Policy for Computing at Fallings Park

Whole School Vision

Fallings Park's curriculum is designed to enable all pupils to work towards our mission statement: *Learn Today For Tomorrow's Success*. As we want our children to thrive and contribute to both the school and local communities, our curriculum provides memorable, knowledge-rich learning experiences in every stage of school life, within and outside the classroom.
The primary focus of our curriculum is to provide a purpose and relevance to learning, whilst making connections between all subject areas. Our school intends to empower students to embrace every learning opportunity, achieve their personal best and build their social, emotional, mental and physical well-being through a wide variety of experiences. This will provide our children with the foundations to become curious and creative thinkers; respectful and reflective individuals and be self-motivated learners.

Intent:

Effective computing, coupled with well trained, competent and enthusiastic staff, allows our children to develop the necessary computing skills needed for lifelong learning in the 21st Century.

Computing comprises of three strands, which will be delivered to ensure a balanced curriculum:

- Computer science – the study of the foundational principles and practices of computation and computational thinking, and their application in the design and development of computer systems
- IT – the creative and productive use and application of computer systems, hardware and software
- Digital Literacy – the ability of learners to use, express themselves and develop their ideas through information and communication technology with regard to safeguarding and online etiquette.

These strands reflect the Programme of Study statements from the 2014 National Curriculum.

To help all children develop the key *skills* of:

- understanding and applying the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- analyzing problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- evaluating and applying information technology, including new or unfamiliar technologies, analytically to solve problems

- responsibility, competence, confidence and creativity in the use of technology.

Implementation

Teaching approach	What it means	Useful when…
Unplugged approaches with semantic waves	Exploration of a concept away from computers, followed by concrete application, which is then connected back to the abstract concept.	Introducing new abstract concepts such as: • Binary representation • Data transmission Sorting and searching
Guided exploration	Learners have the freedom to experiment and direct their learning. Guidance is provided through generic goals, available resources, solution elements, or ad hoc support.	• Consolidating ideas or applying learning to a new context • Challenging learners and fostering creativity Addressing misconceptions
Vocabulary, discourse, and questioning	Being consistent and correct in how we use key terminology, both in written and verbal communication.	• Giving learners the vocabulary to describe a concept once they have understood it Aiding students' comprehension through consistent, correct, and incidental use of terms
Authentic tasks	Using cross-curricular, real-world contexts for problems, scenarios, questions, and challenges. Making the tasks **relevant** to the learner.	• Providing opportunities for cross-curricular learning Adding value and meaning to the concepts being explored

When teaching programming, we will be drawing on a range of approaches that are supported by research.

Teaching approach	What it means	Useful when…
Peer instruction	Multiple choice questions are posed to pairs with the aim of forming a consensus and challenging misconceptions.	• Assessing a group's understanding of particular concepts Addressing common or persistent misconceptions
Worked examples	Sample solutions are shared with learners and annotated with subgoal labels, providing a model for similar incomplete problems.	Supporting beginners in developing common programming patterns
PRIMM	A framework that encourages students to begin by reading code and then to Predict, Run, Investigate, Modify, and Make. (Read more here)	• Deepening learners' understanding of new programming concepts • Addressing misconceptions Giving learners agency/confidence
Pair programming	Two learners work together on the same task, taking it in turns to **drive** or **navigate**. The driver controls the computing device, and the navigator provides support and direction.	• Applying programming concepts in practice • Pairing partners with relatively small differences in skills

		Encouraging learners to discuss concepts
Physical computing	Programming computing devices to interact with the physical world, e.g. controlling lights and motors and responding to sensor input.	• Providing students with motivation Using the concepts to drive the learning, rather than the product

Planning

- The Computing Curriculum is based upon the schemes produced by National Centre for Computing Education, which is in line with the 2014 National Curriculum;
- The curriculum has been organised into modules, ensuring progression of skills and a wide range of teaching opportunities and situations to enable children to acquire knowledge and understanding. Topics have been chosen and carefully placed in the long term plan to enable children to make links between areas of study across the curriculum (see appendix);
- Children will spend one hour per week in KS1 and KS2 studying Computing;
- As a cross-curricular subject, Computing will link to other subjects, such as: Maths, English, History, Geography; this will ensure computing is used in more real life situations.

Within the structure:

a) Groups are either mixed ability with differentiation by role or ability grouped with differentiation by objective, task or outcome.
b) Relevant discussion is encouraged;
c) Groups are encouraged to present their findings in a variety of ways.

Homework

Homework is not formally required for computing; however, links should be made, where appropriate, to Curriculum subjects.
Pupils are provided with half-termly topic related homework. They are given a variety of topic related tasks, which can be completed independently. Children must complete at least one task but may choose to complete more (Going the extra mile)

- Excellence in **Computing** is celebrated through:
  a) Display, e.g. in classrooms, corridors and good work boards;
  b) Presentation of certificates, e.g. awards assembly.
  c) Sharing with other year groups, e.g. Powerpoint/prezzi/sway/Forms/
  d) Children's homework projects.
  e) Children's Class Notebook.

Resources:

Our children at Fallings Park Primary School access devices in all curriculum areas.
Appendix 2 (Hardware).

Hardware and software:

Hardware and software are purchased after consultation with technical and pedagogical support to ensure that they are appropriate in terms of specification, ease of use, and integration with other school systems. All purchases are evaluated carefully to ensure that they represent best value in promoting and enhancing the computing experience and learning of pupils.

A range of hardware and software designed to complement computing activities at Fallings Park Primary School is shown in Appendix 3 (Hardware).

Technical Support:

Technical support is an integral part of computing within our school and is planned and managed accordingly. We receive in-school support two half days each week from the eServices team in Wolverhampton Local Authority.

Roles and responsibilities of technical support:

- Set-up, systems administration and preventative maintenance: day-to-day management, set-up and administration of computing hardware, software and safe networking.
- Problem solving: assisting classroom practitioners and other school staff in diagnosing and solving/repairing problems and faults as they occur

Typical tasks carried out by our Technical Support include:

- administrative tasks (such as logging assets, labelling and security marking, keeping track of repairs and service failures, maintaining stocks of consumables such as toner and paper)
- basic maintenance and replacement of consumables (for example, replacing toner, cleaning screens)
- providing advice to support future purchasing on infrastructure and replacement of equipment
- regular or pre-emptive checking of computers, network components and connections
- checking/testing of software and hardware for compatibility prior to installation
- installation of new equipment and software
- installation of software and security updates
- configuration of hardware and software (after installation)
- regular back-up of data and ensuring recovery capability
- network management, such as allocating resources, and setting up access rights and user profiles

Impact

Termly Curriculum Assessment and Milestones:

Teachers will plan a series of progressive lessons using the Milestones ensuring differentiation of skills has been implemented (Staff Training February 2021 supported this). By the end of each year group, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant Age Related Expectations. Using these milestones differentiation according to the child's ability will allow children a secure understanding of the subject.

Assessment is inputted into Microsoft Forms (Assessment or Rubric) by pupils at the end of each series of lessons (see Appendix).

Subject Leaders will use this data to track and monitor their subject over time and identify any issues that they need to action and will then review the impact this has had. This will ensure there is consistency across the school in the assessment of all Curriculum Subjects.

Strategies for Assessment, Recording and Reporting:

Fallings Park Primary School has an assessment and record keeping policy using Milestones and children are assessed in line with the National Curriculum requirements.

Children's computing work is assessed online (and kept until they leave school); and general work is stored in their Class Notebook areas.

In addition, computing may be assessed in a variety of ways:

- Observation of child or group on task
- Discussion with children about their task
- Personalized learning spaces
- Children's own evaluations of their work (Online)
- Assessment of skills
- Formal assessment of children's work against National Curriculum levels (Online)

Strategies for Ensuring Progress and Continuity:

Planning in Computing is a process in which all teachers are involved wherein:

- The foundation for Computing planning is shown on the Year Group Curriculum Maps (see shared) developed through a process of collaboration between staff and approved by the Governing Body;
- The National Centre for Computing Education is to be used as a guide which have been drawn up and cross referenced to the National Curriculum 2014 in order to ensure full coverage;
- Medium Term plans are linked with the Scheme produced by the National Centre for Computing Education. Units of work are then implemented by year groups and used, wherever possible, to draw cross-curricular links;
- Plans are monitored by the curriculum co-ordinators and leadership team to ensure the consistency of approach, progression and standards;
- The Computing Coordinator will monitor that Computing is being taught effectively by monitoring pupil progression through analysis of their online assessments.

Skills Auditing and CPD:

- All teachers at Fallings Park Primary School are given the opportunity to develop their computing skills by engaging with relevant training sessions, including formal INSET days, staff meetings, and external course attendance (including Remote Training and Online courses). Staff development in computing is part of the staff appraisal and professional development process in school. Staff are encouraged to seek informal advice on teaching and learning from the subject co-ordinator and other colleagues.
- Additional training will also be provided for our classroom support staff in order to effectively manage their work and to enhance the work they undertake with pupils.
- An annual audit will be undertaken to monitor staff competence and confidence and to support future training needs.

Subject Leadership:

- Take the lead in policy development and the production of the long term plan, which is designed to ensure progression and continuity in Computing throughout the school;
- Support colleagues in their development of detailed work plans, their implementation of long and medium term plans and in the assessment and record keeping activities;
- Track progress using TCAs (Termly Curriculum Assessments) in Computing and advise the Head Teacher on action needed and feedback of impact;
- To monitor coverage of key skills and differentiation by checking planning and in turn must feedback their findings to Curriculum Coordinators with any necessary actions that need to take place;
- Keep up to date with developments in Computing education and disseminate information to colleagues as appropriate.
- Scrutiny of planning will be undertaken by Leadership Team, who at times may support Curriculum Coordinators in doing this.
- Reviewing hardware and software usage in line with the school's vision for attainment in all subject areas.

- Liaising with technical support staff in maintaining and updating software and hardware.
- Engaging with support and new ideas from outside agencies and online communities.
- Working alongside school leaders to develop or select resources and teaching ideas which promote the online safety of all pupils, carers and the wider community.

The role of the Staff:

Each member of staff is responsible for:

- Ensuring creative and appropriate computing opportunities are a regular feature of classroom practice.
- Ensuring coverage of the National Curriculum for computing
- Modelling correct e-Safety behaviour and ensuring children receive age-appropriate e-Safeguarding information and activities at the start of each computing lesson.
- Hardware within learning environments are stored safely.

Equal Opportunities with Computing

All teaching and non-teaching staff at Fallings Park Primary School are responsible for setting high expectations for all pupils, irrespective of their gender, ability, ethnicity, first language and social circumstances, have access to the whole curriculum and make the greatest possible progress.

As with all other curriculum areas, material may be selected from earlier or later parts of the key stage as appropriate to enable pupils to progress and demonstrate achievement. Such materials are presented in a context appropriate for the age and maturity of the pupil. Computing is implemented in accordance with any Intervention, School Support Plan or Statement for a pupil. Pupils with English as an Additional Language receive the support necessary to allow them to access the curriculum as fully as possible. Teachers should take account of their duties under equal opportunities legislation that covers race, disability, sex, religion or belief, sexual orientation, pregnancy and maternity and gender reassignment.

Gifted and talented pupils will be supported in making continuing progress through extension activities and the provision of new opportunities to challenge them further. They should plan stretching work for pupils whose attainment is significantly above the expected standard. Teachers have an even greater obligation to plan lessons for pupils who have low level of prior attainment or come from disadvantaged backgrounds, and to ensure provision is made to account for this.

'the curriculum is underpinned by the concepts of mastery, therefore the materials offer flexibility for students with lower prior attainment to develop mastery through individual support and intervention and those whose attainment is significantly above the expected standard to extend their knowledge through activities that stretch and deepen their understanding'

Health and Safety in Computing:

At Fallings Park Primary School we recognize the importance of health and safety for all in regard to the use of interactive whiteboards, computers, projectors and related equipment in and outside the classroom. This policy should be read in conjunction with the Health & Safety Policy.

APPENDIX I

Long Term Plan

	Curriculum Area	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Aut 1	Computer systems and networks (Information Technology)	**Technology around us** 1. Technology in our classroom 2. Using Technology 3. Developing mouse skills 4. Using a computer keyboard 5. Developing keyboard skills 6. Using a computer responsibly	**IT around us** 1. What is information technology (IT)? 2. Where have we seen IT at home? 3. Where have we seen IT in the world? 4. How does IT improve our world? 5. Demonstrate safe use of IT 6. Using IT responsibly	**Connecting computers** 1. How does a digital device work? 2. What parts make up a digital device 3. How do digital devices help us? 4. How am I connected? 5. How are computers connected? 6. What does our school network look like	**The Internet** 1. Connecting networks 2. What is the internet made of? 3. Sharing information 4. What is a website? 5. Who owns the web? 6. Can I believe what I read?	**Sharing information** 1. Systems 2. Computer systems and us 3. Transferring information 4. Working together 5. Better working together 6. Shared working	**Communication** 1. Searching the web 2. Selecting search results 3. How search results are ranked 4. How are searches influenced? 5. How we communicate 6. Communicating responsibly
Aut 2	Creating media (Digital Literacy)	**Digital painting** 1. How can we paint using computers? 2. Using shapes and lines 3. Making careful choices 4. Why did I choose that? 5. Painting all by myself 6. Comparing computer art and painting	**Digital photography** 1. Devices 2. Landscape or portrait 3. What makes a good photograph? 4. Lighting and focus 5. Effects 6. Is it real?	**Animation** 1. Can a picture move? 2. Frame by frame 3. What's the story? 4. Picture perfect 5. Evaluate and make it great! 6. Lights, camera, action!	**Audio editing** 1. Digital recording 2. Recording sounds 3. Creating a podcast 4. Editing digital recordings 5. Combining audio 6. Evaluating podcasts	**Vector drawing** 1. The drawing tools 2. Create a vector drawing 3. Being effective 4. Layers and objects 5. Manipulating objects 6. Get designing	**3D Modelling** 1. What is 3D Modelling? 2. Making changes 3. Rotation and position 4. Making holes 5. Planning my own 3D model 6. Making my own 3D model
Spr 1	Creating media (Digital Literacy)	**Digital writing** 1. Exploring the keyboard 2. Adding and removing text 3. Exploring the toolbar 4. Making changes to text 5. Explaining my choices 6. Pencil or keyboard	**Making music** 1. How music makes us feel 2. Rhythms and patterns 3. How music can be used 4. Notes and tempo 5. Creating digital music 6. Reviewing and editing music	**Desktop publishing** 1. Words and pictures 2. Can you edit it? 3. Great template! 4. Can you add content? 5. Lay it out 6. Why desktop publishing?	**Photo editing** 1. Changing digital images 2. Changing the composition of images 3. Changing images for different uses 4. Retouching images 5. Fake images 6. Making and evaluating a publication	**Video editing** 1. What is video? 2. Identifying devices 3. Using a device 4. Features of an effective video 5. Importing and editing video 6. Video evaluation	**Web page creation** 1. What makes a good website 2. How would you layout your web page 3. Copyright or CopyWRONG? 4. How does it look? 5. Follow the breadcrumbs 6. Think before you link!
Spr 2	Data and information (Information Technology)	**Grouping data** 1. Label and match 2. Group and count 3. Describe an object 4. Making different groups 5. Comparing groups 6. Answering questions	**Pictograms** 1. Counting and comparing 2. Enter the data 3. Creating pictograms 4. What is an attribute 5. Comparing people 6. Presenting information	**Branching databases** 1. Yes or no questions 2. Making groups 3. Creating a branching database 4. Structuring a branching database 5. Using a branching database 6. Presenting information	**Data logging** 1. Answering questions 2. Data collection 3. Logging 4. Analysing data 5. Data for answers 6. Answering my question	**Flat-file databases** 1. Creating a paper-based database 2. Computer databases 3. Using a database 4. Using search tools 5. Comparing data visually 6. Databases in real life	**Spreadsheets** 1. What is a spreadsheet? 2. Modifying spreadsheets 3. What's the formula? 4. Calculate and duplicate 5. Event Planning 6. Presenting Data
Sum 1	Programming A (Computer Science)	**Moving a robot** 1. Buttons 2. Directions 3. Forwards and backwards 4. Four directions 5. Getting there 6. Routes	**Robot algorithms** 1. Giving instructions 2. Same but different 3. Making predictions 4. Mats and routes 5. Algorithm design 6. Debugging	**Sequence in music** 1. Introduction to Scratch 2. Programming sprites 3. Sequences 4. Ordering commands 5. Looking good 6. Making an instrument	**Repetition in shapes** 1. Programming a screen turtle 2. Programming letters 3. Patterns and repeats 4. Using loops to create shapes 5. Breaking things down 6. Creating a program	**Selection in physical computing** 1. Connecting Crumbles 2. Combining output devices 3. Controlling with conditions 4. Starting with selection 5. Drawing designs 6. Writing and testing algorithms	**Variables in games** 1. Introducing variables 2. Variables in programming 3. Improving a game 4. Designing a game 5. Designing to code 6. Improving and sharing
Sum 2	Programming B (Computer Science)	**Introduction to animation** 1. Comparing tools 2. Joining blocks 3. Make a change 4. Adding sprites 5. Project design 6. Following my design	**An introduction to quizzes** 1. ScratchJr recap 2. Outcomes 3. Using a design 4. Changing a design 5. Designing and creating a program 6. Evaluating	**Events and actions** 1. Moving a sprite 2. Maze movement 3. Drawing lines 4. Adding features 5. Debugging movement 6. Making a project	**Repetition in games** 1. Using loops to create shapes 2. Different loops 3. Animate your name 4. Modifying a game 5. Designing a game 6. Creating our games	**Selection in quizzes** 1. Exploring conditions 2. Selecting outcomes 3. Asking questions 4. Planning a quiz 5. Testing a quiz 6. Evaluating a quiz	**Sensing** 1. The micro:bit 2. Go with the flow 3. Sensing inputs 4. Finding your way 5. Designing a step counter 6. Making a step counter

Fallings Park Primary Computing Curriculum Overview (Selected Yr groups Spring 2021, All Yr Groups 2021-2022)

	Curriculum	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Aut 1	Computer systems and networks (Information Technology)	Technology around us *1. Technology in our classroom* **To identify technology:** I can explain technology as something that helps us I can locate examples of technology in the classroom I can explain how these technology examples help us *2. Using Technology* **To identify a computer and its main parts:** I can name the main parts of a computer I can switch on and log into a computer I can use a mouse to click and drag *3. Developing mouse skills* **To use a mouse in different ways:** I can use a mouse to open a program I can click and drag to make objects on a screen I can use a mouse to create a picture *4. Using a computer keyboard* **To use a keyboard to type:** I can tell you that writing on a computer is called typing I can type my name on a computer I can save my work to a file *5. Developing keyboard skills* **To use the keyboard to edit text:** I can open my work from a file I can use the arrow keys to move the cursor I can delete letters *6. Using a computer responsibly* **To create rules for using technology responsibly:** I can identify rules to keep us safe and healthy when we are using technology in and beyond the home I can give examples of some of these rules I can discuss how we benefit from these rules	IT around us *1. What is information technology (IT)?* **To recognise the uses and features of information technology:** I can identify examples of computers I can describe some uses of computers I can identify that a computer is a part of information technology *2. Where have we seen IT at home?* **To identify information technology in the home:** I can explain the purpose of information technology in the home I can open a file I can move and resize images *3. Where have we seen IT in the world?* **To identify information technology beyond school:** I can find examples of information technology I can talk about uses of information technology I can compare types of information technology *4. How does IT improve our world?* **To explain how information technology benefits us:** I can demonstrate how information technology is used in a shop I can recognise that information technology can be connected I can explain how information technology helps people *5. Demonstrate safe use of IT* **To show how to use information technology safely:** I can list different uses of information technology I can recognise how to use information technology responsibly I can say how those rules/guides can help me *6. Using IT responsibly* **To recognise that choices are made when using information technology:** I can identify the choices that I make when using information technology I can explain simple guidance for using information technology in different environments and settings I can enjoy a variety of activities	Connecting computers *1. How does a digital device work?* **To explain how digital devices function:** I can explain that digital devices accept inputs I can explain that digital devices produce outputs I can follow a process *2. What parts make up a digital device* **To identify input and output devices:** I can classify input and output devices I can model a simple process I can design a digital device *3. How do digital devices help us?* **To recognise how digital devices can change the way we work:** I can explain how I use digital devices for different activities I can recognise similarities between using digital devices and non-digital tools I can suggest differences between using digital devices and non-digital tools *4. How am I connected?* **To explore how digital devices can be connected:** I can recognise that a computer network is made up of a number of devices I can demonstrate how information can be passed between devices I can explain the role of a switch, server, and wireless access point in a network *5. How are computers connected?* **To explore how digital devices can be connected:** I can recognise that a computer network is made up of a number of devices I can demonstrate how information can be passed between devices I can explain the role of a switch, server, and wireless access point in a network *6. What does our school network look like* **To recognise the physical components of a network:** I can identify how devices in a network are connected with one another I can identify networked devices around me I can identify the benefits of computer networks	The Internet *1. Connecting networks* **To describe how networks physically connect to other networks:** I can describe the internet as a network of networks I can demonstrate how information is shared across the internet I can discuss why a network needs protecting *2. What is the internet made of?* **To recognise how networked devices make up the internet:** I can describe the different networked devices and how they connect I can explain how the internet allows us to view the World Wide Web I can recognise that the World Wide Web is the part of the internet that contains websites and web pages *3. Sharing information* **To outline how websites can be shared via the World Wide Web:** I can explain the types of media that can be shared on the World Wide Web (WWW) I can describe where websites are stored when uploaded to the WWW I can describe how to access websites on the WWW *4. What is a website?* **To describe how content can be added and accessed on the World Wide Web:** I can create media which can be found on websites I can recognise that I can add content to the WWW I can explain that new content can be created online *5. Who owns the web?* **To recognise how the content of the WWW is created by people:** I can explain that websites and their content are created by people I can suggest who owns the content on websites I can explain that there are rules to protect content *6. Can I believe what I read?* ***To evaluate the consequences of unreliable content:*** *I can explain that not everything on the World Wide Web is true* *I can explain why some information I find online may not be honest, accurate, or legal* *I can explain why I need to think carefully before I share or reshare content*	Sharing information *1. Systems* **To explain that computers can be connected together to form systems:** I can explain that systems are built using a number of parts I can describe that a computer system features inputs, processes, and outputs I can explain that computer systems communicate with other devices *2. Computer systems and us* **To recognise the role of computer systems in our lives:** I can identify tasks that are managed by computer systems I can identify the human elements of a computer system I can explain the benefits of a given computer system *3. Transferring information* **To recognise how information is transferred over the internet:** I can recognise that data is transferred using agreed methods I can explain that networked digital devices have unique addresses I can explain that data is transferred over networks in packets *4. Working together* **To explain how sharing information online lets people in different places work together:** I can recognise that connected digital devices can allow us to access shared files stored online I can send information over the internet in different ways I can explain that the internet allows different media to be shared *5. Better working together* **To contribute to a shared project online:** I can suggest strategies to ensure successful group work I can make thoughtful suggestions on my group's work I can compare working online with working offline *6. Shared working* **To evaluate different ways of working together online:** I can identify different ways of working together online I can recognise that working together on the internet can be public or private I can explain how the internet enables effective collaboration	Communication *1. Searching the web* **To identify how to use a search engine:** I can complete a web search to find specific information I can refine my search I can compare results from different search engines *2. Selecting search results* **To describe how search engines select results:** I can explain why we need tools to find things online I can recognise the role of web crawlers in creating an index I can relate a search term to the search engine's index *3. How search results are ranked* **To explain how search results are ranked:** I can explain that search results are ordered I can explain that a search engine follows rules to rank relevant pages I can suggest some of the criteria that a search engine checks to decide on the order of results *4. How are searches influenced?* **To recognise why the order of results is important, and to whom:** I can describe some of the ways that search results can be influenced I can recognise some of the limitations of search engines I can explain how search engines make money *5. How we communicate* **To recognise how we communicate using technology:** I can explain the different ways in which people communicate I can identify that there are a variety of ways of communicating over the internet I can choose methods of communication to suit particular purposes *6. Communicating responsibly* **To evaluate different methods of online communication:** I can compare different methods of communicating on the internet I can decide when I should and should not share I can explain that communication on the internet may not be private
Aut 2	Creating media (Digital Literacy)	Digital painting *1. How can we paint using computers?* **To describe what different freehand tools do:** I can make marks on a screen and explain which tools I used I can draw lines on a screen and explain which tools I used I can use the paint tools to draw a picture *2. Using shapes and lines* **To use the shape tool and the line tools:** I can make marks with the square and line tools I can use the shape and line tools effectively I can use the shape and line tools to recreate the work of an artist *3. Making careful choices* **To make careful choices when painting a digital picture:** I can choose appropriate shapes I can make appropriate colour choices I can create a picture in the style of an artist *4. Why did I choose that?* **To explain why I chose the tools I used:** I know that different paint tools do different jobs I can choose appropriate paint tools and colours to recreate the work of an artist I can say which tools were helpful and why *5. Painting all by myself* **To use a computer on my own to paint a picture:** I can make dots of colour on the page I can change the colour and brush sizes I can use dots of colour to create a picture in the style of an artist on my own *6. Comparing computer art and painting* **To compare painting a picture on a computer and on paper:** I can explain that pictures can be made in lots of different ways I can spot the differences between painting on a computer and on paper I can say whether I prefer painting using a computer or using paper	Digital photography *1. Devices* **To know what devices can be used to take photographs:** I can sort devices into old and new I can talk about how to take a photograph I can capture digital photos and talk about my experience *2. Landscape or portrait* **To use a digital device to take a photograph:** I can explain the process of taking a good photograph I can take photos in both landscape and portrait format I can explain why a photo looks better in portrait or landscape format *3. What makes a good photograph?* **To describe what makes a good photograph:** I can identify what is wrong with a photograph I can discuss how to take a good photograph I can improve a photograph by retaking it *4. Lighting and focus* **To decide how photographs can be improved:** I can explore the effect that light has on a photo I can experiment with different light sources I can focus on an object *5. Effects* **To use tools to change an image:** I can recognise that images can be changed I can use a tool to achieve a desired effect I can explain my choices *6. Is it real?* **To recognise that images can be changed:** I can apply a range of photography skills to capture a photo I can recognise which images have been changed I can identify which images are real and which have been changed	Animation *1. Can a picture move?* **To explain that animation is a sequence of drawings or photographs:** I can draw a sequence of pictures I can create an effective flip book—style animation I can explain how an animation/flip book works *2. Frame by frame* **To relate animated movement with a sequence of images:** I can predict what an animation will look like I can explain why little changes are needed for each frame I can create an effective stop frame animation *3. What's the story?* **To plan an animation:** I can break down a story into settings, characters and events I can describe an animation that is achievable on screen I can create a storyboard *4. Picture perfect* **To identify the need to work consistently and carefully:** I can use onion skinning to help me make small changes between frames I can review a sequence of frames to check my work I can evaluate the quality of my animation *5. Evaluate and make it great!* **To review and improve an animation:** I can explain ways to make my animation better I can evaluate another learner's animation I can improve my animation based on feedback *6. Lights, camera, action!* **To evaluate the impact of adding other media to an animation:** I can add other media to my animation I can explain why I added other media to my animation I can evaluate my final film	Audio editing *1. Digital recording* **To identify that sound can be digitally recorded:** I can identify digital devices that can record sound and play it back I can identify the inputs and outputs required to play audio or record sound I can recognise the range of sounds that can be recorded *2. Recording sounds* **To use a digital device to record sound:** I can use a device to record audio and play back sound I can suggest how to improve my recording I can discuss what other people include when recording sound for a podcast *3. Creating a podcast* **To explain that a digital recording is stored as a file:** I can plan and write the content for a podcast I can discuss why it is useful to be able to save digital recordings I can save a digital recording as a file *4. Editing digital recordings* **To explain that audio can be changed through editing:** I can open a digital recording from a file I can discuss ways in which audio recordings can be altered I can edit sections of of an audio recording *5. Combining audio* **To show that different types of audio can be combined and played together:** I can discuss sounds that other people combine I can choose suitable sounds to include in a podcast I can use editing tools to arrange sections of audio *6. Evaluating podcasts* **To evaluate editing choices made:** I can explain that digital recordings need to be exported to share them I can discuss the features of a digital recording I like I can suggest improvements to a digital recording	Vector drawing *1. The drawing tools* **To identify that drawing tools can be used to produce different outcomes:** I can recognise that vector drawings are made using shapes I can identify the main drawing tools I can discuss how a vector drawing is different from paper-based drawings *2. Create a vector drawing* **To create a vector drawing by combining shapes:** I can identify the shapes used to make a vector drawing I can explain that each element added to a vector drawing is an object I can move, resize, and rotate objects I have duplicated *3. Being effective* **To use tools to achieve a desired effect:** I can use the zoom tool to help me add detail to my drawings I can explain how alignment grids and resize handles can be used to improve consistency I can modify objects to create different effects *4. Layers and objects* **To recognise that vector drawings consist of layers:** I can identify that each added object creates a new layer in the drawing I can identify which objects are in the front layer or in the back layer of a drawing I can change the order of layers in a vector drawing *5. Manipulating objects* **To group objects to make them easier to work with:** I can copy part of a drawing by duplicating several objects I can group to create a single object I can reuse a group of objects to further develop my vector drawing *6. Get designing* **To evaluate my vector drawing:** I create alternatives to vector drawings I can suggest improvements to a vector drawing I can apply what I have learned about vector drawings	3D Modelling *1. What is 3D Modelling?* **To use a computer to create and manipulate three-dimensional (3D) digital objects:** I can discuss the similarities and differences between 2D and 3D shapes I can explain why we might represent 3D objects on a computer I can select, move, and delete a digital 3D shape *2. Making changes* **To compare working digitally with 2D and 3D graphics:** I can identify how graphical objects can be modified I can resize a 3D object I can change the colour of a 3D object *3. Rotation and position* **To construct a digital 3D model of a physical object:** I can rotate a 3D object I can position 3D objects in relation to each other I can select and duplicate multiple 3D objects *4. Making holes* **To identify that physical objects can be broken down into a collection of 3D shapes:** I can identify the 3D shapes needed to create a model of a real-world object I can create digital 3D objects of an appropriate size I can group a digital 3D shape and a placeholder to create a hole in an object *5. Planning my own 3D model* **To design a digital model by combining 3D objects:** I can plan my 3D model I can choose which 3D objects I need to construct my model I can modify multiple 3D objects *6. Making my own 3D model* **To develop and improve a digital 3D model:** I can decide how my model can be improved I can modify my model to improve it I can evaluate my model against a given criterion
Spr 1	Creating media (Digital Literacy)	Digital writing *1. Exploring the keyboard* **To use a computer to write:** I can open a word processor I can recognise keys on a keyboard I can identify and find keys on a keyboard *2. Adding and removing text* **To add and remove text on a computer:** I can enter text into a computer I can use letter, number, and space keys I can use backspace to remove text *3. Exploring the toolbar* **To identify that the look of text can be changed on a computer:** I can type capital letters I can explain what the keys that I have learnt about already do I can identify the toolbar and use bold, italic, and underline *4. Making changes to text* **To make careful choices when changing text:** I can select a word by double-clicking I can select all of the text by clicking and dragging I can change the font *5. Explaining my choices* **To explain why I used the tools that I chose:** I can say what tool I used to change the text I can decide if my changes have improved my writing I can use 'undo' to remove changes *6. Pencil or keyboard* **To compare writing on a computer with writing on paper:** I can write a message on a computer and on paper I can compare using a computer with using a pencil and paper I can say which method I like best	Making music *1. How music makes us feel* **To say how music can make us feel:** I can identify simple differences in pieces of music I can listen with concentration to a range of music (links to the Music curriculum) I can describe how music makes me feel, e.g. happy or sad *2. Rhythms and patterns* **To identify that there are patterns in music:** I can create a rhythm pattern I can play an instrument following a rhythm pattern I can explain that music is created and played by humans *3. How music can be used* **To show how music is made from a series of notes:** I can identify that music is a sequence of notes I can use a computer to create a musical pattern using three notes I can refine my musical pattern on a computer *4. Notes and tempo* **To show how music is made from a series of notes:** I can identify that music is a sequence of notes I can use a computer to create a musical pattern using three notes I can refine my musical pattern on a computer *5. Creating digital music* **To create music for a purpose:** I can describe an animal using sounds I can explain my choices I can save my work *6. Reviewing and editing music* **To review and refine our computer work:** I can reopen my work I can explain how I made my work better I can listen to music and describe how it makes me feel	Desktop publishing *1. Words and pictures* **To recognise how text and images convey information:** I can explain the difference between text and images I can recognise that text and images can communicate messages clearly I can identify the advantages and disadvantages of using text and images *2. Can you edit it?* **To recognise that text and layout can be edited:** I can change font style, size, and colours for a given purpose I can edit text I can explain that text can be changed to communicate more clearly *3. Great template!* **To choose appropriate page settings:** I can define the term 'page orientation' I can recognise placeholders and say why they are important I can create a template for a particular purpose *4. Can you add content?* **To add content to a desktop publishing publication:** I can choose the best locations for my content I can paste text and images to create a magazine cover I can make changes to content after I've added it *5. Lay it out* **To consider how different layouts can suit different purposes:** I can identify different layouts I can match a layout to a purpose I can choose a suitable layout for a given purpose *6. Why desktop publishing?* **To consider the benefits of desktop publishing:** I can identify the uses of desktop publishing in the real world I can say why desktop publishing might be helpful I can compare work made on desktop publishing to work created by hand	Photo editing *1. Changing digital images* **To explain that digital images can be changed:** I can identify changes that we can make to an image I can explore how images can be changed in real life I can explain the effect that editing can have on an image *2. Changing the composition of images* **To change the composition of an image:** I can explain what has changed in an edited image I can change the composition of an image by selecting parts of it I can consider why someone might want to change the composition of an image *3. Changing images for different uses* **To describe how images can be changed for different uses:** I can talk about changes made to images I can choose effects to make my image fit a scenario I can explain why my choices fit a scenario *4. Retouching images* **To make good choices when selecting different tools:** I can identify how an image has been retouched I can give examples of positive and negative effects that retouching can have on an image I can choose appropriate tools to retouch an image *5. Fake images* **To recognise that not all images are real:** I can sort images into 'fake' or 'real' and explain my choices I can combine parts of images to create new images I can talk about fake images around me *6. Making and evaluating a publication* **To evaluate how changes can improve an image:** I can consider the effect of adding other elements to my work I can compare the original image with my completed publication I can evaluate the impact of my publication on others through feedback	Video editing *1. What is video?* **To recognise video as moving pictures, which can include audio:** I can explain that a video can include both visual and audio media I can explain the benefits of adding audio to a video I can plan a video project using a storyboard *2. Identifying devices* **To identify digital devices that can record video:** I can identify and name digital devices that can record video and sound I can choose the most suitable digital device for recording my project I can locate and identify the working features of a digital device that can record video *3. Using a device* **To capture video using a digital device:** I can select a suitable device and software to capture my video I can demonstrate suitable methods of using a digital device to capture my video I can demonstrate the safe use and handling of devices *4. Features of an effective video* **To recognise the features of an effective video:** I can list some of the features of an effective video I can record a video that demonstrates some of the features of an effective video I can explain why lighting and angle are important in creating an effective video *5. Importing and editing video* **To identify that video can be improved through reshooting and editing:** I can store, retrieve, and export my recording to a computer I can explain how to improve a video by reshooting and editing I can select the correct tools to make edits to my video *6. Video evaluation* **To consider the impact of the choices made when making and sharing a video:** I can make edits to my video and improve the final outcome I can recognise that my choices when making a video will impact on the quality of the final outcome I can evaluate my video and share my opinions	Web page creation *1. What makes a good website* **To review an existing website and consider its structure:** I can explore a website I can discuss the different types of media used on websites I know that websites are written in HTML *2. How would you layout your web page* **To plan the features of a web page:** I can recognise the common features of a web page I can suggest media to include on my page I can draw a web page layout that suits my purpose *3. Copyright or CopyWRONG?* **To consider the ownership and use of images (copyright):** I can say why I should use copyright-free images I can find copyright-free images I can describe what is meant by the term 'fair use' *4. How does it look?* **To recognise the need to preview pages:** I can add content to my own web page I can preview what my web page looks like I can evaluate what my web page looks like on different devices and suggest/make edits *5. Follow the breadcrumbs* **To outline the need for a navigation path:** I can explain what a navigation path is I can describe why navigation paths are useful I can make multiple web pages and link them using hyperlinks *6. Think before you link!* **To recognise the implications of linking to content owned by other people:** I can explain the implication of linking to content owned by others I can create hyperlinks to link to other people's work I can evaluate the user experience of a website
Spr 2	Data and information (Information Technology)	Grouping data *1. Label and match* **To label objects:** I can describe objects using labels I can match objects to groups I can identify the label for a group of objects *2. Group and count* **To identify that objects can be counted:** I can count objects I can group objects I can count a group of objects *3. Describe an object* **To describe objects in different ways:** I can describe an object I can describe a property of an object I can find objects with similar properties *4. Making different groups* **To count objects with the same properties:** I can group similar objects I can group objects in more than one way I can count how many objects share a property *5. Comparing groups* **To compare groups of objects:** I can choose how to group objects I can describe groups of objects I can record how many objects are in a group *6. Answering questions* **To answer questions about groups of objects:** I can decide how to group objects to answer a question I can compare groups of objects I can record and share what I have found	Pictograms *1. Counting and comparing* **To recognise that we can count and compare objects using tally charts:** I can record data in a tally chart I can represent a tally count as a total I can compare totals in a tally chart *2. Enter the data* **To recognise that objects can be represented as pictures:** I can enter data onto a computer I can use a computer to view data in a different format I can use pictograms to answer simple questions about objects *3. Creating pictograms* **To create a pictogram:** I can organise data in a tally chart I can use a tally chart to create a pictogram I can explain what the pictogram shows *4. What is an attribute* **To select objects by attribute and make comparisons:** I can tally objects using a common attribute I can create a pictogram to arrange objects by an attribute I can answer 'more than'/'less than' and 'most/least' questions about an attribute *5. Comparing people* **To recognise that people can be described by attributes:** I can choose a suitable attribute to compare people I can collect the data I need I can create a pictogram and draw conclusions from it *6. Presenting information* **To explain that we can present information using a computer:** I can use a computer program to present information in different ways I can share what I have found out using a computer I can give simple examples of why information should not be share	Branching databases *1. Yes or no questions* **To create questions with yes/no answers:** I can investigate questions with yes/no answers I can make up a yes/no question about a collection of objects I can create two groups of objects separated by one attribute *2. Making groups* **To identify the object attributes needed to collect relevant data:** I can select an attribute to separate objects into groups I can create a group of objects within an existing group I can arrange objects into a tree structure *3. Creating a branching database* **To create a branching database:** I can select objects to arrange in a branching database I can group objects using my own yes/no questions I can prove my branching database works *4. Structuring a branching database* **To explain why it is helpful for a database to be well structured:** I can create yes/no questions using given attributes I can explain that questions need to be ordered carefully to split objects into similarly sized groups I can compare two branching database structures *5. Using a branching database* **To identify objects using a branching database:** I can select a theme and choose a variety of objects I can create questions and apply them to a tree structure I can use my branching database to answer questions *6. Presenting information* **To compare the information shown in a pictogram with a branching database:** I can explain what a pictogram tells me I can explain what a branching database tells me I can compare two ways of presenting information	Data logging *1. Answering questions* **To explain that data gathered over time can be used to answer questions:** I can choose a data set to answer a given question I can suggest questions that can be answered using a given data set I can identify data that can be gathered over time *2. Data collection* **To use a digital device to collect data automatically:** I can explain that sensors are input devices I can use data from a sensor to answer a given question I can identify that data from sensors can be recorded *3. Logging* **To explain that a data logger collects 'data points' from sensors over time:** I can identify a suitable place to collect data I can identify the intervals used to collect data I can talk about the data that I have captured *4. Analysing data* **To use data collected over a long duration to find information:** I can import a data set I can use a computer to view data in different ways I can use a computer program to sort data *5. Data for answers* **To identify the data needed to answer questions:** I can propose a question that can be answered using logged data I can plan how to collect data using a data logger I can use a data logger to collect data *6. Answering my question* **To use collected data to answer questions:** I can interpret data that has been collected using a data logger I can draw conclusions from the data that I have collected I can explain the benefits of using a data logger	Flat-file databases *1. Creating a paper-based database* **To use a form to record information:** I can create multiple questions about the same field I can explain how information can be recorded I can order, sort, and group my data cards *2. Computer databases* **To compare paper and computer-based databases:** I can navigate a flat-file database to compare different views of information I can explain what a 'field' and a 'record' is in a database I can choose which field to sort data by to answer a given question *3. Using a database* **To outline how grouping and then sorting data allows us to answer questions:** I can explain how information can be grouped I can group information to answer questions I can combine grouping and sorting to answer more specific questions *4. Using search tools* **To explain that tools can be used to select specific data:** I can choose which field and value are required to answer a given question I can outline how 'AND' and 'OR' can be used to refine data selection I can choose multiple criteria to answer a given question *5. Comparing data visually* **To explain that computer programs can be used to compare data visually:** I can select an appropriate chart to visually compare data I can refine a chart by selecting a particular filter I can explain the benefits of using a computer to create graphs *6. Databases in real life* ***To apply my knowledge of a database to ask and answer real-world questions:*** *I can ask questions that will need more than one field to answer* *I can refine a search in a real-world context* *I can present my findings to a group*	Spreadsheets *1. What is a spreadsheet?* **To identify questions which can be answered using data:** I can explain the relevance of data headings I can answer questions from an existing data set I can ask simple relevant questions which can be answered using data *2. Modifying spreadsheets* **To explain that objects can be described using data:** I can explain what an item of data is I can apply an appropriate number format to a cell I can build a data set in a spreadsheet application *3. What's the formula?* **To explain that formulas can be used to produce calculated data:** I can explain the relevance of a cell's data type I can construct a formula in a spreadsheet I can identify that changing inputs changes outputs *4. Calculate and duplicate* **To apply formulas to data, including duplicating:** I can recognise that data can be calculated using different operations I can create a formula which includes a range of cells I can apply a formula to multiple cells by duplicating it *5. Event Planning* **To create a spreadsheet to plan an event:** I can use a spreadsheet to answer questions I can explain why data should be organised I can apply a formula to calculate the data I need to answer questions *6. Presenting Data* **To choose suitable ways to present data:** I can produce a graph I can use a graph to show the answer to questions I can suggest when to use a table or graph
Sum 1	Programming A (Computer Science)	Moving a robot *1. Buttons* **To explain what a given command will do:** I can predict the outcome of a command on a device I can match a command to an outcome I can run a command on a device *2. Directions* **To act out a given word:** I can follow an instruction I can recall words that can be acted out I can give directions *3. Forwards and backwards* **To combine forwards and backwards commands to make a sequence:** I can compare forwards and backwards movements I can start a sequence from the same place I can predict the outcome of a sequence involving forwards and backwards commands *4. Four directions* **To combine four direction commands to make sequences:** I can compare left and right turns I can experiment with turn and move commands to move a robot I can predict the outcome of a sequence involving up to four commands *5. Getting there* **To plan a simple program:** I can explain what my program should do I can choose the order of commands in a sequence I can debug my program *6. Routes* **To find more than one solution to a problem:** I can identify several possible solutions I can plan two programs I can use two different programs to get to the same place	Robot algorithms *1. Giving instructions* **To describe a series of instructions as a sequence:** I can follow instructions given by someone else I can choose a series of words that can be enacted as a sequence I can give clear and unambiguous instructions *2. Same but different* **To explain what happens when we change the order of instructions:** create different algorithms for a range of sequences (using same commands) I can use an algorithm to program a sequence on a floor robot I can show the difference in outcomes between two sequences that consist of the same commands *3. Making predictions* **To use logical reasoning to predict the outcome of a program (series of commands):** I can follow a sequence I can predict the outcome of a sequence I can compare my prediction to the program outcome *4. Mats and routes* **To explain that programming projects can have code and artwork:** I can explain the choices I made for my mat design I can identify different routes around my mat I can test my mat to make sure that it is usable *5. Algorithm design* **To design an algorithm:** I can explain what my algorithm should achieve I can create an algorithm to meet my goal I can use my algorithm to create a program *6. Debugging* **To create and debug a program that I have written:** I can plan algorithms for different parts of a task I can test and debug each part of the program I can put together the different parts of my program	Sequence in music *1. Introduction to Scratch* **To explore a new programming environment:** I can identify the objects in a Scratch project (sprites, backdrops) I can explain that objects in Scratch have attributes (linked to) I can recognise that commands in Scratch are represented as blocks *2. Programming sprites* **To identify that commands have an outcome:** I can identify that each sprite is controlled by the commands I choose I can choose a word which describes an on-screen action for my design I can create a program following a design *3. Sequences* **To explain that a program has a start:** I can start a program in different ways I can create a sequence of connected commands I can explain that the objects in my project will respond exactly to the code *4. Ordering commands* **To recognise that a sequence of commands can have an order:** I can explain what a sequence is I can combine sound commands I can order notes into a sequence *5. Looking good* **To change the appearance of my project:** I can build a sequence of commands I can decide the actions for each sprite in a program I can make design choices for my artwork *6. Making an instrument* **To create a project from a task description:** I can identify and name the objects I will need for a project I can relate a task description to a design I can implement my algorithm as code	Repetition in shapes *1. Programming a screen turtle* **To identify that accuracy in programming is important:** I can program a computer by typing commands I can explain the effect of changing a value of a command I can create a code snippet for a given purpose *2. Programming letters* **To create a program in a text-based language:** I can use a template to create a design for my program I can write an algorithm to produce a given outcome I can test my algorithm in a text-based language *3. Patterns and repeats* **To explain what 'repeat' means:** I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves I can identify patterns in a sequence, eg 'step 3 times' means the same as 'step, step, step' I can use a count-controlled loop to produce a given outcome *4. Using loops to create shapes* **To modify a count-controlled loop to produce a given outcome:** I can identify the effect of changing the number of times a task is repeated I can predict the outcome of a program containing a count-controlled loop I can choose which values to change in a loop *5. Breaking things down* **To decompose a program into parts:** I can identify 'chunks' of actions in the real world I can use a procedure in a program I can explain that a computer can repeatedly call a procedure *6. Creating a program* **To create a program that uses count-controlled loops to produce a given outcome:** I can design a program that includes count-controlled loops I can make use of my design to write a program I can develop my program by debugging it	Selection in physical computing *1. Connecting Crumbles* **To control a simple circuit connected to a computer:** I can build a simple circuit to connect a microcontroller to a computer I can program a microcontroller to light an LED I can explain why I used an infinite loop *2. Combining output devices* **To write a program that includes count-controlled loops:** I can connect more than one output device to a microcontroller I can design sequences for given output devices I can decide which output devices I control with a count controlled loop *3. Controlling with conditions* **To explain that a loop can stop when a condition is met, e.g. number of times:** I can explain that a condition is something that can either be true or false (e.g. whether a value is more than 10, or whether a button has been pressed) I can experiment with a do until loop I can program a microcontroller to respond to an input *4. Starting with selection* **To conclude that a loop can be used to repeatedly check whether a condition has been met:** I can explain a condition being met can start an action I can identify a condition and an action in my project I can use selection (an if… then… statement) to direct the flow of a program *5. Drawing designs* **To design a physical project which includes selection:** I can identify a condition to start an action (real world) I can describe what my project will do (the task) I can create a detailed drawing of my project *6. Writing and testing algorithms* **To create a controllable system which includes selection:** I can write an algorithm to control lights and a motor I can use selection to produce an intended outcome I can test and debug my project	Variables in games *1. Introducing variables* **To define a 'variable' as something that is changeable:** I can identify examples of information that is variable I can explain that the way that a variable changes can be defined I can identify that variables can hold numbers or letters *2. Variables in programming* **To explain why a variable is used in a program:** I can identify a program variable as a placeholder in memory for a single value I can explain that a variable has a name and a value I can recognise that the value of a variable can be changed *3. Improving a game* **To choose how to improve a game by using variables:** I can decide where in a program to change a variable I can make use of an event in a program to set a variable I can recognise that the value of a variable can be used by a program *4. Designing a game* **To design a project that builds on a given example:** I can choose the artwork for my project I can explain my design choices I can create algorithms for my project *5. Designing to code* **To use my design to create a project:** I can create the artwork for my project I can choose a name that identifies the role of a variable I can test the code that I have written *6. Improving and sharing* **To evaluate my project:** I can identify ways that my game could be improved I can extend my game further using more variables I can share my game with others
Sum 2	Programming B (Computer Science)	Introduction to animation *1. Comparing tools* **To choose a command for a given purpose:** I can find which commands to move a sprite I can use commands to move a sprite I can compare different programming tools *2. Joining blocks* **To show that a series of commands can be joined together:** I can use more than one block by joining them together I can use a Start block in a program I can run my program *3. Make a change* **To identify the effect of changing a value:** I can find blocks that have numbers I can change the value I can say what happens when I change a value *4. Adding sprites* **To explain that each sprite has its own instructions:** I can show that a project can include more than one sprite I can delete a sprite I can add blocks to each of my sprites *5. Project design* **To design the parts of a project:** I can choose appropriate artwork for my project I can decide how each sprite will move I can create an algorithm for each sprite *6. Following my design* ***To use my algorithm to create a program:*** *I can use sprites that match my design* *I can add programming blocks based on my algorithm* *I can test the programs I have created*	An introduction to quizzes *1. ScratchJr recap* **To explain that a sequence of commands has a start:** I can identify the start of a sequence I can identify that a program needs to be started I can show how to run my program *2. Outcomes* **To explain that a sequence of commands has an outcome:** I can predict the outcome of a sequence of commands I can match two sequences with the same outcome I can change the outcome of a sequence of commands *3. Using a design* **To create a program using a given design:** I can work out the actions of a sprite in an algorithm I can decide which blocks to use to meet the design I can build the sequences of blocks I need *4. Changing a design* **To change a given design:** I can choose backgrounds for the design I can choose characters for the design I can create a program based on the new design *5. Designing and creating a program* **To create a program using my own design:** I can choose the images for my own design I can create an algorithm I can build sequences of blocks to match my design *6. Evaluating* **To decide how my project can be improved:** I can compare my project to my design I can improve my project by adding features I can debug	Events and actions *1. Moving a sprite* **To explain how a sprite moves in an existing project:** I can explain the relationship between an event and an action I can choose which keys to use for actions and explain my choices I can identify a way to improve a program *2. Maze movement* **To create a program to move a sprite in four directions:** I can choose a character for my project I can choose a suitable size for a character in a maze I can program movement *3. Drawing lines* **To adapt a program to a new context:** I can use a programming extension I can consider the real world when making design choices I can choose blocks to set up my program *4. Adding features* **To develop my program by adding features:** I can identify additional features (from a given set of blocks) I can choose suitable keys to turn on additional features I can build more sequences of commands to make my design work *5. Debugging movement* **To identify and fix bugs in a program:** I can test a program against a given design I can match a piece of code to an outcome I can modify a program using a design *6. Making a project* **To design and create a maze-based challenge:** I can make design choices and justify them I can implement my design I can evaluate my project	Repetition in games *1. Using loops to create shapes* **To develop the use of count-controlled loops in a different programming environment:** I can list an everyday task as a set of instructions including repetition I can predict the outcome of a snippet of code I can modify a snippet of code to create a given outcome *2. Different loops* **To explain that in programming there are infinite loops and count controlled loops:** I can modify loops to produce a given outcome I can choose when to use a count-controlled and an infinite loop I can recognise that some programming languages enable more than one process to be run at once *3. Animate your name* **To develop a design that includes two or more loops which run at the same time:** I can choose which action will be repeated for each object I can explain what the outcome of the repeated action should be I can evaluate the effectiveness of the repeated sequences used in my program *4. Modifying a game* **To modify an infinite loop in a given program:** I can identify which parts of a loop can be changed I can explain the effect of my changes I can re-use existing code snippets on new sprites *5. Designing a game* **To design a project that includes repetition:** I can evaluate the use of repetition in a project I can select key parts of a given project to use in my own design I can develop my own design explaining what my project will do *6. Creating our games* **To create a project that includes repetition:** I can refine the algorithm in my design I can build a program that follows my design I can evaluate the steps I followed when building my project	Selection in quizzes *1. Exploring conditions* **To explain how selection is used in computer programs:** I can recall how conditions are used in selection I can identify conditions in a program I can modify a condition in a program *2. Selecting outcomes* **To relate that a conditional statement connects a condition to an outcome:** I can use selection in an infinite loop to check a condition I can identify the condition and outcomes in an 'if… then… else…' statement I can create a program with different outcomes using selection *3. Asking questions* **To explain how selection directs the flow of a program:** I can explain that program flow can branch according to a condition I can design the flow of a program which contains 'if… then… else…' I can show that a condition can direct program flow in one of two ways *4. Planning a quiz* **To design a program which uses selection:** I can outline a given task I can use a design format to outline my project I can identify the outcome of user input in an algorithm *5. Testing a quiz* **To create a program which uses selection:** I can implement my algorithm to create the first section of my program I can test my program I can share my program with others *6. Evaluating a quiz* **To evaluate my program:** I can identify ways the program could be improved I can identify the setup code I need in my program I can extend my program further	Sensing *1. The micro:bit* **To create a program to run on a controllable device:** I can apply my knowledge of programming to a new environment I can test my program on an emulator I can transfer my program to a controllable device *2. Go with the flow* **To explain that selection can control the flow of a program:** I can identify examples of conditions in the real world I can use a variable in an if, then, else statement to select the flow of a program I can determine the flow of a program using selection *3. Sensing inputs* **To update a variable with a user input:** I can use a condition to change a variable I can experiment with different physical inputs I can explain that if you read a variable, the value remains *4. Finding your way* **To use an conditional statement to compare a variable to a value:** I can explain the importance of the order of conditions in else, if statements I can use an operand (e.g. <>=) in an if, then statement I can modify a program to achieve a different outcome *5. Designing a step counter* **To design a project that uses inputs and outputs on a controllable device:** I can decide what variables to include in a project I can design the algorithm for my project I can design the program flow for my project *6. Making a step counter* **To develop a program to use inputs and outputs on a controllable device:** I can create a program based on my design I can test my program against my design I can use a range of approaches to find and fix bugs

Online Assessment Links

https://cloudw.sharepoint.com/:w:/s/FallingsLT/EfMW09ZZ77NMmrSx29-w3YgBPtviaPWtUzd0BYwYv9A8WA?e=STMHrp

APPENDIX 2

Year Group	Cabinet Location	Laptops	Ipad required
Early Years	A4		45 Minis
Year 1	B19		30 Minis
Year 2	B23	24	30
Year 3	C13	24	30
Year 4	C13	24	30
Year 5	C25	32	30
Year 6	U10	32	30
Total		120	180

Central resource base for laptops located in Oak.

APPENDIX 3 HARDWARE

20 SMART WHITEBOARDS

9 LCD WHITEBOARDS

20 PROJECTORS

94 DELL LAPTOPS FOR PUPIL USE

DELL LAPTOPS FOR STAFF

15 DIGITAL CAMERAS

3 PRINTERS

3 FLIP CAMERAS

VIDEO CAMERA

20 VISUALISERS

48 Ipad Minis

112 Ipads PUPIL USE