SPARK
EDUCATION TRUST

Whinstone Primary School
COMPUTING CURRICULUM

TABLE OF CONTENTS

COMPUTING VISION & INTENT

In Whinstone Primary School, we want pupils to be MASTERS of technology and not slaves to it. Technology is everywhere and plays a pivotal part in students' lives. Therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators not consumers, and our broad curriculum encourages this. Our aim is for all pupils to understand that there is always a choice with using technology and as a trust we utilise technology to model positive use. Online safety learning outcomes are taught within meaningful contexts that are relevant and are achieved through learning that is matched to the readiness of the children. We also believe we can reduce a myriad of problems by educating children around technological and social media issues. Technology is constantly evolving and changing, and our curriculum enables children to make constructive, positive choices in an ever-changing world.

**Our teaching aims in Computing include the following:**

- Promote an enjoyment for Computing
- Increased confidence when working creatively with technology
- Full implementation of Computing NC and EYFS guidance across the whole school
- Develop access to Computing beyond statutory National Curriculum
- All children to experience 'unplugged' and programmable technology
- Teach Computing in ways that are imaginative, enjoyable, purposeful and well managed
- Giving clear and accurate teacher explanations and offering skilful, higher order questioning
- Foster digital literacy and online safety awareness
- Develop computational thinking skills
- Build understanding of technology fundamentals
- Encourage practical application across subjects
- Cultivate creativity and innovation

These aims can be met if we:

- Quality first teaching with opportunity for CPD.
- Encouraging the delivery of Computing through applying skills creatively to extended projects
- Encourage children to work both independently and with others
- Motivate children to reason, problem solve and process information
- Focus reasoning and thinking through open ended questioning.
- Provide a range of stimulating experiences to engage and inspire.
- Monitoring of the quality of teaching through work scrutiny, planning, acquisition of skills and pupil voice.
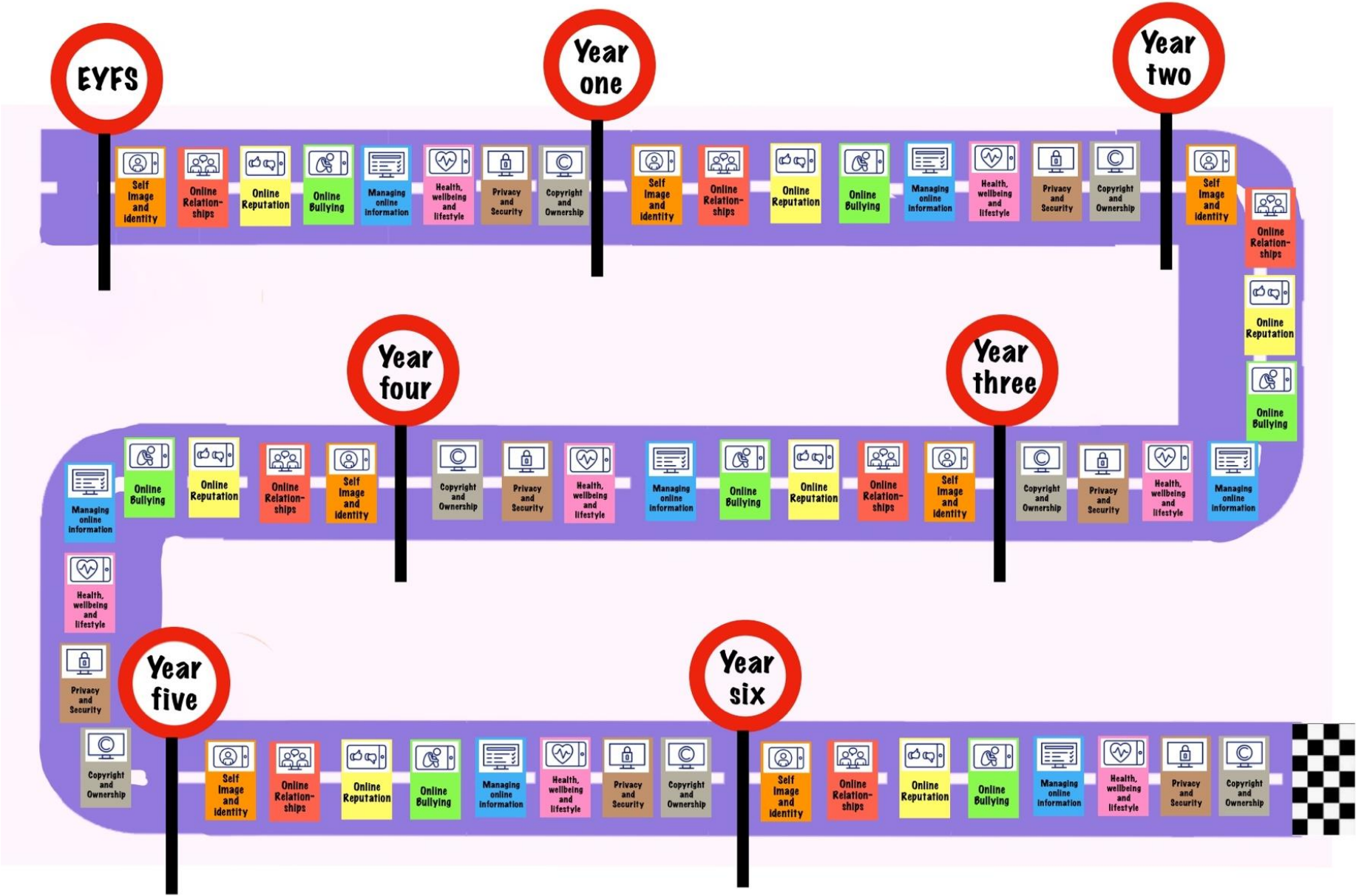- Collect and analyse data.

COMPUTING UNIT LONG TERM PLAN ROADMAP

COMPUTING UNIT Roadmap Tracker Year 1-6 Computing Strand Overview:
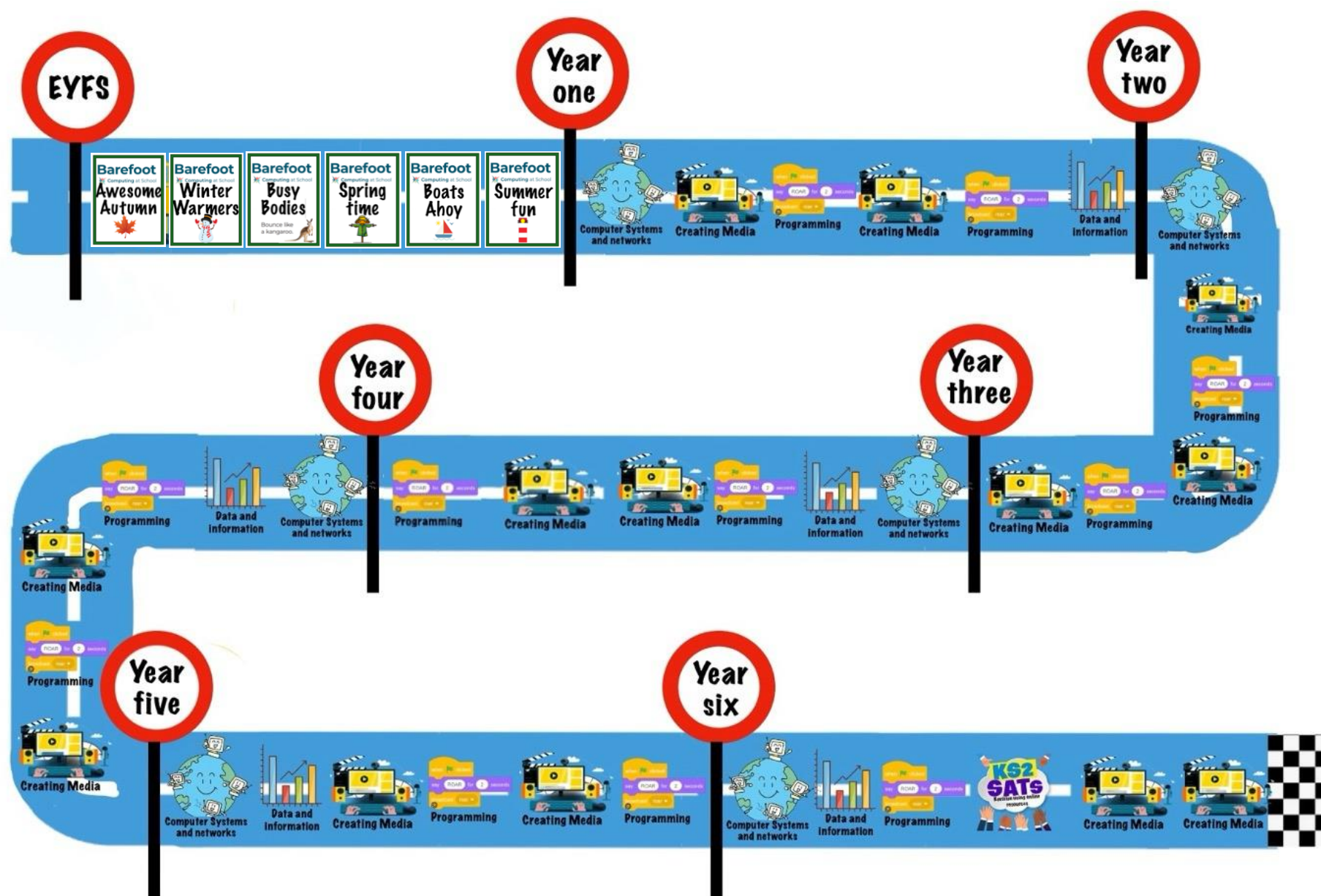
ONLINE SAFETY LONG TERM PLAN ROADMAP

ONLINE SAFETY Roadmap Tracker Year 1-6 Online Safety Strand Overview

Whinstone ONLINE SAFETY & COMPUTING Long Term Plan		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Online Safety	Self Image and Identity	Online Relationships / Online Bullying	Online Reputation / Managing online information	Health, wellbeing and lifestyle	Privacy and Security	Copyright and Ownership
	Computing	Barefoot Awesome Autumn	Barefoot Winter Warmers	Barefoot Busy Bodies	Barefoot Spring Time	Barefoot Boats Ahoy	Barefoot Summer Fun
Year 1	Online Safety	Self Image and Identity	Online Relationships / Online Bullying	Online Reputation / Managing online information	Health, wellbeing and lifestyle	Privacy and Security	Copyright and Ownership
	Computing	Technology Around Us	Digital Painting	Moving a Robot	Digital Writing	Introduction to Animating (Scratch Jr)	Grouping Data and Pictograms
Year 2	Online Safety	Self Image and Identity	Online Relationships / Online Bullying	Online Reputation / Managing online information	Health, wellbeing and lifestyle	Privacy and Security	Copyright and Ownership
	Computing	Information Technology Around Us	Desktop Publishing Powerpoint	Quizzes (Scratch Jr)	Digital Photographs	Robot Algorithms	Making Music
Year 3	Online Safety	Self Image and Identity	Online Relationships / Online Bullying	Online Reputation / Managing online information	Health, wellbeing and lifestyle	Privacy and Security	Copyright and Ownership
	Computing	Office 365 and Connecting Computers	Branching Databases	Minecraft in Education	Desktop Publishing	Stop Frame Animation	Events and Actions (Scratch)
Year 4	Online Safety	Self Image and Identity	Online Relationships / Online Bullying	Online Reputation / Managing online information	Health, wellbeing and lifestyle	Privacy and Security	Copyright and Ownership
	Computing	The Internet and WORD	3D Printing (Tinkercad)	Repetition in Shapes (Logo)	Audio Editing (Garageband)	Repetition in Games (Scratch)	Data Logging (Microbits)
Year 5	Online Safety	Self Image and Identity	Online Relationships / Online Bullying	Online Reputation / Managing online information	Health, wellbeing and lifestyle	Privacy and Security	Copyright and Ownership
	Computing	Sharing Information And PowerPoint	Strategic Online Searches	Video Editing	Selection in Physical Computing (Microbit)	Vector Drawing (PowerPoint)	Selection in Quizzes (Scratch)
Year 6	Online Safety	Self Image and Identity	Online Relationships / Online Bullying	Online Reputation / Managing online information	Health, wellbeing and lifestyle	Privacy and Security	Copyright and Ownership
	Computing	Communication and Online Safety	Spreadsheets	Variables (Microbits)	Online Resources to Support SATs Revision	3D Modelling (Tinkercad)	2D Animations (End of Primary Project)

*Online Safety strands are taught in the first Computing lesson of every half term. Autumn 2 has 'Anti-Bullying/Friendship week', where we link to the 'Online Bullying' strand.
Spring 1 has 'Safer Internet Day' where we link to the strand of 'Managing Online Information'.*

3D printed cookie cutters in Y4

Online Safety

Delivered as the first computing lesson every half term

SPRING 1
Online Safety.
Commonsense.
"Is seeing believing?"

We discussed as a class how (sometimes) photos can be changed and edited. We talked about "Why?"
• to make someone look better
• to make a fun photo
• for money 💰💰

Creative coding in Minecraft Education in Y3
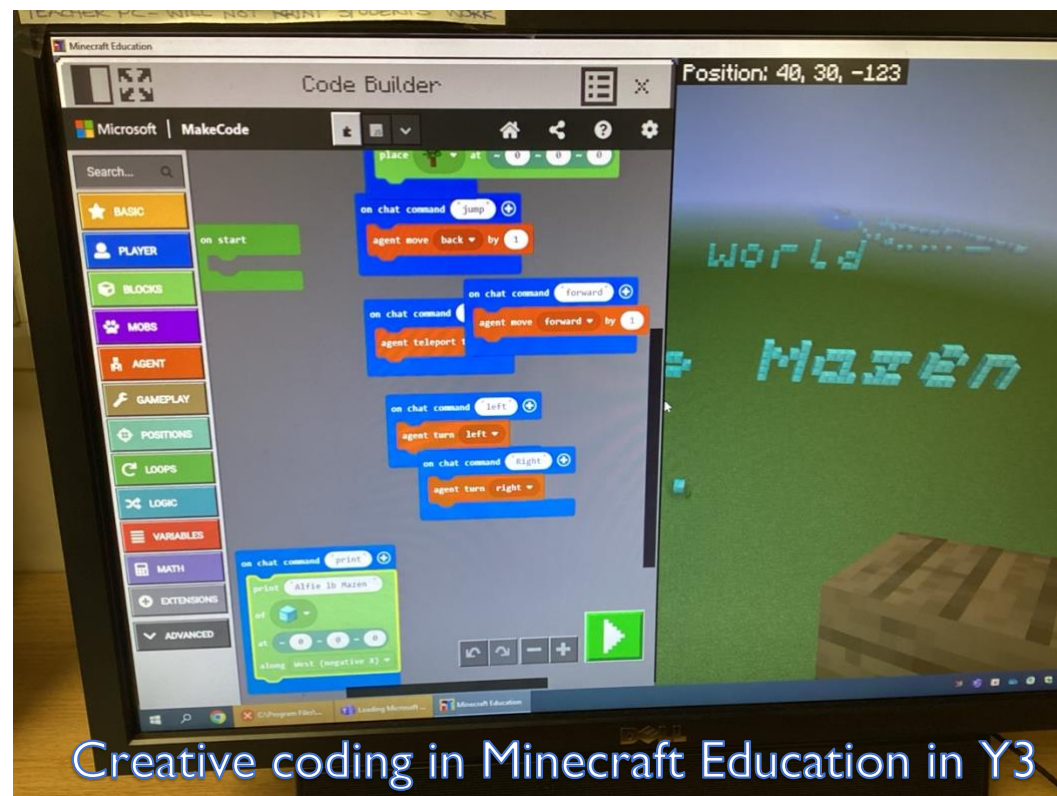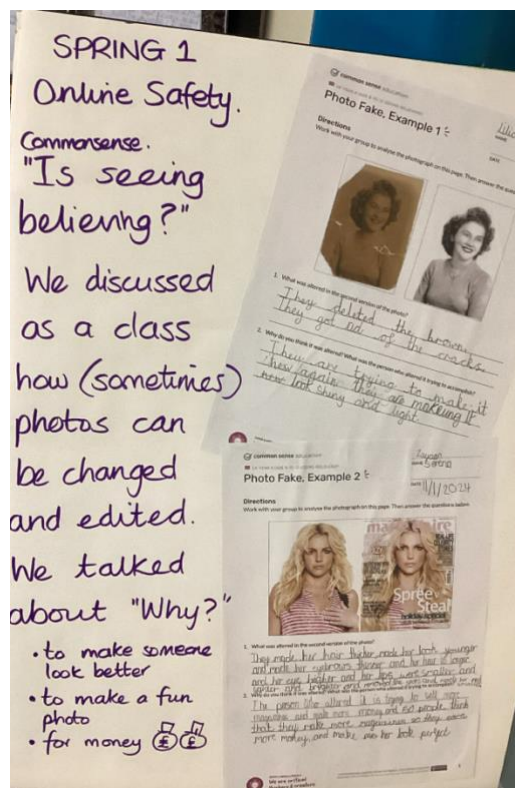
<u>**COMPUTING Curriculum Overview**</u>

Early Learning Goals and National Curriculum Aims:

Early Years Foundation Stage:	
EYFS Linked Areas of Learning: The most relevant statements for Computing are taken from the following areas of learning:	**'Year 1 Ready' Goals:** • To login to the computers (with a card as an aid). • Programme a toy with a simple algorithm. • Draw a picture using mouse skills.

Computing FS - There is no specific guidance for Computing in FS. However, at Whinstone, we endeavour to immerse our younger children with Computing experiences that adhere to the ELG's but also develop pre-KS1 Computing skills. This is important to enable our children to be ready and confident for the Computing units when in Y1.

Within the revised 2021 EYFS statutory framework, the *'**Technology**'* strand within *Understanding the World* has been removed. However, there are opportunities within each area of the framework to enable practitioners to effectively prepare children for studying the Computing curriculum. As with all curriculum areas in Early Years, the focus within Computing is about making children **'School Ready'** and there are lots of opportunities within EYFS for young children to use technology to solve problems and produce creative outcomes.

As young children take part in a variety of tasks with digital devices *(such as moving a digital device around a classroom),* they will already be familiar with the device before being asked to undertake tasks related to the KS1 Computing Curriculum, such as writing and testing a simple program. Not only will children be keen to again use a device they had previously enjoyed using, but their cognitive load will also be reduced, meaning they are more likely to succeed when undertaking activities linked to the next stage in their learning.

The September 2020 release of <u>Development Matters</u> (pg. 9) outlines how effective teaching and learning gives children *the opportunity to play and explore, participate in active learning and create and think critically*. Many areas of the framework provide opportunities for pupils to develop their ability to use **computational thinking** effectively, such as through using the RAMP **(Read, Act, Model, Program)** linked to different texts being studied in class (e.g. looking at where 'sequence', 'selection' and 'repetition' appears in the story of *'Going on a Bear Hunt'*).

In the Summer term, the Reception classes will have a timetabled Computer Suite lesson. This is to encourage the pre-KS1 Computing skills needed so they are ready for the KS1 units. Reception staff will ensure that the children learn how to logon to our school computers, aiming for full independence to logon before the end of the school year.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Coding & Computational Thinking **Barefoot Computing - *Awesome Autumn*** Awesome Autumn link	**Coding & Computational Thinking** **Barefoot Computing - *Winter Warmers*** **Winter Warmers**	**Coding & Computational Thinking** **Barefoot Computing - *Busy Busy Bodies*** **Busy Bodies link**	**Coding & Computational Thinking** **Barefoot Computing – *Springtime*** **Springtime link**	**Coding & Computational Thinking** **Barefoot Computing - *Boats Boats Ahoy*** Boats Ahoy link	**Coding & Computational Thinking** **Barefoot Computing - *Summer Fun*** **Summer Fun link**

Throughout EYFS

- *Use of 'RAMP Model' ongoing throughout the academic year, linked to various texts.*

- Children to use physical coding robots to program a physical device.
  Ongoing throughout the academic year.

- **Computing Systems & Networks**
  Where opportunities allow, pupils discuss the range of technology used in places such as homes and schools.
- Pupils share their experiences of *'using'* technology both in and out of school.
- Pupils identify the main parts of a computer system *(monitor, mouse, keyboard, printer etc)*.

- **Information Technology**
  Integrate appropriate *Purple Mash* activities where appropriate
  linked to the EYFS 2021 Framework: (click on the links)
- **Early Years Framework Curriculum Map April 21 n.pdf link here**
- **PlanningWithMathsCity1 Updated 03 03 21.pdf link here**
- **PlanningWithSimpleCity updated 03 03 21.pdf link here**

RAMP (Read, Act, Model, Program)...

Read - Read the story. Talk about what happens

Act - As the children practise their role play, can they spot any repeating patterns?

Model - Create a model of the story using picture cards or programming blocks.

Program - Use the sequence cards (pictorial algorithm) to then create a program.

Barefoot
Computing at School

Early Years

Summer Fun
Seaside Tangrams

Duration: **1 hours/minutes**

Concepts and approaches covered

Tinkering   Creating   Debugging   Persevering

Early Learning Goals and Development Matters Links

Active Learning
- Begin to correct mistakes themselves.

Creating and thinking critically
- Help children to extend their ideas through sustained discussion that goes beyond what they, and you, have noticed.

Understanding the World
- Explore the natural world around them.

Communication and Language
- Reception: Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.

Mathematics
- Reception: Select, rotate and manipulate shapes to develop spatial reasoning skills

Children: Discover how shapes can be placed together to form a picture called a tangram. Children will learn how to combine, turn and place shapes to create familiar seaside features.

Adult: Provide an opportunity to prompt the child when objects need flipping or rotating and model how to problem solve. Question children about why the items are placed, organised and arranged to create a picture.

The activity
In this activity the children will be prompted by looking at some seaside pictures and identifying the shapes they can see that might help form some of the familiar objects such as the lighthouse, boats, etc. They will be encouraged to name common 2D shapes and experiment with how they can combine shapes to create their own seaside picture.
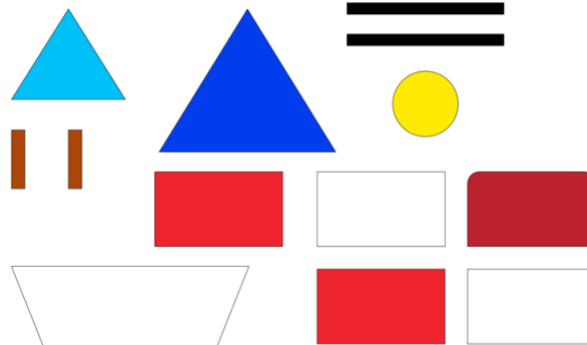
Links to and key questions to encourage Computational Thinking
This section offers lots of opportunities and prompts through the activity supporting the children's Computational Thinking.

Concepts and approaches	Links	Key Questions; to prompt discussion use "I wonder why/how?"
Tinkering	Using the different 2D shapes, children move, turn, place and overlap them to create their own version of the seaside object. This is tinkering, occurring as they try out different shapes and see what happens. Children may need support in seeing shapes in a different orientation.	- I wonder which shapes we could use to make... - Test it out, see what happens - What will the rectangle look like if I turn it? - Which shapes would be best to make the roof /windows / doors? - How does that look? - Are there any parts you would like to change?
Creating	Children experiment with arranging the shapes to create the seaside image. Part of the creating process includes checking and fixing, which they do continually as they go along.	
Debugging	Debugging is the process of finding and fixing errors or mistakes in our work. In EYFS, children are constantly testing things out, finding problems and fixing them. As children are creating their tangrams, encourage them to keep checking and evaluating and making any changes needed (debugging their design). Some may suggest using other shapes, or rotating existing ones to make improvements.	- Which parts of your design are you pleased with? - Are there any parts you would like to change? - What could you try instead? - Would changing the order of the shapes help? (support where needed) - Could you try a bigger or smaller rectangle? - Could rotating the shape help? (support where needed)
Persevering	Children will demonstrate perseverance by swapping and testing different shapes until they achieve the desired outcome. They may also need to be encouraged to rotate shapes to see how they look in different orientations.	- Which shape do you need first? - Where should I place the square to create the window? - Which shape could we try next? - Have another try - can you use this shape? - Think aloud - I wonder if turning the shape would help?

Ideas - Lighthouse

Shapes to cut out - lighthouse
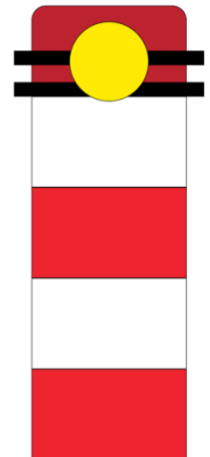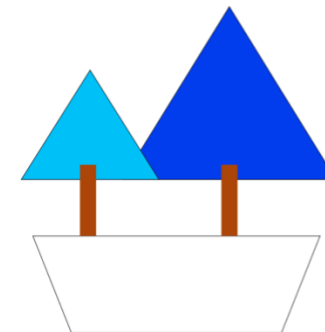
Starting to code

Activities in

Pre-School

Key Stage 1

Advances in technology impacts on all our lives. Through teaching computing, we aim to equip our children to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. It is our intention to enable children to find, explore, analyse, exchange and present information. With the knowledge that Computing will undoubtedly continue to form a major part of the children's lives at home, in further education and places of work, we ensure that the experiences and abilities that the children develop at Whinstone are effective and transferrable life skills. We ensure that online safety learning outcomes are interpreted within contexts that are relevant to the learner's experience and are achieved through learning that is matched to the readiness of the learner. We help our children to become creative at computing through the development of the Key Concepts in computing:

Computing Systems and Networks	Creating media	Creating media	Data and Information	Programming	Programming
recognise common uses of information technology beyond school	use technology purposefully to create, organise, store, manipulate and retrieve digital content	use technology purposefully to create, organise, store, manipulate and retrieve digital content	use technology purposefully to organise and store digital content	understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
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	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	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	select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information	create and debug simple programs

use logical reasoning to predict the behaviour of simple programs | use sequence, selection, and repetition in programs; work with variables and various forms of input and output |
| Searching | | | | | |

Online Safety
Effective Use of Tools
Impact of Technology

In KS1, within the 'Computer Systems and Networks' strand, the children continue to familiarise themselves with a computer and begin to remember tasks such as how to save and reopen a file. They continue to learn how technology is used outside of school e.g. barcodes and scanners.

'Creating Media' develops their use of Microsoft Word for writing, they compare drawing pictures on paper with computer Art, they learn how to take a 'good' photo and make music with technology.

'Data and Information' links with their Maths curriculum, creating graphs, pictograms, and the beginnings of simple databases.

'Programming' includes having hands-on fun with programmable robots, developing their accuracy of the simple commands to achieve a given goal. They begin to modify their programs when they make mistakes, learning how to debug successfully. Y1 are introduced to simple screen animations and how to program them. Y2 build upon these skills by planning sequences of commands, predicting and debugging to achieve on-screen characters asking and answering fun questions.

'Online Safety' is taught as a stand-alone first lesson of every half term, ensuring clear coverage of the 8 strands of 'Education For a Connected World'. It is also embedded within the computing units so that it is taught in context (example, speaking about permissions for photographs in the Y2 photography unit).

Computing Floorbooks from Year 2

Recording learning Coding and Data Handling.
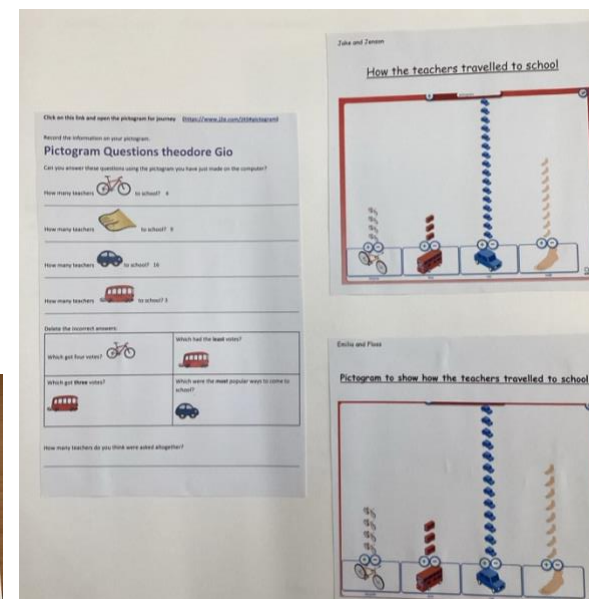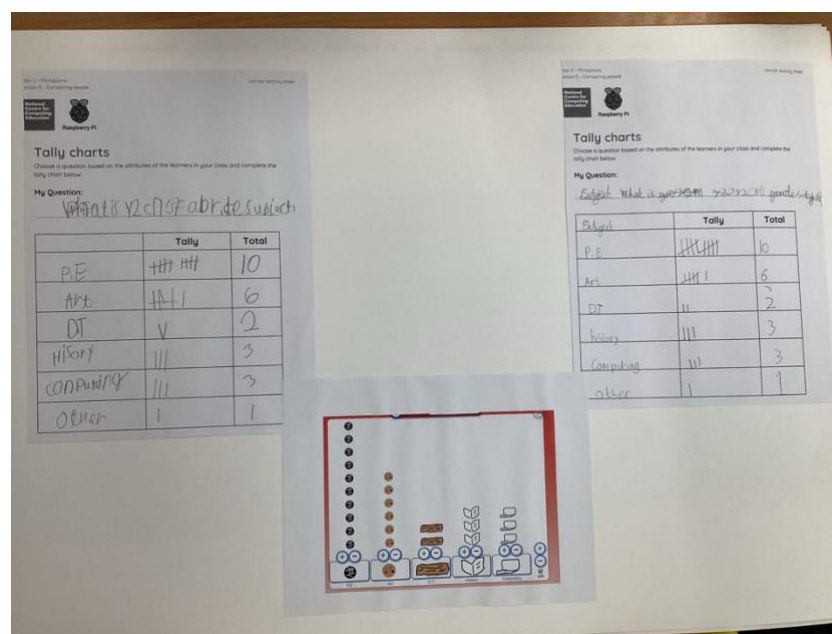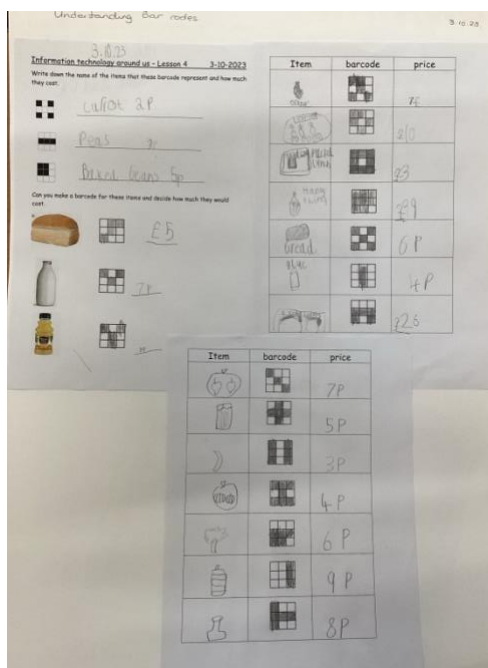
Key Stage 2

'Computer Systems and Networks' within KS2 seeks to extend the children's knowledge and appreciation of how computer systems and the wider internet work in everyday life. The wealth of using computers for 'Creating Media' is developed in KS2, ranging from desktop publishing with WORD and APPs, building on their skills of photo editing, creating adverts with audio editing, enriching the curriculum with video making and editing, skilful animations and vector drawings leading to 3D printed useful cookie cutters and keyrings.

'Data and Information' continues the children's pathway of learning about the great use of various types of databases, including branching, flat-file and spreadsheets.

'Programming' carefully builds upon what they have learnt already in school, but learning how the algorithms can include conditions, variables and count controlled loops. The planning is very specific so that these essential components are taught in careful succession to build upon prior knowledge. We do this by continuing the 'Scratch' learning but also utilise their knowledge of 'Minecraft' to code within the game in 'Minecraft Education'. Programming fosters creativity within our children, particularly using hands-on coding with robots and Microbits.

'Online Safety' is taught as a stand-alone first lesson of every half term, ensuring clear coverage of the 8 strands of 'Education For a Connected World'. It is also embedded within the computing units so that it is taught in context (example, in Flat file databases, linking to their use within school for retrieving a student's information and why GDPR rules are there to keep an individual's information private).

Y3's first stop frame animations

Displays around school

Experimenting with Logo codes to make repeating shapes
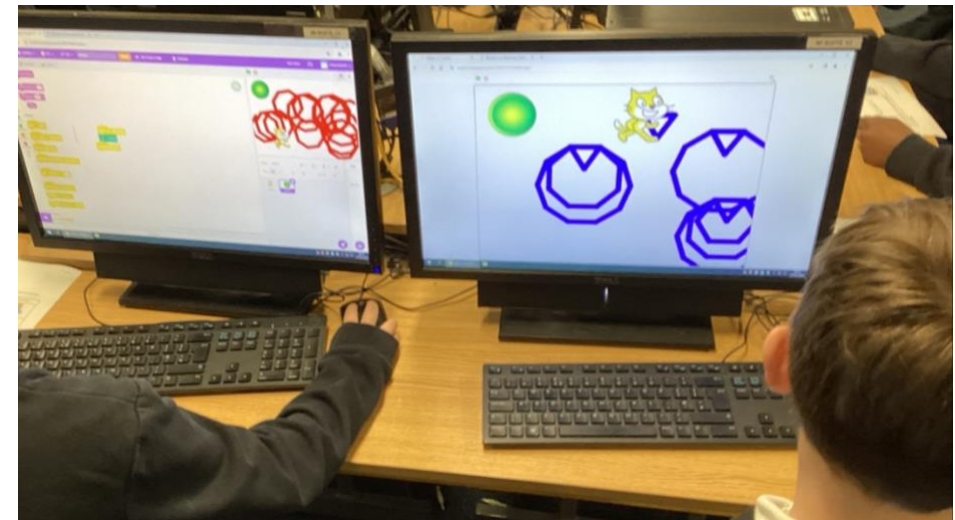
Y4 Scratch Learning about different loops in code

Using 3D design

To solve problems and design their own objects

15

COMPUTING Curriculum STRAND PROGRESSION

COMPUTER SYSTEMS AND NETWORKS PROGRESSION						
These key concepts, knowledge and vocabulary will be taught and reinforced through the development of these specific skills. These Key Concepts and vocabulary will be revisited and repeated throughout a child's journey of Computing at Whinstone. *Safety and Security links to lessons are in RED. Online Safety Strands are taken from the UKCCIS document 'Education for a Connected World' (June, 2020)*						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	TECHNOLOGY AROUND US -To identify technology -Copyright and ownership -Health, well-being and lifestyle -To identify a computer and its main parts -To use a mouse in different ways -To use a keyboard to type -To use the keyboard to edit text -To create rules for using technology responsibly	**INFORMATION TECHNOLOGY AROUND US** -To recognise the uses and features of information technology -Health, well-being and lifestyle -To identify information technology in the home -To identify information technology beyond school -To explain how information technology benefits us -To show how to use information technology safely -To recognise that choices are made when using information technology	**MICROSOFT OFFICE 365 and CONNECTING COMPUTERS** -To explain how digital devices function -To understand how to use email and Microsoft Teams -Self-image and identity -Online relationships -Online reputation -Online bullying -Privacy and security -To identify input and output devices -To recognise how digital devices can change the way we work -To explain how a computer network can be used to share information -To explore how digital devices can be connected -To recognise the physical components of a network	**THE INTERNET AND WORD** -To say how music can make us feel -Copyright and ownership -To identify that there are patterns in music -To describe how music can be used in different ways -To show how music is made from a series of notes -To create music for a purpose -To review and refine our computer work	**SHARING INFORMATION** -To explain that computers can be connected together to form systems -Copyright and ownership Managing online information -To recognise the role of computer systems in our lives -To recognise how information is transferred over the internet -To explain how sharing information online lets people in different places work together -To contribute to a shared project online -To evaluate different ways of working together online **STRATEGIC ONLINE SEARCHES** -Search for information, refining their searches (Boolean operators) -Check reliability -Explain how search engines work, with web indexes and web crawlers -Understand what a SEO is and can suggest improvements for a webpage	**COMMUNICATION** -To identify how to use a search engine -Managing online information -Online reputation -To describe how search engines select results -To explain how search results are ranked -To recognise why the order of results is important, and to whom -To recognise how we communicate using technology -To evaluate different methods of online communication

Computer Systems and networks

Y5 exploring how the system of a 'smart locker' works

CREATING MEDIA PROGRESSION (EY-KS1)
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Safety and Security links to lessons are in RED. Online Safety Strands are taken from the UKCCIS document 'Education for a Connected World' (June, 2020)

EYFS	Year 1	Year 2
Children will have opportunities in their classroom setting to learn Computing knowledge and skills. Children will use the ipads, a range of electronic devices, including simple programmable toys. They will also be involved with a range of unplugged Computing-linked activities to enhance their readiness for the KS1 curriculum.	**DIGITAL PAINTING** -To describe what different freehand tools do -To use the shape tool and the line tools -To make careful choices when painting a digital picture -To explain why I chose the tools I used -To use a computer on my own to paint a picture -To compare painting a picture on a computer and on paper **DIGITAL WRITING** -To use a computer to write -Privacy and security -To add and remove text on a computer -To identify that the look of text can be changed on a computer -To make careful choices when changing text -To explain why I used the tools that I chose -To compare writing on a computer with writing on paper	**DIGITAL PHOTOGRAPHS** -To know what devices can be used to take photographs -Self-image and identity -To use a digital device to take a photograph -To describe what makes a good photograph -To decide how photographs can be improved -To use tools to change an image -To recognise that images can be changed **PRESENTATIONS – POWERPOINT** -To organise ideas for a presentation -To create a simple presentation with text -To reorder slides and present **MAKING MUSIC** -To say how music can make us feel -Copyright and ownership -To identify that there are patterns in music -To describe how music can be used in different ways -To show how music is made from a series of notes -To create music for a purpose -To review and refine our computer work

Y3 Desktop Publishing, making logos and posters for their English persuasive writing
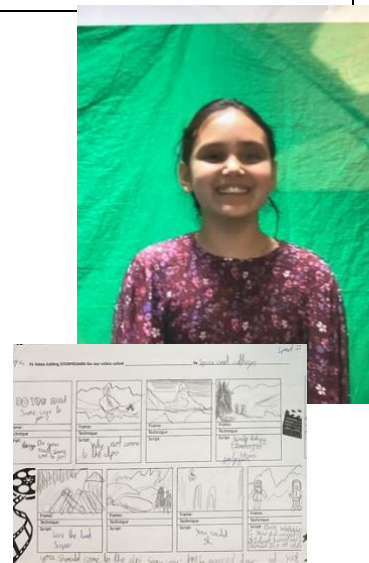
Y5 Information videos on Geography unit of 'The Alps'

CREATING MEDIA PROGRESSION (KS2)

These key concepts, knowledge and vocabulary will be taught and reinforced through the development of these specific skills. These Key Concepts and vocabulary will be revisited and repeated throughout a child's journey of Computing at Whinstone.
Safety and Security links to lessons are in RED. Online Safety Strands are taken from the UKCCIS document 'Education for a Connected World' (June, 2020)

Year 3	Year 4	Year 5	Year 6
DESKTOP PUBLISHING -To recognise how text and images convey information -Copyright and ownership -Managing online information -To recognise that text and layout can be edited -To choose appropriate page settings -To add content to a desktop publishing publication -To consider how different layouts can suit different purposes -To consider the benefits of desktop publishing **3D STOP FRAME ANIMATION** -To explain that animation is a sequence of drawings or photographs -Copyright and ownership -Managing online information -To relate animated movement with a sequence of images -To plan an animation -To identify the need to work consistently and carefully -To review and improve an animation -To evaluate the impact of adding other media to an animation	**3D MODELLING** - To move shapes confidently on the work plane (up, down, left, right, through) -To design a cookie cutter that fits the design criteria -To choose more shapes to create a successful design -To understand size and shape choices -To edit their design **AUDIO EDITING** -To identify that sound can be digitally recorded -Copyright and ownership -To use a digital device to record sound -To explain that a digital recording is stored as a file -To explain that audio can be changed through editing -To show that different types of audio can be combined and played together -To evaluate editing choices made	**VIDEO EDITING** -To recognise video as moving pictures, which can include audio -Managing online information -Online relationships -Online reputation -Self-image and identity -To identify digital devices that can record video -To capture video using a digital device -To recognise the features of an effective video -To identify that video can be improved through reshooting and editing -To consider the impact of the choices made when making and sharing a video **VECTOR DRAWING** -To identify that drawing tools can be used to produce different outcomes -Copyright and ownership -To create a vector drawing by combining shapes -To use tools to achieve a desired effect -To recognise that vector drawings consist of layers -To group objects to make them easier to work with -To evaluate my vector drawing	**3D MODELLING** -To use a computer to create and manipulate three-dimensional (3D) digital objects -Privacy and security -To compare working digitally with 2D and 3D graphics -To construct a digital 3D model of a physical object -To identify that physical objects can be broken down into a collection of 3D shapes -To design a digital model by combining 3D objects -To develop and improve a digital 3D model **2D STOP FRAME ANIMATIONS** - To use onion skinning to make small changes between frames -To develop skills in scripting and sequencing events to convey a coherent narrative. -To develop skills in creating and editing backgrounds and settings for animations. -Learn to incorporate sound effects and music into animations to enhance storytelling and atmosphere. -To explore techniques for synchronizing sound with animation timing and events. -To develop skills in editing and refining animations, including adjusting timing, transitions, and visual elements. -To learn to reflect on strengths and areas for improvement in their own and others' animations. -To understand the importance of respecting copyright and intellectual property rights when creating and sharing animations.

Creating Media

DATA AND INFORMATION PROGRESSION

These key concepts, knowledge and vocabulary will be taught and reinforced through the development of these specific skills. These Key Concepts and vocabulary will be revisited and repeated throughout a child's journey of Computing at Whinstone.
*Safety and Security links to lessons are in RED. Online Safety Strands are taken from the UKCCIS document 'Education for a Connected World' (June, 2020)

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Data and information	**GROUPING DATA AND PICTOGRAMS** -Copyright and ownership -To recognise that we can count and compare objects using tally charts -Privacy and security -To recognise that objects can be represented as pictures -To create a pictogram -To select objects by attribute and make comparisons -To recognise that people can be described by attributes -To explain that we can present information using a computer		**BRANCHING DATABASES (ASK OSCAR)** -To create questions with yes/no answers -To identify the object attributes needed to collect relevant data -To create a branching database -To identify objects using a branching database -To explain why it is helpful for a database to be well structured -To compare the information shown in a pictogram with a branching database	**DATA LOGGING** -To explain that data gathered over time can be used to answer questions -To use a digital device to collect data automatically -To explain that a data logger collects 'data points' from sensors over time -To use data collected over a long duration to find information -To identify the data needed to answer questions -To use collected data to answer questions		**SPREADSHEETS** -To identify questions which can be answered using data -To explain that objects can be described using data -To explain that formula can be used to produce calculated data -To apply formulas to data, including duplicating -To create a spreadsheet to plan an event -To choose suitable ways to present data
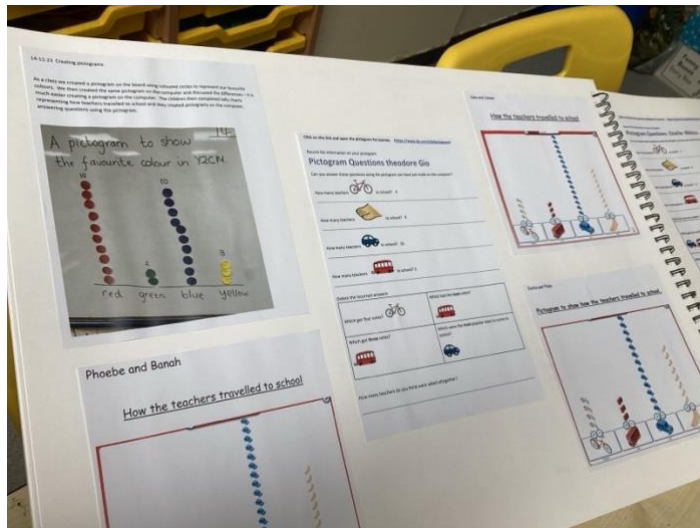
Y1 collecting data and displaying the findings in pictographs

Autumn 2.....
Branching databases.
First lesson, we played a human version of 'Guess Who?!'

We used 'Ask Oscar' as a class to sort out some musical instruments. We had to think very carefully about the questions.

We discussed the result of our pictogram, we concluded that:
1) Apple was the most popular choice.
2) Strawberries were the second most popular.
3) The other choices all had the same number of votes.

We improved on last week and change pictures to match data.
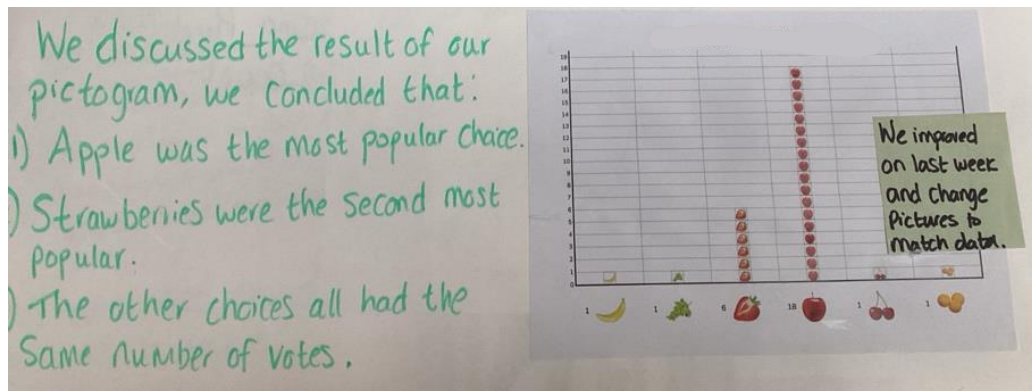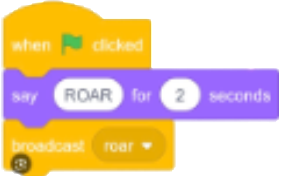
Y3 Learning about decision trees, like a game of 'Guess Who!"

We looked at the differences between animals.

PROGRAMMING PROGRESSION (EY-KS1)

These key concepts, knowledge and vocabulary will be taught and reinforced through the development of these specific skills. These Key Concepts and vocabulary will be revisited and repeated throughout a child's journey of Computing at Whinstone.

EYFS	Year 1	Year 2
Programming	**MOVING A ROBOT** -To explain what a given command will do -To act out a given word -To combine forwards and backwards commands to make a sequence -To combine four direction commands to make sequences -To plan a simple program -To find more than one solution to a problem **INTRODUCTION TO ANIMATION** **(SCRATCH JR)** -To choose a command for a given purpose -To show that a series of commands can be joined together -To identify the effect of changing a value -To explain that each sprite has its own instructions -To design the parts of a project -To use my algorithm to create a program	**QUIZZES** **(SCRATCH JR)** -To explain that a sequence of commands has a start -To explain that a sequence of commands has an outcome -To create a program using a given design -To change a given design -To create a program using my own design -To decide how my project can be improved **ROBOT ALGORITHMS** -To describe a series of instructions as a sequence -To explain what happens when we change the order of instructions -To use logical reasoning to predict the outcome of a program (series of commands) -To explain that programming projects can have code and artwork -To design an algorithm -To create and debug a program that I have written

Coding beginnings using Blubots/Bee bots in Y1

Year 3 Minecraft in Education programming using MakeCode

Coding using LOGO in Year 4

Programming Progression

PROGRAMMING PROGRESSION (KS2)

22

These key concepts, knowledge and vocabulary will be taught and reinforced through the development of these specific skills. These Key Concepts and vocabulary will be revisited and repeated throughout a child's journey of Computing at Whinstone.
Safety and Security links to lessons are in RED. Online Safety Strands are taken from the UKCCIS document 'Education for a Connected World' (June, 2020)

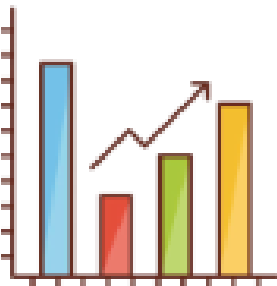| Year 3	Year 4	Year 5	Year 6
MINECRAFT EDUCATION -To get to know the basic controls within Minecraft Education Edition -To build using the inventory's blocks -To know the order to make something happen and talk about this as an algorithm. -To use sequence, selection, and repetition in programs -To work with variables and conditions -To solve problems by decomposing them into smaller parts. -To use sequence, selection, and repetition in programs **EVENTS AND ACTIONS –(SCRATCH)** -To explain how a sprite moves in an existing project -To create a program to move a sprite in four directions -To adapt a program to a new context -To develop my program by adding features -To identify and fix bugs in a program -To design and create a maze-based challenge	**REPETITION IN SHAPES (LOGO)** -To identify that accuracy in programming is important -To create a program in a text-based language -To explain what 'repeat' means -To modify a count-controlled loop to produce a given outcome -To decompose a program into parts -To create a program that uses count-controlled loops to produce a given outcome **REPETITION IN GAMES (SCRATCH)** -To develop the use of count-controlled loops in a different programming environment -To explain that in programming there are infinite loops and count controlled loops -To develop a design which includes two or more loops which run at the same time -To modify an infinite loop in a given program -To design a project that includes repetition -To create a project that includes repetition	**SENSING (MICROBITS)** -To create a program to run on a controllable device -To explain that selection can control the flow of a program -To update a variable with a user input -To use a conditional statement to compare a variable to a value -To design a project that uses inputs and outputs on a controllable device -To develop a program to use inputs and outputs on a controllable device **SELECTION IN QUIZZES (SCRATCH)** -To explain how selection is used in computer programs -To relate that a conditional statement connects a condition to an outcome -To explain how selection directs the flow of a program -To design a program which uses selection -To create a program which uses selection -To evaluate my program	**VARIABLES (MICROBITS)** -To use variables to describe a character -To write algorithms that use variables -To debug programs containing variables -To predict how variables will be used in programs -To write algorithms that use random number variables -To debug programs involving random number variables -To write programs that use random number variables -To evaluate a solution effectively
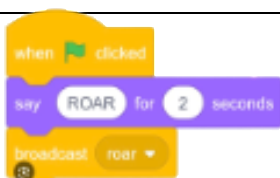
Programming

ONLINE SAFETY STRAND PROGRESSION

ONLINE SAFETY: SELF IMAGE AND IDENTITY PROGRESSION						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
-I can recognise, online or offline, that anyone can say "no"- "please stop"- "I'll tell", "I'll ask" to somebody who makes them feel sad, uncomfortable, embarrassed, or upset.	-I can recognise that there may be people online who could make me feel sad, embarrassed, or upset. -If something happens that makes me feel sad, worried, uncomfortable, or frightened I can give examples of when and how to speak to an adult I can trust.	-I can explain how other people's identify online can be different to their identity in real life. -I can describe ways in which people might make themselves look different online. -I can give examples of online issue that might make me feel sad, worried, uncomfortable, or frightened. -I can give examples of how I might get help.	-I can explain what is meant by the term 'identity'? -I can explain how I can represent myself in different ways online. -I can explain ways in which and why I might change my identity online depending on what I am doing online.	-I can explain how my online identity can be different to the identity I present in real life. Knowing this, -I can describe the right decisions about how I interact with others and how others perceive me.	-I can explain how identify online can be copied, modified, or altered. -I can demonstrate responsible choices about my online identity; depending on context.	-I can describe ways in which media can shape ideas about gender. -I can identify messages about gender roles and make judgements based on them. -I can challenge and explain why it is important to reject inappropriate messages about gender online. -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. -I can explain why I should keep asking until I get the help I need.

Self Image and identity

Education for a Connected World
A framework to equip children
and young people for digital life
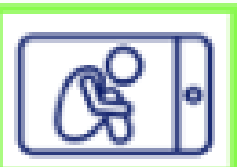
ONLINE SAFETY: ONLINE RELATIONSHIPS PROGRESSION						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
-I can recognise some ways in which the internet can be used to communicate. -I can give examples of how I (might) use technology to communicate with people I know.	-I can use the internet with adult support to communicate with people I know. -I can explain why it is important to be considerate and kind to people online.	-I can use the internet to communicate with people I don't know well (e.g. email a pen pal in another school/country) -I can give examples of how I might use technology to communicate with others I don't know well.	-I can describe ways people who have similar likes and interests can get together online. -I can explain some risks of communicating online with others I don't know well. -I can explain what it means to 'know someone' online and why this may be different from knowing them in real life. -I can explain why I should be careful who I trust online and what information I trust them with. -I can explain what is meant by 'trusting someone online' and I can explain why this is different to 'liking someone online' -I can explain why I can take back my trust in someone or something if I feel nervous, uncomfortable or worried.	-I can give examples of how to be respectful to others online.	-I can explain that there are some people who I communicate with online who may want to do me or my friends harm. -I can recognise that this is not my/our fault. -I can make positive contributions and be part of online communities. -I can describe some of the communities in which I am involved and describe how I collaborate with others positively.	I can explain how sharing something online may have an impact either positively or negatively. -I can explain how sharing something online may have an impact either positively or negatively. -I can describe how things shared privately online can have unintended consequences for others e.g. screen grab. -I can explain that taking/sharing inappropriate images of someone may have an impact for the sharer and others; and who can help if someone is worried about this.

Online Relation-ships

ONLINE SAFETY: ONLINE REPUTATION PROGRESSION						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
-I can identify ways that I can put information on the internet.	-I can recognise that information can stay online and could be copied. -I can describe what information I should not put online without asking a trusted adult first.	-I can explain how information put online about me can last for a long time. -I know who to talk to if I think someone has made a mistake about putting something online.	-I can search for information about myself online. -I can recognise I need to be careful before I share anything about myself or others online. I know who I should ask if I am not sure if I should put something online.	-I can describe how others can find out information about me by looking online. -I can explain ways that some of the information about me online could have been created, copied or shared by others.	-I can search for information about an individual online and create a summary report of the information I find. -I can describe ways that information about people online can be used by others to make judgements about an individual.	-I can explain how I am developing an online reputation which will allow other people to form an opinion of me. -I can describe some simple ways that help build a positive online reputation.

Online Reputation

ONLINE SAFETY: ONLINE BULLYING PROGRESSION						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
-I can describe ways that some people can be kind online. -I can offer examples of how this can make others feel.	-I can describe how to behave online in ways that do not upset others and can give examples.	-I can give examples of bullying behaviour and how it could look online. I understand how bullying can make someone feel. -I can talk about how someone can/would get help about being bullied online or offline.	-I can explain what bullying is and can describe how people may bully others -I can describe rules about how to behave online and how I follow	-I can identify some online technologies where bullying might take place. -I can describe ways people can be bullied through a range of media (e.g. image, video, text, chat). -I can explain why I need to think carefully about how content I post might affect others, their feelings and how it may affect how others feel about them (their reputation).	-I can recognise when someone is upset, hurt or angry online. -I can describe how to get help for someone that is being bullied online and assess when I ned to do or say something or tell someone. -I can explain how I would report online bullying on the apps and platforms that I use. -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. -I can explain how to block abusive users.	-I can describe how to capture bullying content as evidence (e.g. screen grab, URL, profile) to share with others who can help me. -I can explain how someone could report online bullying in different contexts.

Online Bullying

ONLINE SAFETY: MANAGING ONLINE INFORMATION PROGRESSION						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
-I can talk about how to use the internet as a way of finding information online. -I can identify devices I could use to access information on the internet.	-I can use the internet to find things out. I can use simple keywords in search engines. -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.	-I can use keywords in search engines. -I can demonstrate how to navigate a simple webpage to get information I need (e.g. home, forward, back buttons; links, tabs and sections) -I can explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri) -I can explain the difference between things that are imaginary, 'made up', or 'make believe' and things that are 'true' or 'real'. -I can explain why some information I find online may not be true.	-I can use key phrases in search engines. -I can explain the difference between a belief, an opinion and a fact.	-I can describe how I can search for information within a wide group of technologies (e.g. social media, image sites, video sites). -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. -I can explain that some people I 'meet online' may be computer programmes pretending to be real people.	-I can explain what is meant by 'being sceptical'. I can give some examples of when and why it is important to be sceptical. -I can explain what is meant by a hoax. I can explain why I need to think carefully before I forward anything online. -I can explain why some information I find online may not be honest, accurate or legal. -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 (accident or on purpose)	-I can use search technologies effectively. -I can explain how search engines work and how results are selected and ranked. -I can demonstrate the strategies I would apply to be discerning in evaluating digital content. -I can describe how some online information can be opinion and can offer examples. -I can explain how and why some people may present opinions as facts. -I can demonstrate strategies to enable me to analyse and evaluate the validity of facts and I can explain why using these strategies are important. -I can identify and flag inappropriate content. I can define the terms 'influence', 'manipulation' and 'persuasion' and explain how I might encounter these online e.g. advertising and ad-targeting.
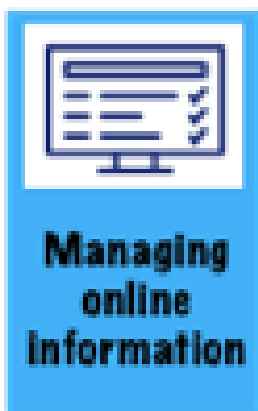
ONLINE SAFETY: HEALTH WELL-BEING AND LIFESTYLE PROGRESSION						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
-I can identify rules that help keep us safe and healthy in and beyond the home when using technology. -I can give some simple examples of these rules.	-I can explain rules to keep us safe when we are using technology both in and beyond home. -I can give examples of some of these rules.	-I can explain simple guidance for using technology in different environments and settings. -I can say how those rules/guides can help me.	-I can explain why spending too much time using technology can sometimes have a negative impact on me; -I can give some examples of activities where it is easy to spend a lot of time engaged (e.g. games, films, videos).	-I can explain how using technology can distract me from other things I might do or should be doing. -I can identify times or situations when I might need to limit the amount of time I use technology and suggest strategies to help me with this.	-I can describe ways technology can affect healthy sleep and can describe some of the issues. -I can describe some strategies, tips or advice to promote healthy sleep with regards to technology.	-I recognise and can discuss the pressures that technology can place on someone and how/when they could manage this. -I can recognise features of persuasive design and how they are used to keep users engaged (current and future use) -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).

Health, wellbeing and lifestyle

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ONLINE SAFETY: PRIVACY AND SECURITY PROGRESSION						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
-I can identify some simple examples of my personal information (E.g. name, address, birthday, age, location) -I can describe who would be trustworthy to share this information with; I can explain why they are trusted.	-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). -I can explain why I should always ask a trusted adult before I share any information about myself online. -I can explain why passwords can be used to protect information and devices.	-I can describe and explain some rules for keeping my information private. -I can explain what passwords are and can use passwords for my accounts and devices. -I can explain how many devices in my home could be connected to the internet and can list some of those devices.	-I can give reasons why I should only share information with people I choose to and can trust. I can explain what if I am not sure of feel pressured, I should ask a trusted adult. -I can understand and can give reasons why passwords are important. -I can describe simple strategies for creating and keeping passwords private. -I can describe how connected devices can collect and share my information with others.	-I can explain what a strong password is and describe strategies for keeping my personal information private, depending on context. -I can explain that internet use is never fully private and is monitored e.g. adult supervision.	-I can create and use strong and secure passwords. -I can explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice messages, geolocation) with others. -I can explain how and why some apps may request or take payment for additional content (e.g. in-app purchases) and explain why I should seek permission from a trusted adult before purchasing.	-I use different passwords for a range of online services. -I can describe effective strategies for managing those passwords. -I know what to do if my password is lost or stolen. -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).

Privacy and Security

ONLINE SAFETY: COPYRIGHT AND OWNERSHIP PROGRESSION						
EYFS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
-I know that work I create belongs to me. -I can name my work so that others know it belongs to me.	-I can explain why work I create using technology belongs to me. -I can say why it belongs to me (e.g. "It is my idea" / "I designed it") -I can save my work so that others know it belongs to me (e.g. filename, name on content)	-I can describe why other people's work belongs to them. -I can recognise that content on the internet may belong to other people	-I can explain why copying someone else's work from the internet without permission can cause problems. -I can give examples of what these problems might be.	-When searching on the internet for content to use, I can explain why I need to consider who owns it and whether I have the right to reuse it. I can give some simple examples.	-I can assess and justify when it is acceptable to use the work of others. -I can give examples of content that is permitted to be reused.	-I can demonstrate the use of search tools to find and access online content which can be reused by others. -I can demonstrate how to make references to and acknowledge sources I have used from the internet.

Copyright and Ownership

Education for a Connected World A framework to equip children and young people for digital life

Y1 & Y2 Key Computing Vocabulary

COMPUTING – Key Vocabulary (Revisit and build upon previous year's vocabulary with each new unit of study)

In Year 1 Computing is taught in discrete lessons under the following broad topic headings:

Computer Systems and Networks Technology Around Us	Creating Media Digital Painting	Programming A Moving a Robot	Creating Media Digital Writing	Programming B Introduction to Animation	Data and Information Grouping Data and Pictograms
Trackpad, Mouse: click, double click, drag, Monitor, display, keyboard, application, window, minimise, restore, size, move, screen, close, exit, Save, folder, open, file.	erase, line tool, fill tool, undo tool, shape tool, colour, brush style, brush size, like, prefer, dislike	Forwards, backwards, turn, clear, go, commands, directions, Left, right, algorithm, program, Route,	Word processor, keyboard, Microsoft Word, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, font,	command, sprite, compare, programming, **Start** block, run, algorithm, predict, Change value, appropriate,	Object, label, group, search, image, Data Pictogram review

In Year 2 Computing is taught in discrete lessons under the following broad topic headings:

Computer Systems and Networks Information Technology Around Us	Creating Media Presentations PowerPoint	Programming A Quizzes	Creating Media Digital photographs	Programming B Robot algorithms	Creating Media Making Music
Information technology (IT), computer, barcode, scanner/scan	Folder, presentation, PowerPoint, slide, layout, text box, format, font	Sequence, command, program, outcome, predict, modify, change, debug, evaluate	camera, photograph, capture, Landscape, portrait, Framing, subject, compose, Light sources, flash, focus, background, Editing, filter, format	Instruction, sequence, clear, algorithm, program, order, command, prediction, route, debugging	quiet, loud, feelings, emotions, Pattern, rhythm, pulse, pitch, tempo, notes, instrument, edit

Y3 & Y4 Key Computing Vocabulary

In Year 3 Computing is taught in discrete lessons under the following broad unit headings:

Computer Systems and Networks	Data and Information	Programming A	Creating Media	Programming B	Creating Media
Microsoft Office 365 / TEAMS and Connecting Computers	Branching Databases	MINECRAFT in Education (Whinstone added unit)	Desktop Publishing	Events and Actions	Stop Frame Animation
Email, online safety, fake email, personal information, text box, camera, upload, photo consent, being kind online, video	Branching database, attribute, value, pictogram, decision tree, structure,	Algorithm, sequence, command, order, conditional Decomposition Variable, loop, debugging,	Text, images, communicate, font style, template, layout, copy, paste, purpose, desktop publishing benefits	event, algorithm, sprite Move, resize, block, pen up, set up, debugging, test	Stop-frame animation, frame, sequence, image, photograph, onion skinning, import, transition
Digital device, input, output, process, program, connection, network, network switch, server, WAP (wireless access point)					

In Year 4 Computing is taught in discrete lessons under the following broad unit headings:

Computer Systems and Networks	Creating Media	Programming A	Creating Media	Programming B	Data and Information
The Internet	3D Printing	Repetition in Shapes	Audio editing	Repetition in games	Data Logging
Internet, network, router, security, server, web address, browser, world wide web, links, download, permission, accurate, sharing,	2D, space, view, resize, lift, duplicate, dimensions, placeholder, hole, group, ungroup, modify, evaluate, improve	Program, commands, code snippet, algorithm, design, debug, count-controlled loop, value, procedure	record, input, output, audio, podcast, playback, selection, mixing time shift, mp3, audio, evaluate	Scratch, programming, sprite, repeat, value repeat, forever, infinite loop, count-controlled loop, algorithm, debug,	Data, table, input device, data logger, sensor, data set, import, export, logged, analyse, conclusion

Y5 & Y6 Key Computing Vocabulary

In Year 5 Computing is taught in discrete lessons under the following broad unit headings:

Computer Systems and Networks Sharing Information	Computer Systems and Networks Strategic Searches	Programming A Selection in physical computing (microbit)	Creating Media Video Editing	Creating Media Vector Drawing (3D printing)	Programming B Selection in Quizzes
System, connection, input, process, output, Protocol, address, packet, slide deck collaboration	Browser, Internet, search engine, network, search results, search terms, URL, web browser, web page, website, World Wide Web (www), Search engine optimisation (SEO)	Microbit, components, program, repetition, infinite loop, repetition, count-controlled loop , condition, true, false, input, debug, evaluate	video, audio, storyboard, script, soundtrack, dialogue, zoom, AV (audiovisual), Video techniques: pan, tilt, angle, camera angle, edit, timeline, transitions, soundtrack, special effects	Vector, drawing tools, move, resize, rotate, duplicate/copy, alignment grid, resize, handles, consistency, modify , Layers, order, group, ungroup, Improvement, evaluate	Selection, condition, true, false, count-controlled loop conditional statement (the linking together of a condition and outcomes), algorithm, program, debug, Implement, evaluate,

In Year 6 Computing is taught in discrete lessons under the following broad unit headings:

Computer Systems and Networks Communication	Data and Information Spreadsheets	Programming B Variables in games (Microbit)	Online Resources to Support SATs Revision	Creating Media 3D modelling	Creating Media 2D Animating
search engine, refine, Index, crawler, bot, ranking, search engine optimisation, links, web crawlers, Communication, internet, public, private, one-way, two-way, one-to-one, one-to-many,	Spreadsheet, data, data heading, data set, cells, columns and rows. format, common attribute, Formula, calculation, input, output. cells, cell reference, range, duplicate, sigma, comparison, chart	Micro:bit, input, process, output, Selection, condition, if then else, variable, sensing, accelerometer algorithm, debug		2D, 3D, 3D object, 3D space, view, resize, lift, Rotate, position, select, duplicate, Dimensions, placeholder, hole, group, ungroup, Modify, evaluate, improve	Frame, capture, 2D, onion skinning, copy, reverse

Year 1 Computing Assessment

Computing Assessment Statements

Y1– Logging On & Tech Around Us (Computer Systems and Networks)

Working towards	Expected	Greater Depth
All children should be able to… - explain technology as something that helps us - locate examples of technology in the classroom - explain how these technology examples help us	Most children will be able to… - name the main parts of a computer - switch on and log into a computer - use a mouse to click and drag - click and drag to make objects on a screen - use a mouse to create a picture - use a mouse to open a program - type my name on a computer	Some children will be able to… - save my work to a file - tell you that writing on a computer is called typing - delete letters - open my work from a file - use the arrow keys to move the cursor - discuss how we benefit from these rules - give examples of some of these rules - identify rules to keep us safe and healthy when we are using technology in and beyond the home

Computing Assessment Statements

Y1 - Digital Painting (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to… - draw lines on a screen and explain which tools I used - make marks on a screen and explain which tools I used - use the paint tools to draw a picture - make marks with the square and line tools	Most children will be able to… - use the shape and line tools to recreate the work of an artist - choose appropriate shapes - I know that different paint tools do different jobs - say whether I prefer painting using a computer or using paper - spot the differences between painting on a computer and on paper	Some children will be able to… - use the shape and line tools effectively - create a picture in the style of an artist - make appropriate colour choices - choose appropriate paint tools and colours to recreate the work of an artist - say which tools were helpful and why - change the colour and brush sizes - make dots of colour on the page - use dots of colour to create a picture in the style of an artist on my own - explain that pictures can be made in lots of different ways

Computing Assessment Statements

Y1 - Moving a Robot (Programming)

Working towards	Expected	Greater Depth
All children should be able to… - match a command to an outcome - predict the outcome of a command on a device - run a command on a device - follow an instruction - give directions	Most children will be able to… - recall words that can be acted out - compare forwards and backwards movements - predict the outcome of a sequence involving forwards and backwards commands - start a sequence from the same place - compare left and right turns - experiment with turn and move commands to move a robot - predict the outcome of a sequence involving up to four commands - choose the order of commands in a sequence	Some children will be able to… - debug my program - explain what my program should do - identify several possible solutions - plan two programs - use two different programs to get to the same place

Computing Assessment Statements

Y1 - Digital Writing (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to… - I can identify and find keys on a keyboard - I can open a word processor - I can recognise keys on a keyboard - I can enter text into a computer	Most children will be able to… - I can use backspace to remove text - I can use letter, number, and space keys - I can explain what the keys that I have learnt about already do - I can identify the toolbar and use bold, italic, and underline - I can type capital letters - I can compare using a computer with using a pencil and paper - I can say which method I like best - I can write a message on a computer and on paper	Some children will be able to… - I can change the font - I can select a word by double-clicking - I can select all the text by clicking and dragging - I can decide if my changes have improved my writing - I can say what tool I used to change the text - I can use 'undo' to remove changes

Year 1 Computing Assessment

Computing Assessment Statements

Y1 - Intro to Animation (Programming)

Working towards	Expected	Greater Depth
All children should be able to... - use a start block in a program - find which commands move a sprite - use commands to move a sprite	**Most children will be able to...** - compare different programming tools - run my program - use more than one block by joining them together - change the value - find blocks which have numbers - say what happens when I change a value - add blocks to each of my sprites - delete a sprite	**Some children will be able to...** - show that a project can include more than one sprite - choose appropriate artwork for my project - create an algorithm for each sprite - decide how each sprite will move - add programming blocks based on my algorithm - test the programs I have created - use sprites which match my design

Computing Assessment Statements

Y1 -Grouping Data (Data and Information)

Working towards	Expected	Greater Depth
All children should be able to... - compare totals in a tally chart - record data in a tally chart - represent a tally count as a total - enter data onto a computer	**Most children will be able to...** - use a computer to view data in a different format - use pictograms to answer simple questions about objects - explain what the pictogram shows - organise data in a tally chart - use a tally chart to create a pictogram - answer 'more than'/'less than' and 'most/least' questions about an attribute - create a pictogram to arrange objects by an attribute - tally objects using a common attribute - choose a suitable attribute to compare people	**Some children will be able to...** - collect the data I need - create a pictogram and draw conclusions from it - give simple examples of why information should not be shared - share what I have found out using a computer - use a computer program to present information in different ways

Year 2 Computing Assessment

Computing Assessment Statements

Y2 – Info Tech Around Us (Computer Systems and Networks)

Working towards	Expected	Greater Depth
All children should be able to...	**Most children will be able to...**	**Some children will be able to...**
- describe some uses of computers - identify examples of computers	- identify that a computer is a part of information technology - explain the purpose of information technology in the home - move and resize images - open a file - compare types of information technology - find examples of information technology - talk about uses of information technology - demonstrate how information technology is used in a shop - explain how information technology helps people - list different uses of information technology - recognise how to use information technology responsibly - enjoy a variety of activities	- recognise that information technology can be connected - say how those rules/guides can help me - explain simple guidance for using information technology in different environments and settings - identify the choices that I make when using information technology

Computing Assessment Statements

Y2 Presentations PowerPoint (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to...	**Most children will be able to...**	**Some children will be able to...**
-manipulate windows -can use folders -create folders -save a file to a folder	-create a simple presentation with text -add a new slide -inset a text box -type in a text box -change the background -can choose appropriate font and colour -can add and format an image -I can copy an image from another source	-can reorder slides in the presentation -can access slide sorter view -can drag slides to reorder -can use different options to present -can search for files and applications

Computing Assessment Statements

Y2 – Quizzes (Programming)

Working towards	Expected	Greater Depth
All children should be able to...	**Most children will be able to...**	**Some children will be able to...**
- identify that a program needs to be started - identify the start of a sequence - show how to run my program	- change the outcome of a sequence of commands - match two sequences with the same outcome - predict the outcome of a sequence of commands - build the sequences of blocks I need - decide which blocks to use to meet the design - tell the actions of a sprite in an algorithm - choose backgrounds for the design - choose characters for the design - create a program based on the new design	- build sequences of blocks to match my design - choose the images for my own design - create an algorithm - compare my project to my design - debug - improve my project by adding features

Computing Assessment Statements

Y2 – Digital Photographs (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to...	**Most children will be able to...**	**Some children will be able to...**
- capture digital photos and talk about my experience - sort devices into old and new - talk about how to take a photograph	- explain the process of taking a good photograph - explain why a photo looks better in portrait or landscape format - take photos in both landscape and portrait format - discuss how to take a good photograph - identify what is wrong with a photograph - improve a photograph by retaking it - experiment with different light sources - explore the effect that light has on a photo	- focus on an object - explain my choices - recognise that images can be changed - use a tool to achieve a desired effect - apply a range of photography skills to capture a photo - identify which images are real and which have been changed - recognise which images have been changed

37

Year 2 Computing Assessment

Computing Assessment Statements

Y2 – Robot Algorithms (Programming)

Working towards	Expected	Greater Depth
All children should be able to...	**Most children will be able to...**	**Some children will be able to...**
- choose a series of words that can be enacted as a sequence - follow instructions given by someone else - give clear and unambiguous instructions	- create different algorithms for a range of sequences (using the same commands) - show the difference in outcomes between two sequences that consist of the same commands - use an algorithm to program a sequence on a floor robot - compare my prediction to the program outcome - follow a sequence - predict the outcome of a sequence - explain the choices I made for my mat design - identify different routes around my mat - test my mat to make sure that it is usable - create an algorithm to meet my goal - explain what my algorithm should achieve - use my algorithm to create a program	- plan algorithms for different parts of a task - put together the different parts of my program - test and debug each part of the program

Computing Assessment Statements

Y2 – Making Music (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to...	**Most children will be able to...**	**Some children will be able to...**
- describe how music makes me feel, e.g. happy or sad - identify simple differences in pieces of music - listen with concentration to a range of music (links to the Music curriculum) - create a rhythm pattern - explain that music is created and played by humans	- play an instrument following a rhythm pattern - connect images with sounds - relate an idea to a piece of music - use a computer to experiment with pitch and duration - identify that music is a sequence of notes - use a computer to create a musical pattern using three notes - describe an animal using sounds - explain my choices - save my work - reopen my work	- refine my musical pattern on a computer - explain how I made my work better - listen to music and describe how it makes me feel

Year 3 Computing Assessment

Computing Assessment Statements

Y3 – Microsoft Word and Email

Working towards	Expected	Greater Depth
All children should be able to… -with support, can type a simple sentence -with support, log into their email	**Most children will be able to…** -open Word and type a simple sentence -use capital letters and simple punctuation -change the font and size of text - log onto my email - reply to an email sent by my teacher -can understand how to be kind on an email	**Some children will be able to…** -change text according to the task given, understanding the overall effect -choose colours and styles that are appealing to the eye -can email completely independently (possibly at home too) -can fully explain how to be safe when using emails and possible dangers

Computing Assessment Statements

Y3 – Branching Databases

Working towards	Expected	Greater Depth
All children should be able to… - create two groups of objects separated by one attribute	**Most children will be able to…** - investigate questions with yes/no answers - make up a yes/no question about a collection of objects - arrange objects into a tree structure - create a group of objects within an existing group - select an attribute to separate objects - group objects using my own yes/no questions - prove my branching database works - select objects to arrange in a branching database - create questions and apply them to a tree structure - explain what a branching database tells me - select a theme and choose a variety of objects	**Some children will be able to…** - use my branching database to answer questions - compare two branching database structures - create yes/no questions using given attributes - explain that questions need to be ordered carefully to split objects into similarly sized groups - compare two ways of presenting information

Computing Assessment Statements

Y3 – Minecraft Education (Programming)

Working towards	Expected	Greater Depth
All children should be able to… - login to Minecraft Education Edition - use instructions to access a world ('How to Play' world) - use the keys on the keyboard to move, jump, smash and use the inventory	**Most children will be able to…** - use the inventory to find and select blocks - use the blocks to build - work with other children to build a chosen task - give instructions to an Agent to move - predict the outcomes of a set of code (– what will the Agent do?) - explain what an algorithm of code can do - design a set of code - explain how to simplify the code - use repetition	**Some children will be able to…** - I understand what a 'condition' is within code - use condition within a set of code - I understand what a loop is - use a loop within my code - use a loop within a loop

Computing Assessment Statements

Y3 Desktop Publishing (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to… - explain the difference between text and images - recognise that text and images can communicate messages clearly	**Most children will be able to…** - identify the advantages and disadvantages of using text and images - change font style, size, and colours for a given purpose - edit text - explain that text can be changed to communicate more clearly - create a template for a particular purpose - define the term 'page orientation'. - recognise placeholders and say why they are important - choose the best locations for my content - make changes to content after I've added it - paste text and images to create a magazine cover	**Some children will be able to…** - choose a suitable layout for a given purpose - identify different layouts - match a layout to a purpose compare work made on desktop publishing to work created by hand. - identify the uses of desktop publishing in the real world - say why desktop publishing might be helpful

Year 3 Computing Assessment

Y3 Stop Frame Animation (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to…	**Most children will be able to…**	**Some children will be able to…**
- create an effective flip book-style animation - draw a sequence of pictures - explain how an animation/flip book works	- create an effective stop frame animation - explain why little changes are needed for each frame - predict what an animation will look like - break down a story into settings, characters, and events - create a storyboard - describe an animation that is achievable on screen - evaluate the quality of my animation - review a sequence of frames to check my work - use onion skinning to help me make small changes between frames - evaluate another learner's animation - explain ways to make my animation better	- improve my animation based on feedback - add other media to my animation - evaluate my final film - explain why I added other media to my animation

Computing Assessment Statements

Y3 Events and Actions (Programming)

Working towards	Expected	Greater Depth
All children should be able to…	**Most children will be able to…**	**Some children will be able to…**
- choose which keys to use for actions and explain my choices - explain the relationship between an event and an action - choose a character for my project	- identify a way to improve a program - choose a suitable size for a character in a maze - program movement - choose blocks to set up my program - consider the real world when making design choices - use a programming extension - build more sequences of commands to make my design work - choose suitable keys to turn on additional features - identify additional features (from a given set of blocks) - match a piece of code to an outcome - evaluate my project	- modify a program using a design - test a program against a given design - implement my design - make design choices and justify them

Year 4 Computing Assessment

Computing Assessment Statements

Y4 – Microsoft Word

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
-select, edit and manipulate text different ways. -insert images onto a document.	-format images to achieve various effects. - find and use the different functions of the spellcheck tool. - insert a simple table. - add and delete rows and columns. - format the borders of the cells within a table.	- know some of the main keyboard shortcuts. - add a spelling to the spelling dictionary. - suggest ways to change a table. - change the orientation of the page. - change the size of the page. - change the layout by using the column tool.

Computing Assessment Statements

Y4 – MSW Logo (Programming)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
- create a code snippet for a given purpose - explain the effect of changing a value of a command - program a computer by typing commands - identify everyday tasks that include repetition as part of a sequence, e.g. brushing teeth, dance moves	-test my algorithm in a text-based language - use a template to create a design for my program - write an algorithm to produce a given outcome - identify patterns in a sequence, e.g. 'step 3 times' means the same as 'step, step, step'. - use a count-controlled loop to produce a given outcome - choose which values to change in a loop - identify the effect of changing the number of times a task is repeated - predict the outcome of a program containing a count-controlled loop - explain that a computer can repeatedly call a procedure - identify 'chunks' of actions in the real world	- use a procedure in a program - design a program that includes count-controlled loops - develop my program by debugging it - make use of my design to write a program

Computing Assessment Statements

Y4 – 3D modelling (3D printing)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
-move shapes about on the work plane -create a simple block maze -make a simple design for a cookie cutter	-move shapes confidently on the work plane (up, down, left, right, through) -can design a cookie cutter that fits the design criteria -choose more shapes to create a successful design -understand size and shape choices -can edit their design	-understand the size parameters for the design -include design tricks like how to create a hole in a shape -have a clear design in mind and can alter it if it doesn't look right

Computing Assessment Statements

Y4 – Audio Editing (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
- identify digital devices that can record sound and play it back - identify the inputs and outputs required to play audio or record sound - recognise the range of sounds that can be recorded - discuss the features of a digital recording I like	- discuss what other people include when recording sound for a podcast - suggest how to improve my recording - use a device to record audio and play back sound - discuss why it is useful to be able to save digital recordings - plan and write the content for a podcast - save a digital recording as a file - edit sections of an audio recording - open a digital recording from a file - choose suitable sounds to include in a podcast	- discuss ways in which audio recordings can be altered - discuss sounds that other people combine - use editing tools to arrange sections of audio - explain that digital recordings need to be exported to share them - suggest improvements to a digital recording

Year 4 Computing Assessment

Working towards	Expected	Greater Depth
All children should be able to… - list an everyday task as a set of instructions including repetition - predict the outcome of a snippet of code	**Most children will be able to…** - modify a snippet of code to create a given outcome - choose when to use a count-controlled and an infinite loop - modify loops to produce a given outcome - recognise that some programming languages enable more than one process to be run at once - choose which action will be repeated for each object - evaluate the effectiveness of the repeated sequences used in my program - explain what the outcome of the repeated action should be - explain the effect of my changes - identify which parts of a loop can be changed	**Some children will be able to…** - re-use existing code snippets on new sprites - develop my own design explaining what my project will do - evaluate the use of repetition in a project - select key parts of a given project to use in my own design - build a program that follows my design - evaluate the steps I followed when building my project - refine the algorithm in my design

Working towards	Expected	Greater Depth
All children should be able to… Suggests what topic they want to ask a question about Chooses a relevant question that can be answered using a data logger Recognises some data points in their data Recognises changes in a graph Identifies the part of the graph that could help them answer their question	**Most children will be able to…** Recognises how some data points are different Makes statements about what their data shows Uses their collected data to answer their question	**Some children will be able to…** Identifies the parts of their data most relevant to answering their question Suggests other questions that their data could answer Suggests the time frame that will offer the most varied data Evaluates the most effective place to collect data

Year 5 Computing Assessment

Computing Assessment Statements

Y5 - Sharing Information & PowerPoint (Computer Systems and Networks)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
- describe that a computer system features inputs, processes, and outputs - explain that computer systems communicate with other devices - explain that systems are built using a number of parts	- explain the benefits of a given computer system - identify tasks that are managed by computer systems - identify the human elements of a computer system - explain that data is transferred over networks in packets - explain that networked digital devices have unique addresses - recognise that data is transferred using agreed methods - explain that the internet allows different media to be shared - recognise that connected digital devices can allow us to access shared files stored online - send information over the internet in different ways - compare working online with working offline	- make thoughtful suggestions on my group's work - suggest strategies to ensure successful group work - explain how the internet enables effective collaboration - identify different ways of working together online - recognise that working together on the internet can be public or private

Computing Assessment Statements

Y5 Strategic Searches (Computer Systems and Networks)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
-search for information using appropriate search engines. -refine their searches using appropriate keywords. -With support, begin to use strategies to check the reliability of information on web pages. -With support, begin to explain how search engines work using some key vocabulary. -talk about the way search results are selected and ranked. -explain what search engine optimisation (SEO) is.	-search for information using appropriate search engines and can refine their search terms by using keywords. -refine their searches using Boolean operators with some guidance. -use strategies to check the reliability of information on web pages. -explain how search engines work using key vocabulary, such as web indexing and web crawlers. -understand that search results are ranked and can explain how page ranking works. -explain what search engine optimisation (SEO) is and can suggest some SEO improvements for a web page.	-search for information using appropriate search engines and can refine their search terms by using keywords and Boolean operators. -confidently use strategies to check the reliability of information on web pages. -explain, with confidence, how search engines work using correct terminology and key vocabulary. -understand that search results are ranked and can confidently explain how page ranking works. -explain what search engine optimisation (SEO) is and can confidently suggest some SEO improvements for a web page.

Computing Assessment Statements

Y5 - Vector Drawing (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
- discuss how a vector drawing is different from paper-based drawings - identify the main drawing tools - recognise that vector drawings are made using shapes -explain that each element added to a vector drawing is an object - identify the shapes used to make a vector drawing - move, resize, and rotate objects I have duplicated	- explain how alignment grids and resize handles can be used to improve consistency - modify objects to create different effects - use the zoom tool to help me add detail to my drawings - change the order of layers in a vector drawing - identify that each added object creates a new layer in the drawing - identify which objects are in the front layer or in the back layer of a drawing - copy part of a drawing by duplicating several objects - group to create a single object - reuse a group of objects to further develop my vector drawing	- apply what I have learned about vector drawings - suggest improvements to a vector drawing - I create alternatives to vector drawings

Y5 - Video Editing (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
- explain that a video can include both visual and audio media - explain the benefits of adding audio to a video - plan a video project using a storyboard - choose the most suitable digital device for recording my project - identify and name digital devices that can record video and sound - locate and identify the working features of a digital device that can record video	- demonstrate suitable methods of using a digital device to capture my video - demonstrate the safe use and handling of devices - select a suitable device and software to capture my video - explain why lighting and angle are important in creating an effective video - list some of the features of an effective video - record a video that demonstrates some of the features of an effective video - explain how to improve a video by reshooting and editing - select the correct tools to make edits to my video - store, retrieve, and export my recording to a computer - evaluate my video and share my opinions	- make edits to my video and improve the final outcome - recognise that my choices when making a video will impact on the quality of the final outcome

43

Year 5 Computing Assessment

Working towards	Expected	Greater Depth
All children should be able to…	**Most children will be able to…**	**Some children will be able to…**
-Describe the purpose, e.g. to create a project that shows how many steps you have walked -Choose from a scaffolded set of blocks -Identify where the program goes wrong -Run their code on the device -Identify which elements of the task have been achieved	-Describe the purpose, explaining what will be shown if you've walked more than a set number of steps -Identify what will be displayed and how the user will see it -Name a variable to reflect its purpose in the program -Identify when and where to set a variable -An algorithm for each input -Run their code on the emulator (for minor changes) -Evaluate how successfully they met the task	-Describe the purpose, including a variety of responses based on the number of steps walked -Shows an understanding of the user experience e.g. text to introduce the program -The algorithm includes where a variable will be used in selection -Explain why they have chosen to implement their algorithm in that way -Explain to others about the bug that was found and how it was fixed -Discuss the limitations of the emulator when testing code -Identify how their project could be enhanced

Working towards	Expected	Greater Depth
All children should be able to…	**Most children will be able to…**	**Some children will be able to…**
-- identify conditions in a program - modify a condition in a program - recall how conditions are used in selection	- create a program with different outcomes using selection - identify the condition and outcomes in an if. Then… else statement - use selection in an infinite loop to check a condition - design the flow of a program which contains 'if… then… else…' - explain that program flow can branch according to a condition - show that a condition can direct program flow in one of two ways - identify the outcome of user input in an algorithm - outline a given task - use a design format to outline my project - implement my algorithm to create the first section of my program - share my program with others - test my program	- extend my program further - identify ways the program could be improved - identify what setup code my project needs

Year 6 Computing Assessment

Computing Assessment Statements

Y6 - Communication (Computer Systems and Networks)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
- compare results from different search engines - complete a web search to find specific information - refine my search - explain why we need tools to find things online	- recognise the role of web crawlers in creating an index - relate a search term to the search engine's index - explain that a search engine follows rules to rank relevant pages - explain that search results are ordered - suggest some of the criteria that a search engine checks to decide on the order of results - explain the different ways in which people communicate - identify that there are a variety of ways of communicating over the internet - compare different methods of communicating on the internet - decide when I should and should not share	- describe some of the ways that search results can be influenced - explain how search engines make money - recognise some of the limitations of search engines - choose methods of communication to suit particular purposes - explain that communication on the internet may not be private

Computing Assessment Statements

Y6 - Spreadsheets (Data and Information)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
- answer questions from an existing data set - ask simple relevant questions which can be answered using data - explain the relevance of data headings - apply an appropriate number format to a cell	- build a data set in a spreadsheet application - explain what an item of data is - construct a formula in a spreadsheet - explain the relevance of a cell's data type - identify that changing inputs changes outputs - apply a formula to multiple cells by duplicating it - create a formula which includes a range of cells - recognise that data can be calculated using different operations - produce a graph	- apply a formula to calculate the data I need to answer questions - explain why data should be organised - use a spreadsheet to answer questions - suggest when to use a table or graph - use a graph to show the answer to questions

Computing Assessment Statements

Y6 - Microbits (Programming)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
-know and understand what variables are -understand how a variable can be set to a random number	-use variables to describe a character -write algorithms that use variables -debug programs containing variables -predict how variables will be used in programs -write algorithms that use random number variables -debug programs involving random number variables -write programs that use random number variables -evaluate a solution effectively	- can debug the challenge hex files - can replace the words/images used to communicate the activity selected with a short animation.

Computing Assessment Statements

Y6 - 3D Modelling (Creating Media)

Working towards	Expected	Greater Depth
All children should be able to…	Most children will be able to…	Some children will be able to…
- discuss the similarities and differences between 2D and 3D shapes - explain why we might represent 3D objects on a computer - select, move, and delete a digital 3D shape - change the colour of a 3D object	- identify how graphical objects can be modified - resize a 3D object - position 3D objects in relation to each other - rotate a 3D object - select and duplicate multiple 3D objects - create digital 3D objects of an appropriate size - group a digital 3D shape and a placeholder to create a hole in an object - identify the 3D shapes needed to create a model of a real-world object - choose which 3D objects I need to construct my model - modify multiple 3D objects - plan my 3D model - decide how my model can be improved	- evaluate my model against a given criterion - modify my model to improve it

Year 6 Computing Assessment

Working towards	Expected	Greater Depth
All children should be able to...	**Most children will be able to...**	**Some children will be able to...**
- evaluate my final film - explain why I added other media to my animation - create an effective stop frame animation - explain why little changes are needed for each frame - predict what an animation will look like - break down a story into settings, characters, and events - create a storyboard - describe an animation that is achievable on screen - evaluate the quality of my animation - review a sequence of frames to check my work - evaluate another learner's animation - explain ways to make my animation better	- use onion skinning to help me make small changes between frames -Explore how animations are created using digital tools and software. -Learn to create storyboards to plan and organize animations, including defining characters, scenes, and actions. -Develop skills in scripting and sequencing events to convey a coherent narrative. -Develop skills in creating and editing backgrounds and settings for animations. -Learn to incorporate sound effects and music into animations to enhance storytelling and atmosphere. -Explore techniques for synchronizing sound with animation timing and events. -Develop skills in editing and refining animations, including adjusting timing, transitions, and visual elements. -Learn to reflect on strengths and areas for improvement in their own and others' animations. -Understand the importance of respecting copyright and intellectual property rights when creating and sharing animations.	-Learn to animate characters using techniques such as keyframing, tweening, and morphing. -Understand how to use layers and perspective to add depth and realism to animated scenes. -Develop skills in critically evaluating animations, considering aspects such as narrative coherence, visual appeal, and technical execution.

Addressing misconceptions in Computing:

1. Computing Systems and Networks

Misconceptions and Clarifications:

- Misconception: Computers are only for games or videos.
  Pupils often perceive computers as entertainment devices, focusing solely on games or videos.
    o Clarification: Computers are versatile tools used in science, medicine, engineering, communication, and automation. Introduce real-world examples, such as using computers for coding, weather prediction, or even controlling spacecraft.
- Misconception: The internet and Wi-Fi are the same.
  Pupils may think that Wi-Fi *is* the internet rather than a way to access it.
    o Clarification: Wi-Fi is just a wireless way to connect to a network, whereas the internet is a global system of interconnected networks. Use diagrams to show the role of Wi-Fi in accessing the internet.
- Misconception: Websites are stored inside the computer.
  Pupils might believe that websites are stored on their own device rather than on servers.
    o Clarification: Explain that websites are hosted on servers around the world and are accessed through the internet. Analogies like borrowing books from a library can help illustrate the concept.
- Misconception: All devices with screens are computers.
  Pupils may struggle to differentiate between computers (devices capable of processing data) and digital devices that simply display output (like a digital clock).
    o Clarification: Discuss what makes a computer unique: the ability to process, store, and execute instructions.

2. Programming (Scratch, Block-Based Coding, etc.)

Misconceptions and Clarifications:

- Misconception: The computer understands my code perfectly.
  Pupils might think computers intuitively "know" what they mean, even if the code is unclear.
    o Clarification: Emphasise that computers follow instructions literally, and any ambiguity or error in the code must be resolved by the programmer. Use debugging exercises to highlight this.
- Misconception: A loop is only for repeating forever.
  Pupils may not understand that loops can have specific conditions or count-controlled iterations.
    o Clarification: Teach the difference between infinite loops and loops that run a set number of times or until a condition is met. Use real-life analogies, like repeating a dance move for a specific number of beats.

- Misconception: All blocks execute at once.

Pupils might assume that the blocks in their program execute simultaneously instead of sequentially.
  - o Clarification: Show the linear flow of block execution and use visual aids to demonstrate how the computer follows the instructions one by one.
- Misconception: Variables are like folders for saving work.

Pupils might associate variables with file storage rather than dynamic data holders.
  - o Clarification: Explain that variables are like labelled boxes where the contents can change during a program.

3. Creating Media (Digital Art, Animation, Audio)

Misconceptions and Clarifications:

- Misconception: Editing software automatically makes everything better.

Pupils might assume tools like filters or effects instantly create professional-quality media.
  - o Clarification: Demonstrate the skill and decision-making involved in editing media, such as choosing appropriate transitions or balancing audio levels.
- Misconception: Digital art is less creative than traditional art.

Some pupils might think using a computer for art diminishes creativity compared to painting or drawing by hand.
  - o Clarification: Highlight the creative choices involved in digital art, such as layering, colour palettes, and composition. Show examples of professional digital artwork to inspire them.
- Misconception: Once saved, media cannot be edited.

Pupils may believe a file is finalised and unchangeable once it is saved.
  - o Clarification: Teach pupils about different file formats (e.g., editable files like .psd or .pptx vs. final outputs like .jpg or .pdf) and the concept of non-destructive editing.
- Misconception: Files can only be opened on the device they were created on.

Pupils may not understand that files can be transferred, shared, or opened on other devices.
  - o Clarification: Show how files can be moved using USBs, email, or cloud storage, and explain the role of file formats in cross-device compatibility.

4. Data and Information

Misconceptions and Clarifications:

- Misconception: Data is only numbers.

Pupils might associate data exclusively with maths.

- o   Clarification: Explain that data can be text, images, sounds, or even videos. Use real-world examples, like barcodes or weather reports, to expand their understanding.
- Misconception: Graphs create themselves.
Pupils may not grasp the steps involved in collecting and inputting data to generate graphs or charts.
  - o   Clarification: Guide pupils through the process, from data collection to analysis and visualisation, using software like Excel or Google Sheets.
- Misconception: The computer understands what my data means.
Pupils might believe that computers can interpret data without human input.
  - o   Clarification: Emphasise that while computers can process data, interpreting meaning and context requires human analysis. Use examples like translating text into graphs to illustrate this.

5. Computational Thinking (Problem Solving, Algorithms, etc.)

Misconceptions and Clarifications:

- Misconception: An algorithm is only for computers.
Pupils may think algorithms are exclusive to computer science.
  - o   Clarification: Show that algorithms are simply step-by-step instructions, applicable to everyday tasks like making a sandwich or tying shoelaces.
- Misconception: Algorithms always work.
Pupils might assume that any algorithm is inherently correct.
  - o   Clarification: Explain the importance of testing and refining algorithms, using examples where small errors can lead to unexpected outcomes.
- Misconception: All problems need programming to solve them.
Pupils may conflate computational thinking with coding.
  - o   Clarification: Highlight that computational thinking involves decomposition, pattern recognition, and logical reasoning, which can be applied to non-computerised problems.

6. Online Safety

Misconceptions and Clarifications:

- Misconception: Strangers on the internet are always mean.
Pupils may assume that online dangers only come from obviously malicious individuals.
  - o   Clarification: Explain that online interactions can be deceptive, and that even seemingly friendly strangers can pose risks. Use age-appropriate scenarios to build understanding.

- Misconception: Private messages are truly private.

Pupils might believe that what they share privately cannot be shared further.
  - o Clarification: Teach them about screenshots, sharing, and the permanence of digital communication. Discuss how to protect their privacy online.
- Misconception: Everything on the internet is true.

Pupils might lack the critical thinking skills needed to evaluate online information.
  - o Clarification: Teach them to verify sources, recognise bias, and differentiate between trustworthy and untrustworthy information.