good **examples of previous work** in the topic so the pupils can explore what makes a good example. (**Evaluate** against a success criteria)
- Opportunities to **explore** the programme before they start the work.
- Allow time to **apply learning** to create a purposeful outcome.
- An opportunity to raise questions or identify things they would like to improve or achieve by the end of the unit. **(Self Assess & Tinkering)**
- **Reflect** upon, research as appropriate and answer the key questions raised at the outset of the learning journey.
- There is an opportunity to communicate the outcomes/learning from a topic within a relevant context. **(Hot Task)**

**National Curriculum Statements highlighted to reflect the 3 strands of Computing -**
Computer Science (CS), Information Technology (IT) and Digital Literacy (DL)

## Purpose of study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

## Aims

The national curriculum for computing aims to ensure that all pupils:
- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

*KS1 - Pupils should be taught to:*

CS
CS
- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions

CS
IT
- create and debug simple programs

- use logical reasoning to predict the behaviour of simple programs

DL
DL
- use technology purposefully to create, organise, store, manipulate and retrieve digital content

- recognise common uses of information technology beyond school

CS
- 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.

*KS2 - Pupils should be taught to:*

CS

CS/DL
- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

CS/DL
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output

CS
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

IT
- 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

DL
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

- 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, analyzing, evaluating and presenting data and information

- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behavior; identify a range of ways to report concerns about content and contact.

**E-safety  Classroom Guidance ( DIGITAL LITERACY)**

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- When searching the internet for information, care and consideration needs to be given as to the most appropriate method. This will depend on the age of the class. Younger children should be searching within a website such as the BBC, using a Google custom search (only searching a set of pre-determined sites), or using a child-friendly search engine such as :
    - Kidtopia - https://www.kidtopia.info/
    - Kid's Search Engine. - https://kidssearch.com/
    - Kiddle - https://www.kiddle.co/
    - DuckDuckGo - https://duckduckgo.com/
    - KidRex - https://www.alarms.org/kidrex/
    - Safe Search Kids - https://www.safesearchkids.com/
    - Fact Monster - https://www.factmonster.com/

- Teachers should test out searches before the children do to ensure the search terms and results are appropriate.
- Teachers should pre watch any You tube videos to ensure content is appropriate for children. If playing or sharing links to videos from youtube teachers can type in **_popup after the word <span style="color:red">watch</span> in the URL** which allows you to share the video without the popup ads and it plays in full screen
- It is not recommended that children use Google image search – the internet content filter cannot always distinguish between appropriate and inappropriate images as it uses text to filter websites.. There are child-friendly image sites which can be used for image searching, or search for a website and select appropriate images. **( our school does have a safety filter but sometime images can still slip through )**
- Each class will need to remind the children what they should do if they find something inappropriate online – minimise, turn off the monitor and tell an adult.
- Teachers go through AUP - Acceptable use policy with their class at the start of the year and display the rules agreed to in it. https://docs.google.com/document/d/1y1tlyB3SWVtczewI8j8kQt8Xywpvc871JX09uxDt5Pk/edit?usp=sharing
- **Teachers must ensure the 1st lesson of each term is an E-safety lesson. Teachers should begin every lesson with a quick starter about E-safety using the points collated for their year group for topic coverage**
- https://projectevolve.co.uk/guidance/finding-resources/ has many useful links to the strands, themes for e-safety to teach different year groups

## Enrichment

Clubs ? Trips ?   Visitors ?

Staff Training - Luke Craig

- For all areas, wherever possible, make links back to **real life** – how and why the different concepts are used both in and outside school. This is so that the pupils can start to see the relevance of Computing and build skills they would use in the future. Cross curricular links are very important for purposeful learning

- Pupils need to have experience of a range of software / apps for each strand. For example, they should experience different software for word processing, not just Word. Ideas on software that could be used are given.

## ★ IMPACT

How the success of children is measured

How do children celebrate their successes

How do children know what they need to do to progress

Is computing discussed on end of year reports

How is the curriculum adapted for  SEND

Teaching the same strand of computing across most of the school in the same terms allows us to see progression easily during monitoring and teachers can also talk to each other and compare what they are teaching.

## Assessment

Ongoing assessment (also known as formative assessment) is an integral part of the learning and development process. It involves practitioners knowing children's level of achievement and interests, and then shaping teaching  and learning experiences for each child reflecting that knowledge. Teachers using the curriculum map will have the learning objectives to use for assessment and planning purposes.

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## Effective Learner Objectives

Within each unit of the Computing framework teachers should also focus on the following objectives. These can be covered by any year groups, at any time. Some of these objectives will lend themselves to certain topics better than others, or teachers may feel that certain pupils or classes need to focus on specific objectives. These objectives do not only relate to Computing but could be focused on in any subject area.

| Ability to work independently | Ability to work with each other | Resilience and challenge | Creativity | Academic progress |
|---|---|---|---|---|
| I can take independent notes at appropriate times | I am willing to work with others in a supportive manner | I attempt tasks set or extension work | I can come up with ideas and use these ideas to help myself | I am enthusiastic about the lesson and contribute |
| I do not rely on the teacher or other students for work | I share thoughts and ideas with the rest of the group or class | I ask relevant questions of the teacher | I am keen to express my ideas in different ways | I am keen to improve |
| I can explore and aim to solve a problem before asking adults for support | I communicate relevantly within a group using key vocabulary taught | I engage in different activities and small competitions, accepting and embracing challenges | I take other's ideas into account alongside my own | I understand how to improve |

*PrimaryComputing.co.uk*

## Glossary

Computing Overview

| | | | | |
|---|---|---|---|---|
| **algorithm** | an unambiguous procedure or precise step-by-step guide to solve a problem or achieve a particular objective | | **program** | a stored set of instructions encoded in a language understood by the computer that does some form of computation, processing input and / or stored data to generate output |
| **computer networks** | the computers and the connecting hardware (wifi access points, cables, fibres, switches and routers) that make it possible to transfer data using an agreed method ('protocol') | | **repetition** | a programming construct in which one or more instructions are repeated, perhaps a certain number of times, until a condition is satisfied or until the program is stopped |
| **control** | using computers to move or otherwise change 'physical' systems. The computer can be hidden inside the system or connected to it | | **search** | to identify data that satisfied one or more conditions, such as web pages containing supplied keywords, or files on a computer with certain properties |
| **data** | a structured set of numbers, representing digitised text, images, sound or video, which can be processed or transmitted by a computer | | **selection** | a programming construct in which the instructions that are executed are determined by whether a particular condition is met |
| **debug** | to detect and correct the errors in a computer program | | **sequence** | to place programming instructions in order, with each executed one after the other |
| **digital content** | any media created, edited or viewed on a computer, such as text (including the hypertext of a web page), images, sound, video (including animation), or virtual environments, and combinations of these (i.e. multimedia) | | **services** | programs running on computers, typically those connected to the internet, which provide functionality in response to requests; for example, to transmit a web page, deliver and email or allow a text, voice or video conversation |
| **information** | the meaning or interpretation given to a set of data by its users, or which results from data being processed | | **simulation** | using a computer to model the state and behaviour of real-world (or imaginary) systems, including physical and social systems; an integral part of most computer games |
| **input** | data provided to a computer system, such as via a keyboard, mouse, microphone, camera or physical sensors | | **software** | computer programs, including both application software (such as office programs, web browsers, media editors and games) and the computer operating system. The term also applies to 'apps' running on mobile devices and to web-based services |
| **internet** | the global collection of computer networks and their connections, all using shared protocols (TCP/IP - transmission control protocol/internet protocol) to communicate | | **variables** | a way in which computer programs can store, retrieve or change simple data, such as a score, the time left, or the user's name |
| **logical reasoning** | a systematic approach to solving problems or deducing information using a set of universally applicable and totally reliable rules | | **World Wide Web** | a service provided by computers connected to the internet (web servers), in which pages of hypertext (web pages) are transmitted to users; the pages typically include links to other web pages and may be generated by programs automatically |
| **output** | the information produced by a computer system for its user, typically on a screen, through speakers or on a printer, but possibly through the control of motors in physical systems | | | |

# Whole School Curriculum Map Overview with E-Safety

Computing Overview

|  | __Term 1__ | __Term 2__ | __Term 3__ |
|---|---|---|---|
| **Reception & Nursery** | | | **Basic Technology**<br><br>__Programming__<br><br>STEM Computer Science<br>Simple instructions and debugging<br>Physical Coding , Unplugged coding<br>● **Beebots** |
| **E- safety** | ● I can recognise that I can say 'no' / 'please stop' / 'I'll tell' / 'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset.<br>● I can explain how this could be either in real life or online.<br>● I can identify some simple examples of my personal information (e.g. name, address, birthday, age, location).<br>● I can describe the people I can trust and can share this with; I can explain why I can trust them.<br>● I can identify rules that help keep us safe and healthy in and beyond the home when using technology.<br>● I can give some simple examples. | ● I can identify ways that I can put information on the internet.<br>● I can recognise some ways in which the internet can be used to communicate.<br>● I can give examples of how I (might) use technology to communicate with people I know.<br>● I can talk about how I can use the internet to find things out.<br>● I can identify devices I could use to access information on the internet.<br>● I can give simple examples of how to find information (e.g. search engine, voice activated searching).<br>● I can describe ways that some people can be unkind online. I can offer examples of how this can make others feel.<br>● | ● Reinforce objectives from the first two terms |

Computing Overview

| | | Term 1 | Term 2 | Term 3 |
|---|---|---|---|---|
| **Year 1** | | **Computer skills**<br>IT Basic Skill  Information Technology Digital Literacy<br>Possible cross curricular link - Science humans and features<br>Logging on, keyboard skills and navigation, finding programs. Saving and retrieving work. Using the internet<br><br>2nd Half of term -<br> **Introduction to Multimedia - Digital Art**<br>Information Technology Digital Literacy<br>Possible cross curricular link- link to science - humans<br>Create images , editing , saving , drawing tools, inserting photo to edit, images. | **Introducing Data Handling**<br>STEM  Computer Science +Information Technology<br>Possible cross curricular link - Science weather<br>Long term class learning to create a tally graph of weather over the period of at least 1 month.<br><br>2nd Half of term : if possible<br> **Introduction to Multimedia**<br>Information Technology Digital Literacy<br>create a simple story<br>● animation to tell a story -<br>● create a book - | **Programming**<br>STEM  Computer Science<br>Possible cross curricular link -<br>Simple instructions and debugging in Physical Coding ,<br>Unplugged coding,<br>On Screen Coding<br><br>● BeeBots, **Probots** J2E Jit 5,Scratch |
| **E- safety** | | Being me in my World<br><br>● I can use the internet to find things out.<br>● I can use simple keywords in search engines.<br>● I can describe and demonstrate how to get help from a trusted adult or helpline if I find content that makes me feel sad, uncomfortable worried or frightened.<br>● I can explain why work I create using technology belongs to me.<br>● I can say why it belongs to me (e.g. 'it is my idea' or 'I designed it').<br>● I can save my work so that others know it belongs to me (e.g. filename, name on content).<br><br>Celebrating Differences<br>● I can recognise that there may be people online who could make me feel sad, embarrassed or upset<br>● If something happens that makes me feel sad, worried, uncomfortable or frightened I can give | Dreams and goals<br><br>● I can recognise that information can stay online and could be copied.<br>● I can describe what information I should not put online without asking a trusted adult first.<br><br>Healthy Me<br><br>● I can explain rules to keep us safe when we are using technology both in and beyond the home. I can explain<br>● simple guidance for using technology<br>● I can give examples of some of these rules | Relationships<br><br>● I can use the internet with adult support to communicate with people I know.<br>● I can explain why it is important to be considerate and kind to people online.<br>● I can describe how to behave online in ways that do not upset others and can give examples.<br><br>Changing Me<br><br>● I can recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school).<br>● I can explain why I should always ask a trusted adult before I share any information about myself online.<br>● I can explain how passwords can be used to protect information and devices. |

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| | examples of when and how to speak to an adult I can trust<br>● | | |
|---|---|---|---|
| | **Term 1** | **Term 2** | **Term 3** |
| **Year 2** | **Word Processing**<br>IT Basic Skill  Information Technology<br>Possible cross curricular link - Literacy story / poems writing / Topic Curiosity projects Confidence and skills builder<br>*Logging on, keyboard skills and navigation, finding programs*<br>*Saving and retrieving work*<br>*Using the internet - Yr1 revise* | **1st Half of term : Data Handling**<br>STEM  Information Technology<br>Curriculum link to DT  - Cooking and Nutrition<br>Counting ,Displaying Numerical Information<br>Survey classes preferred sandwich bread and fillers.<br>Create tally charts and pictograms<br>Can be used in DT books to show cross curricular- how decisions were made on choice of ingredients.<br><br>**2nd Half of term : Multimedia -**<br>IT Basic Skill  Information Technology<br>Curriculum link to topic/ literacy/reading<br>exploring and creating media with images | **Programming**<br>STEM - Computer Science<br>Basic on screen coding to move sprites and achieve an end goal<br><br>Curriculum catch up year 1- missed - J2E Code lessons 1- 3 J2E Jit 5 Turtle<br><br>Programming - Animations in Scratch Jr |
| **E- safety** | **Being me in my World**<br>● I can use keywords in search engines.<br>● I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections).<br>● I can explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri).<br>● I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'<br>● I can explain why some information I find online may not be true.<br>● I can describe why other people's work belongs to them.<br>● I can recognise that content on the internet may belong to other people.<br><br>**Celebrating Differences**<br>● I can explain how other people's identity online can be different to their identity in real life.<br>● I can describe ways in which people might make themselves look different online. | **Dreams and goals**<br><br>● I can explain how information put online about me can last for a long time.<br>● I know who to talk to if I think someone has made a mistake about putting something online.<br><br>**Healthy Me**<br><br>● I can explain simple guidance for using technology in different environments and settings.<br>● I can say how those rules/guides can help me | **Relationships**<br><br>● I can use the internet to communicate with people I don't know well (e.g. email a penpal in another school/ country)<br>● I can give examples of how I might use technology to communicate with others I don't know well.<br>● I can give examples of bullying behaviour and how it could look online.<br>● I understand how bullying can make someone feel.<br>● I can talk about how someone can/would get help about being bullied online or offline.<br><br>**Changing Me**<br><br>● I can describe how online information about me could be seen by others.<br>● I can describe and explain some rules for keeping my information private.<br>● I can explain what passwords are and can use passwords for my accounts and devices. |

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| | ● I can give examples of issues online that might make me feel sad, worried, uncomfortable or frightened; I can give examples of how I might get help | | ● I can explain how many devices in my home could be connected to the internet and can list some of those devices. |
| | **Term 1** | **Term 2** | **Term 3** |
| **Year 3** | **Multi-Media - Audio Books**<br>IT Basic Skill  Information Technology<br>Possible cross curricular link - Literacy / History / Science<br>Working with sound. Record, playback and listen. Find examples of audio books online – identify target audience. Exploring representation in radio & TV ads<br>Consider how online environments start to gather information re: user's identity/preferences and tailor/target ads | **Data Handling**<br>STEM<br>Curriculum link to DT - Cooking and Nutrition/ geography / Science / RE<br>Collect data through surveys to analyse and create different types of charts (Pie, bar, line) to analyse data. can the collected data influence a decision or tell something interesting about the group who were surveyed/ solve a problem.<br>eg) inform products re: design – cooking and nutrition<br><br>Chn can present outcomes to the classroom and show another class what they have found out from their Data and what they will do as a result of what is discovered. | **Programming**<br>STEM -  Computer Science<br><br><br>J2E - Logo<br>Teach Computing  - making music - Scratch<br>Purple Mash<br><br>Using code to create something or solve a problem |
| **E- safety** | **Being me in my World**<br>● I can use key phrases in search engines.<br>● I can explain what autocomplete is and how to choose the best suggestion.<br>● I can explain how the internet can be used to sell and buy things.<br>● I can explain the difference between a 'belief', an 'opinion' and a 'fact'.<br>● I can explain why copying someone else's work from the internet without permission can cause problems.<br>● I can give examples of what those problems might be.<br>● I can describe rules about how to behave online and how I follow them.<br><br>**Celebrating Differences**<br>● I can explain what is meant by the term 'identity'.<br>● I can explain how I can represent myself in different ways online.<br>● I can explain ways in which and why I might change my identity depending on what I am doing online (e.g. gaming; using an avatar; social media). | **Dreams and goals**<br>● I can search for information about myself online. I can recognise I need to be careful before I find and share anything about myself or others online.<br>● I know who I should ask if I am not sure if I should put something online.<br><br>**Changing Me**<br>● I can give reasons why I should only share information with people I choose to and can trust. I can explain that if I am not sure or I feel pressured, I should ask a trusted adult.<br>● I understand and can give reasons why passwords are important.<br>● I can describe simple strategies for creating and keeping passwords private.<br>● I can describe how connected devices can collect and share my information with others.<br><br>  **Healthy Me** | **Relationships**<br>● I can describe ways people who have similar likes and interests can get together online.<br>● I can give examples of technology specific forms of communication (e.g. acronyms, text speak).<br>● I can explain some risks of communicating online with others I don't know well.<br>● I can explain why I should be careful who I trust online and what information I can trust them with.<br>● I can explain how my and other people's feelings can be hurt by what is said or written online.<br>● I can explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried.<br>● I can explain what it means to 'know someone' online and why this might be different from knowing someone in real life.<br>● I can explain what is meant by 'trusting someone online'. I can explain why this is different from 'liking someone online'.<br>● I can explain what bullying is and can describe how people may bully others. |

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| | | <ul><li>I can explain why spending too much time using technology can sometimes have a negative impact on me;</li><li>I can give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos).</li><li></li></ul> | <ul><li>Review how much time we spend engaging with mobiles/ gaming/digital devices/watching TV</li></ul> |
| | | **Term 1** | **Term 2** | **Term 3** |

| | Term 1 | Term 2 | Term 3 |
|---|---|---|---|
| **Year 4** | **Multi-Media -Images**<br>IT Basic Skill  Information Technology<br><br>Possible cross curricular link - History / Art<br><br>Creating and manipulating an image. Working with existing images and manipulation from stills to animation. adding sound to stop motion or creating a movie intro | **Computing systems and networks – The Internet**<br><br><br>**Data Handling -**  STEM  Computer Science<br><br>Possible cross curricular link :<br>PSHE- Healthy Me ; Geography - Quality of life in a city vs town ; RE - different religions in our communities<br><br>Collect data to analyze. can the collected data influence a decision or tell something interesting Chn can present outcomes and show  what they have found out from their Data and what they will do as a result of what is discovered. Eg) Conduct an investigation- ( Happiness Investigation) | **Programming**<br>STEM - Computer Science<br>Possible cross curricular link : ART/ DT<br>Use code to create something like  make their name and explain how they make it and record screen. save on classroom -<br><br>Build and program something to move and solve a problem- lifta barrier/move a ball/<br>test and improve build and code |
| **E- safety** | **Being me in my World**<br><ul><li>I can analyse information and differentiate between 'opinions', 'beliefs' and 'facts'. I understand what criteria have to be met before something is a 'fact'.</li><li>I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites).</li><li>I can describe some of the methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop-ups) and can recognise some of these when they appear online.</li><li>I can explain that some people I 'meet online' (e.g. through social media) may be computer programmes pretending to be real people.</li></ul> | **Dreams and goals**<br><ul><li>I can describe how others can find out information about me by looking online.</li><li>I can explain ways that some of the information about me online could have been created, copied or shared by others.</li></ul><br>**Healthy Me**<br><ul><li>I can explain how using technology can distract me from other things I might do or should be doing.</li><li>I can identify times or situations when I might need to limit the amount of time I use technology</li><li>I can suggest strategies to help me limit this time.</li></ul> | **Relationships**<br><ul><li>I can describe strategies for safe and fun experiences in a range of online social environments.</li><li>I can give examples of how to be respectful to others online.</li><li>I can identify some online technologies where bullying might take place.</li><li>I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat).</li><li>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).</li></ul>**Changing Me** |

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| | <ul><li>I can explain why lots of people sharing the same opinions or beliefs online does not make those opinions or beliefs true.</li><li>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.</li><li>I can give some simple examples.</li></ul>**Celebrating Differences**<ul><li>I can explain how my online identity can be different to the identity I present in 'real life' Knowing this,</li><li>I can describe the right decisions about how I interact with others and how others perceive me.</li></ul> | | <ul><li>I can explain what a strong password is.</li><li>I can describe strategies for keeping my personal information private, depending on context.</li><li>I can explain that others online can pretend to be me or other people, including my friends.</li><li>I can suggest reasons why they might do this.</li><li>I can explain how internet use can be monitored.</li></ul> |
| | **Term 1** | **Term 2** | **Term 3** |
| **Year 5** | **Multimedia**<br>IT Basic Skilll  Information Technology<br>Possible cross curricular link - History /<br>G Suite for Education integrated skills builder. Using technology to solve a problem. Creating a website for their year group / subject<br>       **Additional topic for enrichment**<br>       Creating 3D Art project on - visitor led | **Data Handling**<br>STEM  Information Technology<br><br>Possible cross curricular link - Science<br><br>Conduct an investigation/ enquiry<br>Use stimulus to raise questions in class. | **Programming**<br>STEM -  Computer Science<br>Possible cross curricular link -<br>(Block coding) Create a game using block commands<br>Exploring online games. What are the scenarios re: children playing games online which involve interaction with other players online? Look at the world of gaming and communication with other players. |

| E- safety | **Being me in my World** | **Dreams and goals** | **Relationships** |
|---|---|---|---|
| | • I can use different search technologies.<br>• I can evaluate digital content and can explain how I make choices from search results.<br>• I can explain key concepts including: data, information, fact, opinion belief, true, false, valid, reliable and evidence.<br>• I understand the difference between online mis-information (inaccurate information distributed by accident) and dis-information (inaccurate information deliberately distributed and intended to mislead).<br>• I can explain what is meant by 'being sceptical'. I can give examples of when it is important to be 'sceptical'.<br>• I can explain what is meant by a 'hoax'. I can explain why I need to think before I forward anything online.<br>• I can explain why some information I find online may not be honest, accurate or legal.<br>• I can explain why information that is on a large number of sites may still be inaccurate or untrue. I can assess how this might happen (e.g. the sharing of misinformation either by accident or on purpose).<br>• I can assess and justify when it is acceptable to use the work of others.<br>• I can give examples of content that is permitted to be reused.<br>**Celebrating Differences**<br>• I can explain how identity online can be copied, modified or altered.<br>• I can demonstrate responsible choices about my online identity, depending on context. | • I can search for information about an individual online and create a summary report of the information I find.<br>• I can describe ways that information about people online can be used by others to make judgments about an individual.<br><br>**Healthy Me**<br><br>• I can describe ways technology can affect healthy sleep and can describe some of the issues.<br>• I can describe some strategies, tips or advice to promote healthy sleep with regards to technology | • I can explain that there are some people I communicate with online who may want to do me or my friends harm. I can recognise that this is not my/our fault.<br>• I can make positive contributions and be part of online communities.<br>• I can describe some of the communities in which I am involved and describe how I collaborate with others positively.<br>• I can recognise when someone is upset, hurt or angry online.<br>• I can describe how to get help for someone that is being bullied online and assess when I need to do or say something or tell someone.<br>• I can explain how to block abusive users.<br>• I can explain how I would report online bullying on the apps and platforms that I use.<br>• I can describe the helpline services who can support me and what I would say and do if I needed their help (e.g. Childline).<br>**Changing Me**<br>• I can create strong and secure passwords.<br>• I can explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, geolocation) with others<br>• I can explain how and why some apps may request or take payment for additional content and explain why I should seek permission from a trusted adult before purchasing. |
| | **Term 1** | **Term 2** | **Term 3** |
| Year 6 | **Data Handling**<br>Information Technology<br>Possible cross curricular link - PSHE & E-safety<br>Research surveys to explore or solve a problem. ( E-safety Investigation) Data Manipulation - create graphs and presentation slides to explain findings. | **Using Technology to learn**<br>IT Basic Skill   Information Technology<br>J2e Blast, SPAG.com, Arithmetic, Times tables apps, Spelling , TTRS, Mathletics, Learn By Questions Google Classroom, Slides, Docs. | **Programming**<br>STEM -  Computer Science<br>Possible cross curricular link - DT: Mechanisms/ Control technology / computing systems (Lego We Do - teach through computing) Build and program something to move and solve a problem -Catch up curriculum topic - should be in yr 4<br>Learning a coding language introduction to code with python |

Computing Overview

| E- safety | **Being me in my World** <br> • I can use search technologies effectively. <br> • I can explain how search engines work and how results are selected and ranked. <br> • I can demonstrate the strategies I would apply to be discerning in evaluating digital content. <br> • I can describe how some online information can be opinion and can offer examples. <br> • I can explain how and why some people may present 'opinions' as 'facts'. <br> • I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online (e.g. advertising and 'ad targeting'). <br> • 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. <br> • I can identify, flag and report inappropriate content. <br> • I can demonstrate the use of search tools to find and access online content which can be reused by others. <br> • I can demonstrate how to make references to and acknowledge sources I have used from the internet. <br> • | **Dreams and goals** <br> • I can explain how I am developing an online reputation which will allow other people to form an opinion of me. <br> • I can describe some simple ways that help build a positive online reputation. <br> **Healthy Me** <br> • I can describe common systems that regulate age-related content (e.g. PEGI, BBFC, parental warnings) and describe their purpose. <br> • I can assess and action different strategies to limit the impact of technology on my health (e.g. night shift mode, regular breaks, correct posture, sleep, diet and exercise). <br> • I can explain the importance of self regulating my use of technology; I can demonstrate the strategies I use to do this (e.g. monitoring my time online, avoiding accidents ). <br> **Celebrating Differences** <br> • I can describe ways in which media can shape ideas about gender. <br> • I can identify messages about gender roles and make judgements based on them. <br> • I can challenge and explain why it is important to reject inappropriate messages about gender online. <br> • I can describe issues online that might make me or others feel sad, worried, uncomfortable or frightened. I know and can give examples of how I might get help, both on and offline. <br> • I can explain why I should keep asking until I get the help I need. | **Relationships** <br> • I can show I understand my responsibilities for the well-being of others in my online social group. <br> • I can explain how impulsive and rash communications online may cause problems (e.g. flaming, content produced in live streaming). <br> • I can demonstrate how I would support others (including those who are having difficulties) online. <br> • I can demonstrate ways of reporting problems online for both myself and my friends. <br> • I can describe how to capture bullying content as evidence (e.g screen-grab, URL, profile) to share with others who can help me. <br> • I can identify a range of ways to report concerns both in school and at home about online bullying. <br> **Changing Me** <br> • I use different passwords for a range of online services <br> • I can describe effective strategies for managing those passwords (e.g. password managers, acronyms, stories). <br> • I know what to do if my password is lost or stolen <br> • I can explain what app permissions are and can give some examples from the technology or services I use. <br> • I can describe simple ways to increase privacy on apps and services that provide privacy settings. <br> • 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) <br> • |
|---|---|---|---|

# <span style="color:purple">Whole School Curriculum Map</span>

## <u>Early Years :</u>

❖ **Possible ways to use computing to support the teaching and learning of EYFS**

➢ **Skilled word reading. Enjoy sharing books with an adult.**

- record children reading / chn make videos of themselves reading to share favourite stories/ record video of children telling their story/ ( Support SEN for literacy - record oral rehearsal for play back)

➢ **Provide a wide range of stimulating equipment to encourage children's mark-making. Enjoy drawing freely. Add some marks to their drawings, which they give meaning to**.

- Paint/ draw apps on Ipads for mark making

➢ **Phonics**

- apps like Zoolingo can help with letter recognition and pronunciation

➢ **Encourage children to play freely with blocks, shapes, shape puzzles and shape-sorters. Help children to learn number bonds. Counting and adding.**

- Maths game app

➢ **Bring their own interests and fascinations into early years settings. This helps them to develop their learning. Provide appropriate non-fiction books and links to information online to help them follow their interests.**

➢ **Know more, so feel confident about coming up with their own ideas. Make more links between those ideas. Suggestion: you could look together at woodlice and caterpillars outdoors with the magnifying app on a tablet. You could ask: "What's similar about caterpillars and other insects?" You could use and explain terms like 'antennae' and 'thorax'.**

➢ **Listen to and talk about stories to build familiarity and understanding. -Read and re-read selected stories. Show enjoyment of the story using your voice and manner to make the meaning clear. Use different voices for the narrator and each character.**

➢ communication with parents and homework.

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**Computing programme of study** (NC)

by the end of KS1 pupils should be taught to:

❖ use technology purposefully to create, organise, store, manipulate and retrieve digital content

❖ recognise common uses of information technology beyond school

❖ to **save** and **retrieve** their work to edit it, and **print** their work.

**Software/ hardware:**

Beebots/ Cameras/ iPads

**Key Vocabulary:**
Computer, Keyboard, Device, Tablet, Online, record, share,

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| Year 1 : TERM 1<br><br>Information Technology, Digital Literacy<br><br>❖ **IT Basic Skills Building**<br><br>❖ **Communication** | **Computing programme of study** (NC)<br>by the end of KS1 pupils should be taught to:<br>❖ use technology purposefully to create, organise, store, manipulate and retrieve digital content<br>❖ recognise common uses of information technology beyond school<br>❖ to **save** and **retrieve** their work to edit it, and **print** their work. |
|---|---|

| Learning Objectives/ SC | What this could look like | Software: |
|---|---|---|
| *Use technology purposefully to create, organise, store, manipulate and retrieve digital content*<br>**Basic Skills building / Word Processing**<br>● I can name the main parts of a computer<br>● I can switch on and log into a computer<br>● I can use a mouse to open a program<br>● I can use a mouse to click and drag<br>● I can click and drag to move/ make objects on a screen<br>● I can use a mouse to create a picture<br>● I know how to work with a touch screen device and use computers/keyboards/mouse<br>● I know how to type letters and words with increasing confidence using a keyboard / touch pad on a tablet.<br>● I can use letters, numbers,basic punctuation, spacebar and enter key to type words and sentences in a reasonable time<br>● I can use backspace / delete to make corrections to letters or words<br>● To make changes to text I can select a word or all of the text by double clicking<br>● I can use shift key for punctuation ( capital letters )<br>● I know how to make a new line using enter/return<br>● I can use bold, italic, and underline<br>● I can say why I prefer typing or writing<br>● I can use 'undo' to remove changes<br>● I know how to use index fingers on keyboard home keys (f/j), use left fingers for a/s/d/f/g, and use right fingers for h/j/k/l<br>● I can use good posture and sit up to the computer | ● Pupils use word processing software to write letters, stories, poems<br>● Be able to edit work, not just start again<br>● Save work and retrieve<br><br>**Curricular links:**<br><br>● Various topic links<br>Literacy - stories<br><br><br>[How to keep our personal information private - BBC Bitesize](#) - Quiz<br><br>[4-7s | CEOP Education (thinkuknow.co.uk)](#) | **Purple Mash:**<br>**2Publish, 2Publish+**, 2create a story, 2 Type, Clicker 6, Word, Google Docs, https://www.j2e.com/j2write/<br>● Busy Things<br>● **BBC Dance Mat**<br>http://computingspotlight.lgfl.org.uk/default.html - Sequences<br><br>**Key Vocabulary**<br>Computer, Keyboard, Device, Tablet, Text, Font type, Space Bar, Delete, Return Key, Enter, Mouse, Trackpad, arrow keys,cursor, select, Image, Save, Password<br><br>**Computer** - A device that can follow instructions stored in its memory.<br>**Digital device** - A machine that has a computer inside.<br>**Internet** - A giant network of computers connected across the world.<br>**Private** - Sharing something with only a small trusted group of people.<br>**Personal information** - Information that could be used to identify someone.<br>**Username** - A nickname used to login to a game, app or account.<br>**Password** - A secret series of letters, numbers and symbols used to keep an account private.<br>**Trusted adult** - An adult that you know and will keep you safe. |

| Year 1: TERM 2<br><br>**Data Handling -** Information Technology | **Computing programme of study**(NC) – by the end of KS1 pupils should be taught to:<br>❖  Use technology purposefully to create, organise, store, manipulate and retrieve digital content<br>❖  Recognise common uses of information technology beyond school<br>   To **save** and **retrieve** their work to edit it, and **print** their work. |
|---|---|

| Learning Objectives/ SC | What this could look like | Resources: |
|---|---|---|
| **Graphs:**<br>● Begin to develop simple classification skills by carrying out simple sorting activities away from the computer<br>● Continue to develop simple classification skills by carrying out simple sorting activities using ICT<br>● To choose an attribute to group objects by<br>● I can identify the label for a group of objects - ( Labeling tables/graphs)<br>● To explain that objects can be grouped by similarities (attribute)<br>● To identify that objects can be counted<br>● To show that collected data can be counted<br>● To collect simple data<br>● I can record data in a tally chart.<br>● I can compare totals in a tally chart.<br>● I can use a tally chart to create a pictogram<br>● To produce simple tally chart and  pictograms with help<br>● I can use pictograms to answer simple questions about objects.<br>● I can sort items into sets or simple tables<br>● I can draw a simple graph, e.g. pictogram / block graph / tally chart<br>● I can explain what the graph shows<br>● To recognise that information can be presented in different ways | ● Long term class learning to create a tally graph of weather over the period of at least 1 month<br>● Sort objects / items into groups by given and own criteria<br>● Collect a set of data – as class / group / individual and present as a simple graph<br>● Talk about the graph and what it shows and use it to make predictions e.g.  Predict what the weather might look like over the next week, month…<br>● Create a class survey to investigate topic ( favourite type of books)<br><br>**Curricular links:**<br><br>● Maths – pictograms, sorting into sets e.g. shapes<br>● Science – sorting materials/ weather patterns<br>● Geography – survey linked to school location / local area / homes | **chromebooks, ipads, PC**<br><br>**Software**:<br>Purple Mash: 2count, Starting graph.  J2E<br><br>**Other resources**:<br>https://teachcomputing.org/curriculum/key-stage-1/data-and-information-grouping-data<br><br>**Key Vocabulary:**<br><br>Columns, category, tally chart, pictograms, explain,sort, data, count, list |

| Year 1: TERM 2<br><br>**Multimedia** - Information Technology | **Computing programme of study** (NC)– by the end of KS1 pupils should be taught to:<br>❖ Use technology purposefully to create, organise, store, manipulate and retrieve digital content<br>❖ Recognise common uses of information technology beyond school<br> To **save** and **retrieve** their work to edit it, and **print** their work. |
| --- | --- |

## Objectives/ SC

**Creating images:**
- I can paint with different colours using undo or eraser to correct mistakes
- I can use different tools such as brush, pen, line, shape and fill
- I can change the colour or size of the brush
- To change fill colour in a shape
- I can make marks on a screen and explain which tools I used
- To use tools to draw shapes / lines
- To use the undo button to correct a mistake
- I can spot the differences between painting on a computer and on paper
- I can say whether I prefer painting using a computer or using paper
- I know how to create a simple digital collage.
- I know how to move and resize images with my fingers or mouse.
- I know how to add labels to an image
- I know how to order images to create a simple storyboard.

**Animation / Audio:**
- I can record an audio recording
- I can play back an audio recording
- I know how to dictate short, clear sentences into a digital device.
- I can record my voice over a picture.
- I know how to add filters and stickers to enhance an animation of a character.
- I know how to create an animation to tell a story with more than one scene.
- I know how to add my own pictures to my story animation.

## What this could look like

- Create pictures linked to other topics exploring different tools. Start to use tools with more expertise and precision
- Take photographs for a purpose e.g. of their model or practical maths work to share with others. Become more skilled at framing and taking photographs
- Combine photographs / images in an online book
- Use digital tools to create their own digital paintings, while gaining inspiration from a range of artists' work. - Purple Mash unit
- Make sound recordings for a purpose e.g. poems to be saved for class anthology; weather report to accompany weather map; interview with famous person - Do Ink Green Screen
- Create a short animation to tell a story with photos taken/ created and inserted - Do Ink / puppet pals

## Possible teaching Resources

**Hardware**:
digital camera, web-cam (on PC / iPad/ Chromebook), sound recorders
inbuilt camera and sound recorder
**Software**:
Colour Magic -
https://download.cnet.com/Color-Magic/3000-2192_4-76139022.html
Purple Mash: 2paint, 2paint a picture, 2create a story,
Clicker 6
https://www.j2e.com/jit5 -animate
Morfo Booth,
My Story,
https://paintz.app/
Puppet Pals -
https://www.youtube.com/watch?v=wPYbgquL6wk
Do Ink animate / Green screen
http://www.doink.com/

**Other resources:**
https://teachcomputing.org/

Computing Overview

| Year 1: TERM 3<br><br>Programming - Computer Science | Computing programme of study (NC) – by the end of KS1 pupils should be taught to:<br>● understand what algorithms are; how they are implemented as programs on digital devices<br>● recognise common uses of information technology beyond school |
|---|---|

| Objectives | What this could look like | Resources |
|---|---|---|
| **Programming:**<br>● I can move a programmable toy in different directions, by giving and following instructions<br>● I can combine commands to follow a route<br>● I can explore outcomes when a instructions are given in different orders<br>● I can explain what an algorithm is<br>● I can describe and write algorithms to complete specific tasks<br>● I know how to use sequence in programs<br>● I know how to locate and fix bugs in my program<br>● I can use logical reasoning to predict the behaviour of simple programs<br><br>**Animation Programming:**<br>● I can find which commands to move a sprite<br>● I can use commands to move a sprite<br>● I can compare different programming tools<br>● I can use more than one block by joining them together<br>● I can use a Start block in a program<br>● I can run my program<br>● I can find blocks that have numbers<br>● I can change the value<br>● I can say what happens when I change a value<br>● I can explain that each sprite has its own instructions<br>● I can show that a project can include more than one sprite<br>● I can delete a sprite<br>● I can add blocks to each of my sprites<br>● I can decide how each sprite will move<br>● I can create an algorithm for each sprite<br>● I can test the programs I have created<br>● I can evaluate and edit my program | ○ Using Bee-Bot on floor mat to ensure can enter commands to follow route, plan and follow own route – Bee Bot challenges<br>○ Reinforce with software and apps – use more than one piece of software / app<br>○ Describe how non-digital algorithms be used, e.g. a set of instructions in maths or literacy for a specific purpose<br>○ Knowledge of algorithm and terminology:<br>■ An algorithm is a set of instructions to achieve a goal<br>■ Algorithms can be carried out by humans and computers<br>■ There may be more than one algorithm for a task, but efficient algorithms are best<br><br>Must take pictures of lessons and store in the google classroom to record lesson progress -<br><br>**Curricular links**<br>Geography – maps, plan a route<br>Maths – positional language<br>Literacy – writing and following instructions, storytelling – the map of a story<br><br>**Key Vocabulary**<br>Mouse, touch screen, move, command, device, Digital, program, follow, code, bugs, fix, order, ScratchJr, algorithm , Precise, logical reasoning, prediction, debug, sequence, sprite, code block, | **Software/Apps/Equipment:**<br>2simple 2go, 2DIY Beebots / Probots<br>**https://www.csunplugged.org/en/**<br>J2E Code - Jit5 - Turtle - space, 3 little pigs<br>Espresso Coding, **Purple Mash** -2code (Chimp mode), **Scratch Jr**<br><br>**Other resources:**<br>Beebots<br>https://www.tts-group.co.uk/blog/2018/07/18/bee-bot-a-teachers-guide.html<br><br>https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot<br><br>https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms<br><br>https://www.barefootcomputing.org/resources/bee-bots-1-2-3-programming<br><br>https://www.barefootcomputing.org/resources/send-bee-bot-basics-activity<br><br>https://create.kahoot.it/share/ea695e81-b3b2-450a-8fd7-c47b620b77fa<br>Animation<br>https://teachcomputing.org/curriculum/key-stage-1/programming-b-introduction-to-animation<br><br>https://www.scratchjr.org/teach/activities |

## Year 2: Term 1
### Word Processing (Communication) -
Information Technology, Digital Literacy

**Computing programme of study** (NC)– by the end of KS1 pupils should be taught to:
- ❖ use technology purposefully to create, organise, store, manipulate and retrieve digital content
- ❖ recognise common uses of information technology beyond school

| Objectives/ sc | What this could look like | Resources |
|---|---|---|
| <ul><li>I understand what information technology (IT) is</li><li>I can identify devices that are computers and consider how IT can help me both at school and beyond</li></ul>**Word processing:**<ul><li>I can use index fingers on keyboard home keys (f/j), use left fingers for a/s/d/f/g, and use right fingers for h/j/k/l</li><li>I can edit and improve my work by changing, adding or removing words</li><li>I can change the font style, text size, text colour to change my work</li><li>I can use the space bar only once between words and use touch to navigate to words letter to edit</li><li>I can copy and paste images and text</li><li>I can use caps locks for capital letters.</li><li>I can add images alongside text in a word processed document</li><li>I can dictate longer passages into a digital device ( SEN would find useful)</li><li>I can edit the style and effect of my text and images to make my document more engaging and eye-catching. For example, borders and shadows.</li><li>I can use cut, copy and paste to quickly duplicate and organise text.</li><li>I can use text shortcuts such for cut, copy and paste</li><li>I know how to use font sizes appropriately for audience and purpose.</li><li>I can use spell check and thesaurus - right click if underlined in a word processing document.</li><li>I can Name document for saving / sharing</li><li>I can change the page orientation (layout)  - portrait / landscape</li></ul> | <ul><li>Use and improve word processing skills in a range of situations. Use wider range of punctuation, editing and formatting skills to improve their work</li><li>Be able to discuss how they have changed their work and how it can be improved</li><li>Lesson 3: IT in the world - https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us/lesson-3-it-in-the-world</li></ul>**Curricular links**<br>Producing range of written work linked to various topics | **Software/ Apps**:<br>Purple Mash: *2publish, 2type, 2publish+, 2create a story, 2create a story,*<br>Clicker 6, Book Creator Word, **Google docs**, word,  BBC Dance Mat<br><br>**Other resources**:<br>Year 1  - word processing unit https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing<br><br>**Vocabulary**:<br>text, font, undo, space, spacebar, enter, paragraph, page layout, caps lock, cut, copy, paste, right click, insert, spell check, portrait, landscape<br><br>ctrl+c , ctrl + v,  ctrl + x |

Computing Overview

| **Year 2: Term 2**<br><br>**Data Handling** - Information Technology | **Computing programme of study** (NC)<br>by the end of KS1 pupils should be taught to:<br>❖ use technology purposefully to create, organise, store, manipulate and retrieve digital content<br>❖ recognise common uses of information technology beyond school<br>❖ to **save** and **retrieve** their work to edit it |
|---|---|

| **SC/ Objectives** | **What this could look like** | **Resources** |
|---|---|---|
| ● I can read and use a simple database to find information.<br>● I can add information to a **database**.<br>● To show that collected data can be counted.<br>● I can record data in a **tally** chart.<br>● I can compare totals in a tally chart.<br>● I can use a tally chart to create a pictogram<br>● I can use **pictograms** to answer simple questions about objects.<br>● I can collect and record data purposefully.<br>● I can present data in a **bar** chart.<br>● I can answer and ask questions about bar charts.<br>● I can answer 'more than'/'less than' and 'most/least' questions about an attribute.<br>● I know how to sort digital objects into a range of charts such as pictograms, Pie charts, Venn diagrams and bar charts using different apps and software.<br>● I can use a computer program to present information in different ways.<br>● I can share what I have found out using a computer.<br>● I know how to orally record myself explaining what the data shows me. | ● Children demonstrate an ability to organise data using, for example, a database such as 2Investigate and can retrieve specific data for conducting simple searches<br>● Understand that a database is a set of information organised by fields of information<br>● Collect data on a chosen topic e.g. linked to favourite food, transport survey.<br>● Present a bar chart and show understanding through answering and asking questions.<br>● Navigate a simple database to find information and answer questions, e.g. how many clowns have red noses<br>● Use record /table to add information to a database<br><br>**Curricular links**<br>Literacy – information texts about animals<br>Maths – sorting, databases<br>Science – categorising features of animals and creating record cards by looking for information relating to certain fields | **Software**:<br>Purple Mash: 2investigate. Starting Graph, 2graph,<br>J2E data https://www.j2vote.com/<br>https://www.j2e.com/j2data/<br>Textease Database,<br>https://www.youtube.com/watch?v=4-mkYMe5D6M<br><br>**Other resources**:<br>https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms<br><br>https://www.purplemash.com/#tab/teachers/computing_sow<br><br>**Key vocabulary**<br>Columns, category, tally chart, pictograms, explain,bar chart, database, data, sort |

| Year 2: Multimedia - Information Technology | Computing programme of study (NC) – by the end of KS1 pupils should be taught to: |
|---|---|
| | ❖ recognise common uses of information technology beyond school |
| | ❖ 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 |

## Objectives / SC

**Photography / video:** I can use a digital still **camera** to take a picture

- I understand the need to frame the **image** and keep the camera still
- I know the difference between photography and video.
- I can recognise what **devices** can be used to take photographs
- I can explain the process of taking a good photograph
- I can take photos in both **landscape** and **portrait** format
- I can explain why a photo looks better in portrait or landscape **format**
- I know how to **zoom in/out** to take a picture or video
- I can explore the effect that **light** has on a photo
- I can experiment with different light sources
- I can recognise that images can be changed / edited
- I can use **editing** tool / app to achieve a desired effect
- I can explain my choices
- I can identify which photos are real and which have been changed
- I can discuss the quality of my images and make decisions to improve
- I can improve a photograph by retaking it
- I can copy or delete images. e.g. delete a blurred image
- I can use a photograph to create media content
- I understand the need to **frame** the image and move the camera carefully
- I know how to record a short **video** using the camera
- I know how to watch films back and evaluate

## What this could look like

- **Cross curricular links will make this topic purposeful**
- Take photographs and review quality, deleting those that are blurred etc – be selective and consider how their photos could be improved
- Use photos within document / online book – take photos for a purpose
- Take set of photos to share e.g. photos on a trip, stages of cooking to then sequence and share with others
- Take it in turns to be the class photographer, documenting key events and sharing via blog or website
- Take video clips with purpose e.g. recording weather report presented by another pupil, interview a famous person / linked to a news story
- Start to be more discerning when taking video – framing image and zooming in before filming as appropriate

## Resources

**Possible Hardware**:
mobile device in built camera / video camera, digital camera, digital video camera, web cam

**Possible Software / Apps**:
Purple Mash: 2create a story, 2create, 2paint a picture, 2photo simple, PhotoStory, Photobooth, PowerPoint, Word, google slides,
LGFL - Stop Frame Animator-
https://content.lgfl.org.uk/secure/stopframe/

Snapseeds- tutorial
https://www.youtube.com/watch?v=W3qAgDegKPk -

Do Ink Green Screen http://www.doink.com/

**Other resources:**
https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography

**Key vocabulary**

Crop, filters, fill, export, JPEG, zoom, flash, undo, Manipulate, brush size, transparent, instant alpha,framing, Brightness, contrast, resize, digital shapes, focus, artificial, natural, lighting

# Year 2: Term 3

## Programming - Computer Science

**Computing programme of study** (NC) – by the end of KS1 pupils should be taught to:

- ❖ how algorithms are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- ❖ create and debug simple programs
- ❖ use logical reasoning to predict the behaviour of simple programs
- ❖ recognise common uses of information technology beyond school

### Objectives/sc

**Programming:**
- I can explain what a **program** is
- I can predict the outcome of a program
- To know that an **algorithm** is a set of instructions.
- I know how algorithms are implemented as programs on digital devices
- I know that programs execute by following precise and unambiguous instructions.
- I can plan out and enter a **sequence** of commands to carry out specific tasks
- To create simple algorithms to make a sprite move.
- To create an advanced algorithm. - lesson 2- J2E
- I can **debug** an algorithm by moving the code around
- Use **logical reasoning** to predict the behaviour of simple programs
- To understand how **block coding** works
- I know how to make a **sprite** repeat its actions using the **repeat** block
- I understand decomposition is breaking objects/processes down
- Create and debug simple programs.
- I can reorder a sequence of instructions and correct errors in programs (debug)
- I can work with a partner to review, and help correct their code (debug)
- I can predict the outcome of a sequence of commands
- I can match two sequences with the same outcome
- I can change the outcome of a sequence of commands
- I can work out the actions of a sprite in an algorithm
- I can decide which blocks to use to meet the design
- I can build the sequences of blocks I need
- I can make changes to a given/ preset design (background/characters)

### What this could look like

- Children can create a simple program that achieves a specific purpose.
- They can also identify and correct some errors
- Pupils make predictions of how to move a robot from x to y and check if they were correct
- Pupils problem solve and correct errors to achieve the outcome correctly
- Test and correct a set of give instructions
- Explore simulations and see how they might be similar / different to real life. Discuss when simulations might be useful
- Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program

- **Key Vocabulary**
Sprite, algorithm, code, template, debug, touch screen, move, command, device, Digital, program, follow, code, bugs, fix, order, ScratchJr, , Precise, logical reasoning, prediction, sequence, sprite, code block. https://www.j2e.com/code/glossary/

### Resources

**Hardware**:Beebots/ ProBot,
**Software/ Apps**:
**J2E** - Jit5 - Curriculum catch up lessons 1-3
**Scratch Jr**
Purple Mash, Kodable, Move the turtle, Daisy the dinosaur,
unplugged activities
https://www.csunplugged.org/en/

**Other resources**:
Beebots/probots
https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms
https://www.barefootcomputing.org/resources/bee-bots-1-2-3-programming
Scratch Jnr
https://teachcomputing.org/curriculum/key-stage-1/programming-b-introduction-to-animation

https://www.barefootcomputing.org/resources/scratchjr-knock-knock-joke-activity
https://www.computingatschool.org.uk/teaching-resources/primary-computing/ks1-computing

https://www.purplemash.com/#tab/teachers/computing_sow/computing_sow_y2/computing_sow_y2_unit_2-1

Computing Overview

| Year 3:    Term 1 <br><br> MultiMedia (Communication) - Information Technology | Computing programme of study (NC)– by the end of KS2 pupils should be taught to: <br> • understand the opportunities the internet offers for communication and collaboration <br> • select, use and combine a variety of software on a range of digital devices to create content | |
|---|---|---|
| **Objectives** <br> **Audio:** <br> • I can plan and write the content for an audio book <br> • I can identify the inputs and outputs required to play audio or record sound <br> • I can recognise the range of sounds that can be recorded <br> • I can choose suitable sounds to include <br> • I know how to record my own sound effects. <br> • I know how to add a voice recording to an image / storyboard. <br> • I know how to add speech bubbles to an image to show what a character thinks. <br> • I know how to import images to a project from the web /camera roll <br> • I can discuss why it is useful to be able to save digital recordings <br> • I can download and save a digital recording as a file <br> • I can explain that digital recordings need to be exported to share them <br> • I know how to create an eBook with text, images and sound. <br>   • I can edit sections of of an audio recording <br>   • I can suggest improvements to a digital recording <br>   • I can use editing tools to arrange sections of audio <br>   • I can re-record an audio recording to improve clarity <br> **Word processing & Presentation :** <br> • I can use cut, copy and paste to reorder content <br> • I can use and resize graphics within my work <br> • I can use spell check to aid my writing <br> • I can type text and insert images onto pages <br> • I can add text effects and move items around to find the best layout | **What this could look like** <br> • Produce digital media with increasing confidence using text, images, sound, video, formatting and editing tools <br> • Record radio advert for given product, re-recording excerpts if needed <br> • Record poems for class anthology <br> • Record a piece of writing from literacy <br> • Create presentations incorporating text and images. Start to add effects but consider audience and appropriateness of different effects <br> • Use print screen to capture an image that has been created or website navigated to <br> • Paste image into paint software so a part of the image can be selected and used for different purpose, e.g. instructions to use a piece of software, how to play a game <br> • Plan a 30 second TV advert for given product <br> • Shoot video clips and combine to tell a story <br> • Perform simple editing of clips and add title and credits | **Software/ Apps**: <br> Book Creator online <br> green screen recording <br> iMovie <br> Garage band <br> Google classroom, docs/slides <br> **Other resources**: <br> https://teachcomputing.org/curriculum/key-stage-2/creating-media-audio-editing/lesson-2-recording-sounds <br><br> Encourage all children to develop typing skills - <br> https://www.purplemash.com/#tab/teachers/computing_sow/computing_sow_y3/computing_sow_y3_3-4 <br><br> **Key vocabulary** |

| Year 3: Data Handling - Term 2 | Computing programme of study (NC) – by the end of KS2 pupils should be taught to:<br>● use search technologies effectively |
|---|---|

| Objectives/ sc | What this could look like | Resources |
|---|---|---|
| **Databases:**<br>● I can create a branching database to sort and organise items<br>● I know how to create my own sorting diagram and complete a data handling activity with it using images and text.<br>● I can create a simple branching database and check my  peers for accuracy.<br>● I can filter and sort records in a database to answer questions<br>● I can design a questionnaire to collect information, and display the information in a graph or table<br>● I know how to start to input simple data into a spreadsheet.<br>● I can create a table of data on a spreadsheet.<br>● Children can use a spreadsheet program to automatically create charts and graphs from data.<br>● Children can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to calculations.<br>● Children can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row. Children can find specified locations in a spreadsheet. | ● Explore branching database to see how it works and is structured<br>● Sort a set of items in different ways to consider different sorting options<br>● Create a branching database to sort a set of items<br>● Explore a database by asking questions to find relevant information<br>● Find information for graph on given topic by considering questions to ask participants, and design questionnaire to find the information<br>● create a database from information given<br>● create graphs to analyse information. ie: more than, less than, most, least,<br>● Collect data through surveys to analyse and create different types of charts (Pie, bar, line) exploring preferences re<br>● Favourite food/ sport/subject/ recipe ingredients<br>● how much time we spend engaging with mobile phones/ gaming/digital devices/watching TV<br>● Data collected should help to form a decision/ result / solve a problem:<br>● inform products re: design – cooking and nutrition<br>● Chn can present outcomes to the classroom and show another class what they have found out from their Data and what they will do as a result of what is discovered. | **Software**: Purple Mash - 2investigate, Textease Branch, Information Magic, Textease Database, Purple Mash: 2count, 2 survey<br>J2E Database -<br>https://www.j2e.com/j2data/<br>(3 Lessons)<br>**Google slides, forms, sheets,**<br>**Other resources**:<br>Handling data, Guess Who board game (for idea of branching database), Science keys for identifying creatures<br><br>https://teachcomputing.org/curriculum/key-stage-2/data-and-information-branching-databases (combine into 3 lessons)<br><br>https://www.purplemash.com/#tab/teachers/computing_sow/computing_sow_y3/computing_sow_y3_3-3 (3 lessons)<br><br>**Key Vocabulary**<br>Table, column, row, cell, spreadsheet, graph, field, record, sort,  database, questionnaire,<br>https://www.j2e.com/data/glossary |

| Year 3: Term 3<br><br>**Programming** - Computer Science & Digital Literacy | **Computing programme of study** (NC) – by the end of KS2 pupils should be taught to:<br>❖ Design, write and debug programs that accomplish specific goal<br>❖ solve problems by decomposing them into smaller parts<br>❖ use sequence, selection and repetition in programs<br>❖ work with variables and various forms of input and output.<br>❖ use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs |
|---|---|

**Objectives/sc**

**Programming**
- I can explain that for the computer to make something happen, it needs to follow clear instructions.
- I can explain that an algorithm is a set of instructions.
- I can describe the algorithms I created.
- I can explain what a sequence is
- I can build a sequence of commands
- I can refine a program by using the repeat command
- I can explain the relationship between an event and an action
- I can create a procedure (group of commands) to do a specific task
- I can solve problems by breaking them into smaller parts ( decomposing)
- I can build more sequences of commands to make my design work
- I can start a program in different ways
- I can decide the actions for each sprite in a program
- I can make design choices for my program
- Use event blocks (like "when flag clicked") to trigger a series of code.
- Sequence at least 3 "say" blocks between two sprites (characters) to construct a dialogue.
- Program a conditional so that the computer can make a decision based on a user response.
- I can test a program / I can match a piece of code to an outcome
- I can save a project to open and continue to edit another time
- I can share my project for others to view

**What this could look like**
- Use sprites and sequences of commands to create characters that move and speak including sounds
- Crease music
- Write programs in Logo and other software to draw different regular shapes – refine using the repeat command
- Use programming software / apps to create procedures and use within a longer program
- Plan out program and break into smaller steps when tackling the structure, incorporating procedures
- create a procedure (group of commands) to do draw a specific shape

**Key Vocabulary**

Logical reasoning, design, algorithmic thinking, selection, repeat, predict, loop, nesting, procedure, command, WWW, URL, reliability, virus, spam, hack, malware,

**Resources**

**Software/ Apps**:
Using code to create something or solve a problem
Google CS First lessons with Scratch, https://csfirst.withgoogle.com/c/cs-first/en/an-unusual-discovery/overview.html
Teach Computing - Scratch - Sequence music
https://teachcomputing.org/curriculum/key-stage-2/programming-a-sequence-in-music
Hopscotch - https://www.gethopscotch.com/about ,
Kodable - https://www.kodable.com/
Cato's Hike- https://apps.apple.com/gb/app/catos-hike/id574335479
J2E Code - Logo /   Purple Mash
**Other resources**:
https://www.barefootcomputing.org/resources/fossil-formation-animation

https://www.barefootcomputing.org/resources/scratch-tinkering-activity

# Year 4:  Term 1

## Multimedia (Communication) Information Technology Digital Literacy
Animation

**Computing programme of study** (NC)– by the end of KS2 pupils should be taught to:
- understand the opportunities the internet offers for communication and collaboration
- 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.
- use technology safely, respectfully and responsibly; recognise acceptable / unacceptable behaviour; identify a range of ways to report concerns about content and contact

| Objectives/sc | What this could look like | Resources |
|---|---|---|
| <ul><li>I know how to improve stop motion animation clips with techniques like onion skinning.</li><li>I know how to use animation tools in presenting software to create simple animation</li><li>I can explain how an animation/flip book works.</li><li>I can explain why little changes are needed for each frame</li><li>To relate animated movement with a sequence of images</li><li>I can create a storyboard</li><li>I can break down a story into settings, characters and events</li><li>I can review a sequence of frames to check my work</li><li>I can evaluate the quality of my animation</li><li>I can evaluate another learner's animation</li><li>I can improve my animation based on feedback</li><li>I can add sound to my animation</li></ul>**Word processing / Presentations:**<ul><li>I can different layouts and effects (such as text box, columns, tables, justification, borders, background colour) to refine and improve my work</li><li>I can add a background colour to improve my work</li><li>I can add slide transitions and animation effects</li></ul>**Video / Photography:**<ul><li>I can improve a photo with editing tools e.g. blur, filters, add border</li><li>I can edit the video; trimming and re-ordering clips</li><li>I can add a voice-over and / or background music to a video</li><li>I can add titles and credits to my video</li></ul> | <ul><li>creating an animation to show steps to create something/ tell a story/ act out a scene/ bring an inanimate object to like through movement</li><li>Homework tasks, curiosity projects that lead to chn producing documents and presentations with increasing competence, incorporating different layouts and effects as appropriate, showing an awareness of audience - Produce newspaper / leaflet</li><li>Manipulate photos and consider creative aspects as well as the power to distort our perceptions of beauty and health, e.g. air-brushing photos in magazines (Dove Evolution video http://www.youtube.com/watch?v=iYhCn0jf46U )</li><li>Create video for an advert – linked to persuasive writing (and websites) and photo alteration / advert product</li><li>Create documents and presentations to share information with others – for a purpose</li><li>Share information with link class in another class / school</li><li>Contribute to a class / whole school - assembly recorded on green screen</li><li>Links to history, art or literacy.</li><li>makes links / discussion around Who has a social media account? What are the most popular platforms? What info is shared/not shared?</li></ul>**Key Vocabulary**<br>Frame, framerate, layout, onion skinning, trim<br>cut, paste, still image, animation, flipbook, | **Software**:<br>Google classroom,<br>stop motion animation - https://www.youtube.com/watch?v=X_M468S86HI<br>Purple mash - 2animate https://www.purplemash.com/#tab/teachers/computing_sow/computing_sow_y4/computing_sow_y4_4-6<br>J2E - animate https://www.j2e.com/jit5#animate<br>Do Ink Green Screen http://www.doink.com/<br>Google Slides- Journal Learning<br>Movie Maker - iPad - iMovie<br><br>**Other resources**:<br>LGFL,<br>Animation - https://teachcomputing.org/curriculum/key-stage-2/creating-media-animation<br><br>https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/zyb72hv |

| Year 4: Term 2<br><br>Data - STEM Computer Science Digital Literacy | Computing programme of study (NC)– by the end of KS2 pupils should be taught to:<br>● select, use and combine a variety of software to create content including collecting, analysing, evaluating and presenting data and information<br>● 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. | |
|---|---|---|
| **Objectives/sc**<br>● I know how to create my own online multiple choice questionnaire.<br>● I know how to input data into a spreadsheet and export the data in a variety of ways: charts, bar charts, pie charts.<br>● I understand how data is collected.<br>● I can create a form to collect data<br>● I can suggest questions that can be answered using a given data set<br>● I can identify data that can be gathered over time<br>● I can explain that sensors are input devices ( if following teach computing lessons)<br>● I can identify a suitable place to collect data<br>● I can talk about the data that I have captured<br>● I can import a data set<br>● I can use a computer to view data in different ways<br>● I can use a computer program to sort data<br>● I can interpret data that has been collected- mean, mode,<br>● I can draw conclusions from the data that I have collected<br>● I can present data in a graph, selecting the most appropriate layout<br>● I understand the difference between discrete and continuous data<br>● I can answer questions relating to graphs, and pose my own questions<br>● I can use my graph in a document / presentation to share findings with others<br>● I can change the appearance of cells, e.g. size, borders and colours<br>● I can sort data in a spreadsheet | **What this could look like**<br><br>● Present sets of data in different graphical forms, discussing and evaluating which layout is best<br>● Discuss appropriate use of layouts for discrete and continuous data<br>● Ask and answer questions relating to graphs – discuss the purpose of graphs<br>● Share graphs via document, sharing findings from graph to show understanding<br>● Start to explore spreadsheets by using existing ones to see how they can be changed and used<br>● Add text and numbers and insert simple formulae<br>● Test formulae by changing numbers in cells – does the result change too?<br>● Format text within a spreadsheet – link to formatting text in other software<br>● Conduct an investigation -<br>Example: (The Happiness Investigation)<br><span style="color:red">Possible cross curricular link :PSHE- Healthy Me & Geography - Quality of life in a city vs town</span><br> Use stimulus to raise questions in class. Images of emotions and different aspects of a city /town. Collect Data from pupils in Hallsville and a school in a small town through quantitative and qualitative data collections. Make comparison to any news reports/ articles ( eg- people are happier in county life than city life) Chn to report their findings in a newspaper report - can be save<br>can the collected data influence a decision or tell something interesting about the group who were surveyed/ solve a problem.<br>eg) inform products re: design – cooking and nutrition | **Resources**<br><br>**Possible Software/ Apps**:<br>2graph, 2calculate, Excel, LogIT Lab. Purple Mash - 2Calculate<br>J2E - Data<br>Google Forms/ Sheets/ Slides/Docs - Journal learning<br><br>**Other resources**:<br>Year 4 Spread sheets -<br>https://teachcomputing.org/curriculum/key-stage-2/data-and-information-data-logging<br><br>https://www.bbc.co.uk/bitesize/topics/z7rcwmn/articles/zrdm8hv<br><br>https://www.purplemash.com/#tab/teachers/computing_sow/computing_sow_y4/computing_sow_y4_4-3<br><br>https://www.j2e.com/j2data/<br><br>**Key vocabulary**<br><br>spreadsheet, Formatting, questionnaire, Active cell, Autofit, multiple choice, checkbox, numerical, text, data, input, discrete, continuous, database,mode, mean, |

| Year 4: Term3 | Computing programme of study (NC) – by the end of KS2 pupils should be taught to: |
| --- | --- |
| **Programming  -  Computer Science  Digital Literacy** | ● design, write and debug programs that accomplish specific goals<br>● use sequence, selection and repetition in programs; work with variables and various forms of input and output |

| Programming objectives: | What this could look like | Resources |
| --- | --- | --- |
| ● To identify that accuracy in programming is important,  that for the computer to make something happen, it needs to follow clear instructions.<br>● I can explain that an algorithm is a set of instructions.<br>● I  can describe the algorithms I created.<br>● I can explain what a sequence is<br>● I can identify patterns in a sequence<br>● I can build a sequence of commands / algorithm to produce a given outcome<br>● I can test my algorithm in a text-based language<br>● I can create a procedure (group of commands) to do a specific task<br>● I can explain the effect of changing a value of a command<br>● I can build more sequences of commands to make my design work<br>● I can decide the actions for each sprite in a program<br>● I can make design choices for my program<br>● Use event blocks (like "when flag clicked") to trigger a series of code.<br>● Use a conditional so the computer can make a decision based on a user response.<br>●  I can match a piece of code to an outcome<br>● I  can save a project to open and continue to edit another time<br>● I can test existing programs to see how they could be improved<br>● I can explain the relationship between an event and an action<br>● To explain what 'repeat' means<br>● I can refine a program by using the repeat command<br>● I can use a count-controlled loop to produce a given outcome<br>● I can identify the effect of changing the number of times a task is repeated<br>● To decompose a task into small steps in code or real world tasks<br>● I use and  understand how a computer can use a procedure in a program<br>● I can design a program that includes count-controlled loops ( repeats)<br>● I can test a program and develop my program by debugging it | ● Investigate existing programs, evaluating them and consider how they could be improved<br><br>● Design and write a program / game / animation for a given purpose including specific programming features<br><br>● create a program that will control a physical object to solve a problem | **Possible Software/ Apps**<br>  ● J2Code - J2Logo<br>  ● Lego WeDo<br>    CS First  - story planning - literacy link<br><br>https://teachcomputing.org/curriculum/key-stage-2/programming-a-repetition-in-shapes<br><br>Lego Wedo<br>Partners must - Journal learning with photo evidence ( ipads ) *sort boxes and order missing parts prior to lessons*  work in groups of 2 or 3.<br>-build the structure following instructions<br>- code using the app and test<br><br>https://education.lego.com/en-us/lessons/wedo-2-science |

| Year 5: Term 1 **Multimedia (Communication)** Information Technology Digital Literacy | **Computing programme of study** (NC)– by the end of KS2 pupils should be taught to:<br>● 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 | |
|---|---|---|
| **Websites Objectives**<br>● I can explore what makes a good functioning website<br>● I can discuss the different types of media used on websites<br>● I know that websites are written in HTML<br>● I can recognise the common features of a web page<br>● I can suggest media to include on my page<br>● I can use pictures and writing related to chosen topic<br>● I can draw/plan a web page layout that suits my purpose - thinking of tabs titles, headings<br>● I can think of colours and images for aesthetics to make it attract the target audience<br>● I can say why I should use copyright-free images<br>● I can find copyright-free images<br>● I can describe what is meant by the term 'fair use'<br>● I can add content to my own web page<br>● I understand that information I put online leaves a trail, or digital footprintI can add pictures in carousel<br>● I can trigger animations or link to other slides when objects are pressed<br>● I can develop consistency across the document/ website<br>● I can preview what my web page looks like<br>● I can evaluate what my web page looks like on different devices and suggest/make edits<br>● I can explain what a navigation path is<br>● I can describe why navigation paths are useful<br>● I can make multiple web pages and link them using hyperlinks<br>● I can evaluate the user experience of a website<br>● I know how to create an interactive guide to an image by embedding digital content and publishing it online.<br>● I know how to create a web page and embed video. | **What this could look like**<br><br>● create, re-use, revise and re-purpose digital artifacts for a given audience, with attention to trustworthiness, design and usability<br>● Design and make a poster to advertise product/ topic<br>● Produce documents and presentations with a common theme, to provide consistency of font and style<br>● Show an awareness of audience<br>● Be able to produce presentations with multimedia elements, and with slides in a non-linear design e.g. hyperlinks/tabs to give options<br>● Produce a presentation that acts as a branching database to classify a set of items<br>● Know that information posted online leaves a digital footprint and be aware of potential consequences of this – conduct themselves appropriately online<br>**Vocabulary**<br>Placeholder, dropdown, navigation, homepage, footer, sidebar, HTML, URL, design, application, Blog, collaboration, share,  slide layout, slide show,<br>transitions, embed, publish,<br>Commons domain endings are .com, .co.uk, .gov, .sch or .edu. | **Resources**<br><br>**Apps:**, Garage Band<br>**Other resources:** Magazines / videos with altered images; Rising Stars MS Office unit 5 (video) Google sites<br><br>https://teachcomputing.org/curriculum/key-stage-2/creating-media-web-page-creation<br><br>https://support.google.com/webdesigner/answer/6185261?hl=en-GB<br><br>https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/zgx3b9q<br><br>https://classroom.thenational.academy/units/web-page-creation-0205<br><br>https://www.youtube.com/watch?v=Dgat3ESFf1o<br>https://edu.google.com/intl/ALL_uk/for-educators/product-guides/sites/?modal_active=none |

| Year 5: Term 2<br><br>**Data** - STEM Computer Science Digital Literacy | **Computing programme of study** (NC) – by the end of KS2 pupils should be taught to:<br>● use search technologies effectively<br>● select, use and combine a variety of software to create content including collecting, analysing, evaluating and presenting data and information |
| --- | --- |

| **Objectives** | **What this could look like** | **Resources** |
| --- | --- | --- |
| ● I can explain what a 'field' and a 'record' is in a database<br>● I can choose which field to sort data by to answer a given question<br>● I know how to create and publish my own online questionnaire and analyse the results.<br>● Children understand new vocabulary relating to spreadsheets: cells, columns, rows, cell names, sheets, workbook<br>● I can design and create a database<br>● I can understand the different ways to search a database.<br>● I can search a database to answer questions correctly.<br>● I can talk about the data that I have captured<br>● I can import a data set<br>● I can create a graph using spreadsheet data<br>● I can use a computer to view data in different way<br>● I can select an appropriate chart to visually compare data<br>● I can use simple functions, e.g. SUM, AVERAGE, to solve problems<br>● I can interpret data that has been collected- mean, median, range, mode<br>● To introduce some basic data formulae in Google Sheets.<br>● To demonstrate how the use of Sheets can save time and effort when performing calculations.<br>● I can change the format of cells appropriately<br>● I know how to use simple formulae to solve calculations including =sum and other statistical functions<br>● I know how to edit and format difference cells in a spreadsheet.<br>● I can add simple formulae: +-*/<br>● I can copy and paste formulae within a spreadsheet<br>● I can explain the benefits of using a computer to create graphs | ● Solve problems by interrogating database to find answers e.g. solve crimes for Sherlock Holmes<br>● Investigate online databases e.g. estate agents databases<br>● Design and create own database e.g. favourite actors and films, TV programmes and actors, football teams and players / managers, countries and key features / things of interest<br>● Create graphs from databases<br>● Create more complex spreadsheets to model mathematical problems and to solve real life problems e.g. budgeting or funding a class trip<br>● Solve given problems by creating spreadsheets, including creating graphs from data<br><br>**Key Vocabulary**<br>spreadsheet,formula, formatting, multiple questionnaire, Active cell, Autofit, choice, checkbox, numerical, text, data, input, discrete, continuous, database,mode, mean, cell reference | **Resources**<br><br>**Software**: Purple Mash, google Classroom, Google Sheets, 2investigate, 2calculate, Excel, Google Sheets<br>**Other resources**:<br>https://www.bbc.co.uk/bitesize/topics/zm49q6f/articles/z99jpbk<br><br>https://www.purplemash.com/#tab/teachers/computing_sow/computing_sow_y4<br><br>https://www.purplemash.com/#tab/teachers/computing_sow/computing_sow_y5/computing_sow_y5_5-4 |

| Year 5: Term 3  Programming - Computer Science Digital Literacy | Computing programme of study (NC) – by the end of KS2 pupils should be taught to:<br>● design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts<br>● use sequence, selection and repetition in programs; work with variables and various forms of input and output<br>● use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs |
|---|---|

| Objectives | What this could look like | Possible Resources |
|---|---|---|
| **Programming:**<br>● **I** can plan and test my algorithms and programs, detecting and correcting errors as needed<br>● I can use if...then command within a series of instructions<br>● I can start a program in different ways<br>● Sequence at least 3 "say" blocks between two sprites (characters) to construct a dialogue.<br>● I can use variables in programs<br>● I can design and write a program that controls or simulates physical systems and sensors<br>● I can modify loops to produce a given outcome<br>● I can identify which parts of a loop can be changed<br>● I can explain the effect of my changes<br>● I can re-use existing code snippets on new sprites<br>● I can evaluate the use of repetition in a project<br>● I can explain that a condition is either true or false<br>● I can design a conditional loop<br>● I can test and debug my project<br>● I can explain that a variable has a name and a value<br>● I can recognise that the value of a variable can be changed | ● Design and create a game incorporating variables, testing and correcting errors as they go<br>● Design and write a program linked to physical systems and sensors e.g. the light goes on when the light level drops, or the alarm goes off when a burglar opens the door<br>● design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems<br>● use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for<br>● example, lists, tables or arrays]; design and develop modular programs that use procedures or functions<br>● 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] | **Software/ Apps:**<br>Busy Things - disco 5 Lessons: do tutorials on screen ask Q's chn log in and watch tutorials themselves again, complete the challenge then the project<br>https://www.busythings.co.uk/families/subjects/coding - sign in with google account<br>CS First - game coding online- Scratch<br>https://csfirst.withgoogle.com/c/cs-first/en/game-design/overview.html<br>Minecraft hour of code-<br>https://code.org/minecraft<br>Scratch, Lego Mindstorms, LogIT, Kodu Game Lab<br><br>https://www.purplemash.com/#app/games/2diy/2c_q_objects_event_input_placing_game<br><br>https://www.discoveryeducation.co.uk/resources/primary/coding/<br><br>https://app.discoveryeducation.co.uk/learn/videos/61a5d38a-618e-44db-ba69-a9808efc8ca7/?embed=false&embed_origin=false<br><br>https://www.purplemash.com/#app/games/2diy/2c_q_objects_event_input_placing_game |

| Year 6: Data | Computing programme of study (NC) – by the end of KS2 pupils should be taught to:<br>● select, use and combine a variety of software to create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information | |
|---|---|---|
| **Objectives/ SC**<br><br>**Spreadsheets:**<br>● I understand how data is collected.<br>● I can explain the relevance of data headings<br>● I can answer questions from an existing data set<br>● I can ask simple relevant questions which can be answered using data<br>● I can explain what an item of data is<br>● I can apply an appropriate number format to a cell<br>● I can build a data set in a spreadsheet application<br>● I can explain the relevance of a cell's data type<br>● I can construct a formula in a spreadsheet<br>● I can identify that changing inputs changes outputs<br>● I can recognise that data can be calculated using different operations<br>● I can create a formula which includes a range of cells<br>● I can apply a formula to multiple cells by duplicating it<br>● I can use a spreadsheet to answer questions<br>● I can explain why data should be organised<br>● I can apply a formula to calculate the data I need to answer questions<br>● I can produce a graph<br>● I can use a graph to show the answer to questions<br>● I can suggest when to use a table or graph<br>● I know how to create and publish my own online questionnaire and analyse the results.<br>● I know how to use simple formulae to solve calculations including =sum and their statistical functions<br>● I know how to edit and format difference cells in a spreadsheet.<br>● I know how to create my own online multiple choice questionnaire. | **What this could look like**<br><br>● conduct a school survey and analyse the data collected for a purpose - could be linked to school council/ e-safety/ clubs<br><br>● Design a more complex spreadsheet model for a purpose, link to problem-solving skills<br><br><br>Key Vocabulary<br><br>Range, =, fill, conditional formatting, formula, cell, data, mean, mode , median, survey, questionnaire, Active cell, Autofit, multiple choice, checkbox, numerical, text, data, input, discrete, continuous, database, cell reference, SUM | **Resources**<br><br>**Software:** Excel, 2calculate, purple Mash, Google Sheets, google forms<br>● Google Forms<br>● Google Slides<br>  ● Digital Leaders Programme Online resources<br><br>**Other resources:**<br><br>https://www.purplemash.com/#tab/teachers/computing_sow/computing_sow_y6<br><br>https://teachcomputing.org/curriculum/key-stage-2/data-and-information-spreadsheets |

- I know how to input data into a spreadsheet and export the data in a variety of ways: charts, bar charts, pie charts.
- 
- I can design and create a spreadsheet for a specific purpose, incorporating different features of design and function
- * To know what a spreadsheet looks like.
- • To use a spreadsheet to investigate the probability of the results of throwing many dice.
- • To use a spreadsheet to calculate the discount and final prices in a sale.
- • To use a spreadsheet to plan how to spend pocket money and the effect of saving money.
- • To use a spreadsheet to plan a school charity day to maximise the money donated to charity.
- • To navigate and enter data into cells.
- • To introduce some basic data formulae for percentages, averages and max and min numbers.
- • To demonstrate how the use of spreadsheets can save time and effort when performing calculations.
- • To use a spreadsheet to model a situation.
- • To demonstrate how a spreadsheet can make complex data clear by manipulating the way it is presented.
- • To create a variety of graphs in sheets.
- • To apply spreadsheet skills to solving problems.

| Year 6: Programming | **Computing programme of study** (NC)– by the end of KS2 pupils should be taught to: <br>● design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts <br>● use sequence, selection and repetition in programs; work with variables and various forms of input and output <br>● use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs |
|---|---|

| Objectives | What this could look like | Resources |
|---|---|---|
| **Programming Objectives** <br>● To define a 'variable' as something that is changeable <br>● To explain that a variable has a name and a value <br>● To experiment with the value of an existing variable <br>● To use a variable in a conditional statement to control the flow of a program <br>● I can plan and test my algorithms and programs, detecting and correcting errors as needed <br>● I can use variables in programs <br>● I can design and write a program that controls or simulates physical systems and sensors <br>● I can design and create a game, app and / or model, incorporating variables and different forms of input and output <br>● I can test, debug and modify a program to improve it <br><br> LEGO WEDO <br>During the Share phase, make sure the student can describe different solutions he/ she developed for each mission, explain how one solution can solve the problem they have identified for each mission, and use important information from their project to create their final report. | Design, plan & create a more complex game / app with purpose and linked to topic / other subject <br><br> Complete a Quiz on coding! <br>https://www.purplemash.com/#app/games/2diy/2c_q_objects_event_input_placing_game | **Busy Things -  Beard Mans Adventures - 5 Lessons** <br>**Lego WeDo  - 8 Lessons** <br>**Python tutor Lgfl - 5 lessons beginners** <br>**Software:** Scratch, Kodu, App builder, <br>**Online**: 2code, Espresso Coding, Sherston <br>**Other resources:**  Rising Stars MS Office unit 6 (create & advertise computer game) <br>https://teachcomputing.org/curriculum/key-stage-2/programming-a-variables-in-games - 6 lessons <br><br> Link to DT -  Mechanisms/Control technology / computing systems (Lego We Do - teach through computing) <br><br> CS First  - Hour of code programme (variety of one off coding lessons) - eg) Minecraft hour of code- https://code.org/minecraft <br><br><br> http://python.lgfl.org.uk/ - language introduction to code with python <br>Edublocks  -  - Twinkle resources available as well |

1. (Developing)The student is unable to engage in discussions about the mission and design, explain the solutions to the problems posed, or use the information to create a final project.
2. (Secure)The student is able, with prompting, to engage in discussions about design processes as well as demonstrate with limited ability the use of information to solve real-world problems and create a project.
3. (High secure)The student is able to engage in discussions about design processes or use the information gathered to produce a final project that present solutions for the posed problems.
4. (Mastery)The student is able to engage extensively in class discussions about the topic or use information gathered to create a final project that includes additional required element

| Year 6: Multimedia<br><br>**Optional extra if time allows** | **Computing programme of study** (NC)– by<br>● 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 | |
|---|---|---|
| **Objectives** | **What this could look like** | **Resources** |

| Photography: | ● Take photographs using filters and tools to enhance as required for given purpose | Hardware: digital camera, web cam, inbuilt camera from tablet |
| --- | --- | --- |
| M5.3 I can improve a photo with editing tools e.g. blur, filters, add border | | Software: I can animate, Paint.net, |
| Video: | | PowerPoint, Prezi, 2create |
| M5.4 I can edit the video; trimming and reordering clips | ● Plan and create an animation to describe a scientific concept e.g. life cycle of frog, water cycle | Online: pixlr.com, www.befunky.com, photosynth.net |
| M5.5 I can add a voice-over and / or background music to a video | | Apps: BeFunky, Pixlr Express, Book Creator, I can animate |
| M5.6 I can add titles and credits to my video | | |
| Audio: | ● Combine animation, images and other documents to make electronic book for younger children | |
| M5.7 I can create an audio recording and add it to other software**M6.1** I can take photos for a given purpose and use them in my work | | |
| Animation: | | |
| M6.2 I can plan and create an animation for a given purpose | | |
| M6.3 I can edit an animation to improve it / make it more realistic | | |
| M6.4 I can combine an animation with other software | | |
| Multimedia overall: | | |
| M6.5 I can select and use appropriate multimedia tools, and combine these for a given purpose with confidence | | |

**Key Stage 3 programme of study**

- undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users
- create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability

**Curricular links**

Science – animation for scientific concept

| Digital Literacy | **Computing programme of study** (NC) – by the end of KS1 pupils should be taught to: |
| **use** <br> **E-Safety** | ● recognise common uses of information technology beyond school <br> ● 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 <br> ● use technology purposefully to create, organise, store, manipulate and retrieve digital content |

**Resources**

- https://app.discoveryeducation.co.uk/learn/channels/channel/1f257d62-5af0-4804-a18e-069a480361d8?embed=false&embed_origin=false
- https://www.thinkuknow.co.uk/4_7/Credits
- https://www.thinkuknow.co.uk/4_7/6-7-year-olds/
- https://www.esafety.gov.au/educators/classroom-resources/hectors-world/your-personal-information-online
- https://www.thinkuknow.co.uk/parents/jessie-and-friends-videos/
- Lesson 6 Using IT in different ways - teach computing  https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us
- https://app.discoveryeducation.co.uk/learn/channels/channel/1f257d62-5af0-4804-a18e-069a480361d8?embed=false&embed_origin=false
- https://www.thinkuknow.co.uk/4_7/Credits
- https://www.thinkuknow.co.uk/4_7/6-7-year-olds/
- https://www.esafety.gov.au/educators/classroom-resources/hectors-world/your-personal-information-online

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- https://www.thinkuknow.co.uk/parents/jessie-and-friends-videos/
- https://www.barefootcomputing.org/cyber
- https://app.discoveryeducation.co.uk/learn/channels/channel/3a97d7a5-0bea-4549-8310-293ad5f31465?embed=false&embed_origin=false
- https://www.lse.ac.uk/my-privacy-uk/Assets/Documents/Childrens-data-and-privacy-online-report-for-web.pdf
- https://cont.ent.lgfl.orguk/secure/cyberpass/cyberpass/activities/privacy

|  | Term 1 | Term 2 | Term 3 |
|---|---|---|---|

Computing Overview

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| Reception | Basic technology ? | STEM Computer Science<br>Simple instructions and debugging<br>Physical Coding , Unplugged coding<br>● **Beebots** | ● https://www.computingatschool.org.uk/resource-library/primary-computing/eyfs-computing |
| Year 1 | **Communication**<br>IT Basic Skill  Information Technology Digital Literacy<br>Possible cross curricular link - Science humans and features<br>Logging on, keyboard skills and navigation, finding programs. Saving and retrieving work. Using the internet<br><br>2nd Half of term  -<br>**Introduction to Multimedia - Digital Art**<br>Information Technology Digital Literacy<br>Possible cross curricular link- link to science - humans<br>Create images , editing , saving , drawing tools, inserting photo to edit, images. | **Introducing Data Handling**<br>STEM  Computer Science +Information Technology<br>Possible cross curricular link - Science weather<br>Long term class learning to create a tally graph of weather over the period of at least 1 month.<br><br>2nd Half of term :<br>**Introduction to Multimedia**<br>Information Technology Digital Literacy<br>create a simple story<br>● animation to tell a story -<br>● create a book - | **Programming**<br>STEM  Computer Science<br>Possible cross curricular link -<br>Simple instructions and debugging in<br>Physical Coding ,<br>Unplugged coding,<br>On Screen Coding<br><br>● BeeBots, **Probots** J2E Jit 5,Scratch |
| Year 2 | **Word Processing**<br>IT Basic Skill  Information Technology<br>Possible cross curricular link - Literacy story / poems writing / Topic Curiosity projects<br>Confidence and skills builder<br>*Logging on, keyboard skills and navigation, finding programs*<br>*Saving and retrieving work*<br>*Using the internet - Yr1 revise* | **1st Half of term :  Data Handling**<br>STEM  Information Technology<br>Curriculum link to DT  - Cooking and Nutrition<br>Counting ,Displaying Numerical Information<br>Survey classes preferred sandwich bread and fillers.<br>Create tally charts and pictograms<br>Can be used in DT books to show cross curricular-how decisions were made on choice of ingredients.<br><br>**2nd Half of term : Multimedia -**<br>IT Basic Skill  Information Technology<br>Curriculum link to topic/ literacy/reading<br>exploring and creating media with images | **Programming**<br>STEM - Computer Science<br>Basic on screen coding to move sprites and achieve an end goal<br><br>Curriculum catch up year 1- missed - J2E Code lessons 1- 3 J2E Jit 5 Turtle<br><br>Programming - Scratch Jr - broadcasting and receiving -<br>https://www.scratchjr.org/teach/activities/meet-and-greet |
| Year 3 | **Multi-Media - Audio Books**<br>IT Basic Skill  Information Technology<br>Possible cross curricular link - Literacy / History / Science<br>Working with sound. Record, playback and listen. | **Data Handling**<br>STEM<br>Curriculum link to DT - Cooking and Nutrition/ geography / Science / RE<br>Collect data through surveys to analyse and create different types of charts (Pie, bar, line) to analyse data. | **Programming**<br>STEM -  Computer Science<br><br>Lego WEDO - first half term<br>Build and program something to move and solve |

Computing Overview

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|---|---|---|---|
| | Find examples of audio books online – identify target audience. Exploring representation in radio & TV ads<br>    Consider how online environments start to gather information re: user's identity/preferences and tailor/target ads | can the collected data influence a decision or tell something interesting about the group who were surveyed/ solve a problem.<br>eg) inform products re: design – cooking and nutrition<br><br>Chn can present outcomes to the classroom and show another class what they have found out from their Data and what they will do as a result of what is discovered.<br><br>using pictogram data into bar graphs,<br>busy things maybe for quizzes on data | a problem- lifta barrier/move a ball/<br>test and improve build and code<br><br>Teach Computing  - making music - Scratch Purple Mash<br><br>Using code to create something or solve a problem<br>https://www.barefootcomputing.org/resources/shapes-crystal-flowers-repetition<br><br>http://computingspotlight.lgfl.org.uk/repetition.html |
| Year 4 | **<u>Multi-Media -Images</u>**<br>IT Basic Skill  Information Technology<br><br>Possible cross curricular link - History / Art<br><br>Creating and manipulating an image. Working with existing images and manipulation from stills to animation. adding sound to stop motion or creating a movie intro | **<u>Data Handling</u>**<br>STEM  Computer Science<br><br>Possible cross curricular link :<br>PSHE- Healthy Me<br>Geography - Quality of life in a city vs town<br>RE - different religions in our communities<br>Conduct an investigation<br> (The Happiness Investigation)<br><br>analyzing data stories | **<u>Programming</u>**<br>STEM - Computer Science<br>Possible cross curricular link : ART/ DT<br>Use code to create something like  make their name and explain how they make it and record the screen. save on classroom - J2E - Logo = first term<br><br>2nd term  - Marty the robot on scratch<br>Learning selection - If/then coding-<br>https://robotical.io/ |
| Year 5 | **<u>Multimedia</u>**<br>IT Basic Skilll  Information Technology<br>Possible cross curricular link - History /<br>G Suite for Education integrated skills builder. Using technology to solve a problem. Creating a website for their year group / subject<br><br>    **Additional topic for enrichment**<br>    Creating 3D Art project on - visitor led | **<u>Data Handling</u>**<br>STEM  Information Technology<br><br>Possible cross curricular link - Science<br><br>Conduct an investigation/ enquiry<br>Use stimulus to raise questions in class. | **<u>Programming</u>**<br>STEM -  Computer Science<br>Possible cross curricular link -<br>(Block coding) Create a game using block commands<br>Exploring online games. What are the scenarios re: children playing games online which involve interaction with other players online? Look at the world of gaming and communication with other players.<br>Busy things  - events and variables<br>http://computingspotlight.lgfl.org.uk/events.html<br>CS first  - |
| Year 6 | **<u>Data Handling</u>**<br> Information Technology<br>Possible cross curricular link - PSHE & E-safety<br>Research surveys to explore or solve a problem. ( E-safety Investigation) Data Manipulation - create graphs and presentation slides to explain findings. | **<u>Using Technology to learn</u>**<br>IT Basic Skill  Information Technology<br>J2e Blast, SPAG.com, Arithmetic, Times tables apps, Spelling , TTRS, Mathletics, Learn By Questions Google Classroom, Slides, Docs. | **<u>Programming</u>**<br>STEM -  Computer Science<br>Possible cross curricular link - DT: Mechanisms/ Control technology / computing systems (Lego We Do - teach through computing) Build and program |

Computing Overview

| | | | something to move and solve a problem -Catch up curriculum topic - should be in yr 4 Learning a coding language introduction to code with python<br><br>Possibly - Marty at advanced |
| --- | --- | --- | --- |

https://www.j2e.com/library/author/19/collections  - variety of lessons to cover gaps in learning


Can MArty the robot collect data for children to view


https://sphero.com/pages/educators

Computing Overview