# SHOBNALL PRIMARY & NURSERY SCHOOL

## COMPUTING PROGRAMME OF STUDY

# LONG TERM OVERVIEW FOR COMPUTING

| Nursery | Autumn Term | Spring Term | Summer Term |
|---|---|---|---|
| **Barefoot Computing Unit Name** | **Winter Warmers** | **Spring Time** | **Busy Bodies** |
| **Links to Development Matters** | **Activity 1:** **Understanding the world** ■ 3 and 4 year olds – Begin to understand the need to respect and care for the natural environment and all living things. **Expressive arts and design** ■ 3 and 4 year olds – Join different materials and explore different textures.<br><br>**Activity 2:** **Understanding the world** ■ 3 and 4 year olds – Begin to understand the need to respect and care for the natural environment and all living things. **Expressive arts and design** ■ 3 and 4 year olds – Join different materials and explore different textures.<br><br>**Activity 3:** **Mathematics** 3 and 4 year olds – Talk about and identify the patterns around them. For example: stripes on clothes, | **Activity 1:** **Understanding the world** ■ 3 and 4 year olds – Plant seeds and care for growing plants. Begin to understand the need to respect and care for the natural environment and all living things. **Expressive arts and design** ■ 3 and 4 year olds – Join different materials and explore different textures.<br><br>**Activity 2:** **Mathematics** 3 and 4 year olds – Discuss routes and locations, using words like 'in front of' and 'behind'. Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'<br><br>**Activity 3:** **Understanding the world** ■ 3 and 4 year olds – Plant seeds and care for growing plants. Begin to understand the need to respect and care for the natural environment and all living things. | **Activity 1:** **Understanding the World** ■ 3 and 4 year olds: Continue developing positive attitudes about the differences between people. **Literacy** ■ 3 and 4 year olds: - Understand that print has meaning - Engage in extended conversations about stories, learning new vocabulary.<br><br>**Activity 2:** **Understanding the world** ■ 3 and 4 year olds: - Begin to make sense of their own life-story and family's history. - Continue developing positive attitudes about the differences between people. - Talk about members of their immediate family and community.<br><br>**Activity 3:** **Understanding the World** ■ 3 and 4 year olds: Continue developing positive attitudes about the differences between people **Mathematics** |

**KEY:** AL – Algorithms, CS – Computing systems, CM – Creating Media, DI – Data & Information, DD – Design & Development, ET – Effective use of tools, NW – Networks, PG – Programming, SS – Safety & Security, IT – Impact of Technology

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| designs on rugs and wallpaper. Extend and create ABAB patterns – stick, leaf, stick, leaf. Notice and correct an error in a repeating pattern. | | ■ 3 and 4 year olds: Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'<br><br>**Activity 4:**<br>**Communication and Language**<br>■ 3 and 4 year olds: Understand a question or instruction that has two parts, such as: "Get your coat and wait at the door". |

## Computational Thinking Concepts Covered

| Concept | | | |
|---|---|---|---|
| **Tinkering** (Playing and Exploring) | orange | green | |
| **Creating** (Creating, checking and fixing things) | green / blue | green | |
| **Collaboration** (Playing and working collaboratively) | green / orange | green / orange / blue | |
| **Persevering** (Not giving up) | orange | orange | |
| **Logic** (Anticipating and explaining) | orange / blue | | green |
| **Pattern** (Grouping things, comparing, spotting similarities and differences, working out rules) | blue | | green / blue |
| **Abstraction** (Naming and labelling, work out what is important, sticking to the main theme, ignoring what is not important, creating a summary) | | green | green / orange |
| **Algorithms and Decomposition** (Responding to instructions, ordering things, sequencing things, introducing | green / orange | orange / blue | orange / blue / purple |

# LONG TERM OVERVIEW FOR COMPUTING

| story lines, working out different ways to do things, breaking problems down into steps) | | | | | | | |

# LONG TERM OVERVIEW FOR COMPUTING

| Reception | Autumn Term | Spring Term | Summer Term |
|---|---|---|---|
| **Barefoot Computing Unit Name** | **Awesome Autumn** | **Boats Ahoy** | **Summer Fun** |
| **Links to Development Matters and Early Learning Goal** | **Activity 1:**<br>**ELG: Creating with Materials**<br>■ Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;<br>**ELG: Fine Motor Skills**<br>■ Use a range of small tools, including scissors, paint brushes and cutlery;<br>**Mathematics**<br>■ Reception – Continue, copy and create repeating patterns. Make patterns with varying rules (including AB, ABB and ABBC) and objects and invite children to continue the pattern.<br>**Understanding the world**<br>■ Reception – Explore the natural world around them.<br><br>**Activity 2:**<br>**ELG: Building Relationships**<br>■ Work and play cooperatively and take turns with others;<br>**ELG: Gross Motor Skills**<br>■ Negotiate space and obstacles safely, with consideration for themselves and others; | **Activity 1:**<br>**Early Learning Goals and Development Matters Links**<br>Children...offer explanations for why things might happen, making use of recently introduced vocabulary<br>from stories, non-fiction, rhymes and poems when appropriate<br>**Communication and Language**<br>■ Reception: Listen to and talk about selected non-fiction to develop a deep familiarity with new knowledge and vocabulary.<br>**Understanding the World**<br>*Note - Depending on your setting, there may be an opportunity to link this with family or community connections with boats or boat trips.*<br>■ Reception: Comment on images of familiar situations in the past<br><br>**Activity 2:**<br>**Playing and Exploring**<br>■ Plan and think ahead about how they will explore or play with objects.<br>**Creating and thinking critically** | **Activity 1:**<br>**Communication and Language**<br>■ Reception: Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.<br>**Mathematics**<br>■ Reception:<br>- Count objects, actions and sounds.<br>- Compare numbers.<br><br>**Activity 2:**<br>**Communication and Language**<br>■ Reception: Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.<br>**Mathematics** |

# LONG TERM OVERVIEW FOR COMPUTING

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| | **Understanding the world**<br><br>■ Reception – Understand the effect of changing seasons on the natural world around them.<br><br>**Activity 3:**<br>**ELG: Building Relationships**<br>■ Work and play cooperatively and take turns with others;<br>**ELG: Fine Motor Skills**<br>■ Use a range of small tools, including scissors, paint brushes and cutlery;<br>**ELG: Managing Self**<br>■ Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices<br>**Understanding the world**<br><br>■ Reception – Understand the effect of changing seasons on the natural world around them. | ■ Know more, so feel confident about coming up with their own ideas.<br>■ Make more links between those ideas.<br><br><br>**Activity 3:**<br>**Creating with Materials**<br>Make use of props and materials when role playing characters in narratives and stories<br>**Building Relationships**<br>Work and play cooperatively and take turns with others<br>**Expressive Arts and Design**<br>■ Reception: Develop storylines in their pretend play.<br><br><br><br><br><br><br>**Activity 4:**<br>**Early Learning Goals and Development Matters Links**<br>Listen attentively and respond to what they hear with relevant questions, comments and actions when<br>being read to and during whole class discussions and small group interactions. | ■ Reception:<br>- Count objects, actions and sounds.<br>- Compare numbers.<br><br><br>**Activity 3:**<br>**Understanding the World**<br>■ Explore the natural world around them.<br>**Communication and Language**<br>■ Reception: Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.<br>**Mathematics**<br>■ Reception: Select, rotate and manipulate shapes to develop spatial reasoning skills |

# LONG TERM OVERVIEW FOR COMPUTING

*KEY:* **AL – Algorithms, CS – Computing systems, CM – Creating Media, DI – Data & Information, DD – Design & Development, ET – Effective use of tools, NW – Networks, PG – Programming, SS – Safety & Security, IT – Impact of Technology**

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|---|---|---|---|
| **Computational Thinking Concepts Covered** | | | |
| **Tinkering** (Playing and Exploring) | | | |
| **Creating** (Creating, checking and fixing things) | | | |
| **Collaboration** (Playing and working collaboratively) | | | |
| **Persevering** (Not giving up) | | | |
| **Logic** (Anticipating and explaining) | | | |
| **Pattern** (Grouping things, comparing, spotting similarities and differences, working out rules) | | | |
| **Abstraction** (Naming and labelling, work out what is important, sticking to the main theme, ignoring what is not important, creating a summary) | | | |
| **Algorithms and Decomposition** (Responding to instructions, ordering things, sequencing things, introducing story lines, working out different ways to do things, breaking problems down into steps) | | | |

# LONG TERM OVERVIEW FOR COMPUTING

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| Year 1 | Autumn Term | | Spring Term | | Summer Term | |
|---|---|---|---|---|---|---|
| **Topic** | **LAND OF HOPE AND GLORY** | | **TO INFINITY AND BEYOND!** | | **WHERE THE WILD THINGS ARE** | |
| **Term** | AUTUMN 1 | AUTUMN 2 | SPRING 1 | SPRING 2 | SUMMER 1 | SUMMER 2 |
| **Unit** | **Technology around us.** | **Digital Painting** | **Moving a robot** | **Grouping data** | **Digital writing** | **Programming animations** |
| **Computing Strand** | CS<br>AL | ET<br>CM | AL<br>PG | DI<br>AL | ET<br>CM | PG<br>DD |
| **Knowledge** | To identify technology<br><br>To identify a computer and its main parts<br><br>To use a mouse in different ways<br><br>To use a keyboard to type on a computer<br><br>To use the keyboard to edit text<br><br>To create rules for using technology responsibly | To describe what different freehand tools do<br><br>To use the shape tool and the line tools<br><br>To make careful choices when painting a digital picture<br><br>To explain why I chose the tools I used<br><br>To use a computer on my own to paint a picture<br><br>To compare painting a picture on a computer and on paper | To explain what a given command will do<br><br>To act out a given word<br><br>To combine forwards and backwards commands to make a sequence<br><br>To combine four direction commands to make sequences<br><br>To plan a simple program<br><br>To find more than one solution to a problem | To label objects<br><br>To identify that objects can be counted<br><br>To describe objects in different ways<br><br>To count objects with the same properties<br><br>To compare groups of objects<br><br>To answer questions about groups of objects | To use a computer to write<br><br>To add and remove text on a computer<br><br>To identify that the look of text can be changed on a computer<br><br>To make careful choices when changing text<br><br>To explain why I used the tools that I chose<br><br>To compare typing on a computer to writing on paper | To choose a command for a given purpose<br><br>To show that a series of commands can be joined together<br><br>To identify the effect of changing a value<br><br>To explain that each sprite has its own instructions<br><br>To design the parts of a project<br><br>To use my algorithm to create a program |
| **National Curriculum Strand** | Use technology purposefully to create, organise, store, manipulate and retrieve digital content<br><br>Recognise common uses of information technology beyond school | Use technology purposefully to create, organise, store, manipulate and retrieve 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<br><br>Create and debug simple programs | Use technology purposefully to create, organise, store, manipulate and retrieve digital content<br><br>Use technology safely and respectfully, keeping personal information private; identify where to go for help and support | Use technology purposefully to create, organise, store, manipulate and retrieve digital content<br><br>Use technology safely and respectfully, keeping personal information private; identify where to go for help and support | Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions<br><br>Create and debug simple programs |

# LONG TERM OVERVIEW FOR COMPUTING

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| | Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. | | Use logical reasoning to predict the behaviour of simple programs<br><br>Recognise common uses of information technology beyond school | when they have concerns about content or contact on the internet or other online technologies. | when they have concerns about content or contact on the internet or other online technologies. | Use logical reasoning to predict the behaviour of simple programs<br><br>Use technology purposefully to create, organise, store, manipulate and retrieve digital content |
| **Online Safety Focus** | ✓ | | | ✓ | ✓ | |
| **Suggested Trips / Enrichment** | -Walks around the school buildings/ school grounds to identify different forms of technology<br>-Walks around the local area to identify different forms of technology in our local community<br>-PCSO visit to discuss elements of online safety | | | | | |

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| Year 2 | Autumn Term | | Spring Term | | Summer Term | |
|---|---|---|---|---|---|---|
| **Topic** | **FIRE, FIRE!** | | **I HAVE A DREAM** | | **GADGETS AND GIZMOS** | |
| **Term** | AUTUMN 1 | AUTUMN 2 | SPRING 1 | SPRING 2 | SUMMER 1 | SUMMER 4 |
| **Unit** | **Information technology around us** | **Digital Photography** | **Robot algorithms** | **Pictograms** | **Making music** | **Programming quizzes** |
| **Computing Strand** | NW<br>CS | ET<br>CM | AL<br>PG | DI<br>ET | CM<br>DD | PG<br>DD |
| **Knowledge** | To recognise the uses and features of information technology<br><br>To identify the uses of information technology in the school<br><br>To identify information technology beyond school<br><br>To explain how information technology helps us<br><br>To explain how to use information technology safely<br><br>To recognise that choices are made when using information technology | To use a digital device to take a photograph<br><br>To make choices when taking a photograph<br><br>To describe what makes a good photograph<br><br>To decide how photographs can be improved<br><br>To use tools to change an image<br><br>To recognise that photos can be changed | To describe a series of instructions as a sequence<br><br>To explain what happens when we change the order of instructions<br><br>To use logical reasoning to predict the outcome of a program (series of commands)<br><br>To explain that programming projects can have code and artwork<br><br>To design an algorithm<br><br>To create and debug a program that I have written | To recognise that we can count and compare objects using tally charts<br><br>To recognise that objects can be represented as pictures<br><br>To create a pictogram<br><br>To select objects by attribute and make comparisons<br><br>To recognise that people can be described by attributes<br><br>To explain that we can present information using a computer | To say how music can make us feel<br><br>To identify that there are patterns in music<br><br>To show how music is made from a series of notes<br><br>To show how music is made from a series of notes<br><br>To create music for a purpose<br><br>To review and refine our computer work | To explain that a sequence of commands has a start<br><br>To explain that a sequence of commands has an outcome<br><br>To create a program using a given design<br><br>To change a given design<br><br>To create a program using my own design<br><br>To decide how my project can be improved |
| **National Curriculum Strand** | Use technology purposefully to create, organise, store, manipulate and retrieve digital content | Use technology purposefully to create, organise, store, manipulate and retrieve digital content | Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by | Use technology purposefully to create, organise, store, manipulate and retrieve digital content | Use technology purposefully to create, organise, store, manipulate and retrieve digital content | Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by |

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|---|---|---|---|---|---|---|
| | Recognise common uses of information technology beyond school<br><br>Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. | Recognise common uses of information technology beyond school<br><br>Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. | following precise and unambiguous instructions<br><br>Create and debug simple programs<br><br>Use logical reasoning to predict the behaviour of simple programs<br><br>Use technology purposefully to create, organise, store, manipulate and retrieve digital content | Recognise common uses of information technology beyond school use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. | | following precise and unambiguous instructions<br><br>Create and debug simple programs<br><br>Use logical reasoning to predict the behaviour of simple programs |
| **Online Safety Focus** | ✓ | ✓ | | ✓ | | |
| **Suggested Trips / Enrichment** | -PCSO visit to discuss elements of online safety | | | | | |

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| Year 3 | Autumn Term | | Spring Term | | Summer Term | |
|---|---|---|---|---|---|---|
| **Topic** | **MEET THE FLINTSTONES** | | **BY THE RIVERS OF BABYLON** | | **IRON MAN** | |
| **Term** | AUTUMN 1 | AUTUMN 2 | SPRING 1 | SPRING 2 | SUMMER 1 | SUMMER 2 |
| **Unit** | **Connecting computers** | **Stop-frame animation** | **Sequencing sounds** | **Branching databases** | **Desktop publishing** | **Events and actions in programs** |
| **Computing Strand** | NW<br>CS | ET<br>CM | PG<br>DD | DI<br>ET | ET<br>CM | PG<br>DD |
| **Knowledge** | To explain how digital devices function<br><br>To identify input and output devices<br><br>To recognise how digital devices can change the way we work<br><br>To explain how a computer network can be used to share information<br><br>To explore how digital devices can be connected<br><br>To recognise the physical components of a network | To explain that animation is a sequence of drawings or photographs<br><br>To relate animated movement with a sequence of images<br><br>To plan an animation<br><br>To identify the need to work consistently and carefully<br><br>To review and improve an animation<br><br>To evaluate the impact of adding other media to an animation | To explore a new programming environment<br><br>To identify that commands have an outcome<br><br>To explain that a program has a start<br><br>To recognise that a sequence of commands can have an order<br><br>To change the appearance of my project<br><br>To create a project from a task description | To create questions with yes/no answers<br><br>To identify the object attributes needed to collect relevant data<br><br>To create a branching database<br><br>To explain why it is helpful for a database to be well structured<br><br>To identify objects using a branching database<br><br>To compare the information shown in a pictogram with a branching database | To recognise how text and images convey information<br><br>To recognise that text and layout can be edited<br><br>To choose appropriate page settings<br><br>To add content to a desktop publishing publication<br><br>To consider how different layouts can suit different purposes<br><br>To consider the benefits of desktop publishing | To explain how a sprite moves in an existing project<br><br>To create a program to move a sprite in four directions<br><br>To adapt a program to a new context<br><br>To develop my program by adding features<br><br>To identify and fix bugs in a program<br><br>To design and create a maze-based challenge |
| **National Curriculum Strand** | Use sequence, selection, and repetition in programs; work with variables and various forms of input and output | 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 | Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by | 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 | Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content | Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems |

# LONG TERM OVERVIEW FOR COMPUTING

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| 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<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information | content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information<br><br>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | decomposing them into smaller parts<br><br>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information | 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, including collecting, analysing, evaluating and presenting data and information | by decomposing them into smaller parts.<br><br>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information |
| **Online Safety Focus** | ✓ | | | | |
| **Suggested Trips / Enrichment** | -PCSO visits to discuss elements of online safety<br>-Enterprise Project | | | | |

# LONG TERM OVERVIEW FOR COMPUTING

| Year 4 | Autumn Term | | Spring Term | | Summer Term | |
|---|---|---|---|---|---|---|
| **Topic** | **THE EMPIRE STRIKES BACK!** | | **GAME OF THRONES** | | **ANY DREAM WILL DO** | |
| **Term** | AUTUMN 1 | AUTUMN 2 | SPRING 1 | SPRING 2 | SUMMER 1 | SUMMER 2 |
| **Unit** | **The internet** | **Audio editing** | **Repetition in shapes** | **Data logging** | **Photo Editing** | **Repetition in games** |
| **Computing Strand** | NW<br>SS | ET<br>CM | AL<br>PG | CS<br>DI | ET<br>CM | PG<br>DD |
| **Knowledge** | To describe how networks physically connect to other networks<br><br>To recognise how networked devices make up the internet<br><br>To outline how websites can be shared via the World Wide Web (WWW)<br><br>To describe how content can be added and accessed on the World Wide Web (WWW)<br><br>To recognise how the content of the WWW is created by people<br><br>To evaluate the consequences of unreliable content | To identify that sound can be digitally recorded<br><br>To use a digital device to record sound<br><br>To explain that a digital recording is stored as a file<br><br>To explain that audio can be changed through editing<br><br>To show that different types of audio can be combined and played together<br><br>To evaluate editing choices made | To identify that accuracy in programming is important<br><br>To create a program in a text-based language<br><br>To explain what 'repeat' means<br><br>To modify a count-controlled loop to produce a given outcome<br><br>To decompose a task into small steps<br><br>To create a program that uses count-controlled loops to produce a given outcome | To explain that data gathered over time can be used to answer questions<br><br>To use a digital device to collect data automatically<br><br>To explain that a data logger collects 'data points' from sensors over time<br><br>To use data collected over a long duration to find information<br><br>To identify the data needed to answer questions<br><br>To use collected data to answer questions | To explain that digital images can be changed<br><br>To change the composition of an image<br><br>To describe how images can be changed for different uses<br><br>To make good choices when selecting different tools<br><br>To recognise that not all images are real<br><br>To evaluate how changes can improve an image | To develop the use of count-controlled loops in a different programming environment<br><br>To explain that in programming there are infinite loops and count controlled loops<br><br>To develop a design that includes two or more loops which run at the same time<br><br>To modify an infinite loop in a given program<br><br>To design a project that includes repetition<br><br>To create a project that includes repetition |
| **National Curriculum Strand** | Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the | Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content | Design, write and debug programs that accomplish specific goals, including controlling | Use sequence, selection, and repetition in programs; work with variables and various forms of input and output | Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content | Ddesign, write and debug programs that accomplish specific goals, including controlling<br>or simulating physical systems; solve |

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| opportunities they offer for communication and collaboration

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

Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | or simulating physical systems; solve problems by decomposing them into smaller parts

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs | 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, including collecting, analysing, evaluating and presenting data and information

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | problems by decomposing them into smaller parts

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs |
| **Online Safety Focus** | ✓ | ✓ | | | ✓ | |
| **Suggested Trips / Enrichment** | -PCSO visits to discuss elements of online safety
-Enterprise Project | | | | |

# LONG TERM OVERVIEW FOR COMPUTING

| Year 5 | Autumn Term | | Spring Term | | Summer Term | |
|---|---|---|---|---|---|---|
| **Topic** | **OFF WITH THEIR HEADS!** | | **EXPELLIARMUS!** | | **THE HOUSE OF WISDOM** | |
| **Term** | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| **Unit** | **Sharing information** | **Video Editing** | **Selection in physical computing** | **Flat-file databases** | **Vector drawing** | **Selection in quizzes** |
| **Computing Strand** | NW<br>ET | CM<br>DD | PG<br>CS | DI<br>ET | ET<br>CM | AL<br>PG |
| **Knowledge** | To explain that computers can be connected together to form systems<br><br>To recognise the role of computer systems in our lives<br><br>To recognise how information is transferred over the internet<br><br>To explain how sharing information online lets people in different places work together<br><br>To contribute to a shared project online<br><br>To evaluate different ways of working together online | To explain what makes a video effective<br><br>To identify digital devices that can record video<br><br>To capture video using a range of techniques<br><br>To create a storyboard<br><br>To identify that video can be improved through reshooting and editing<br><br>To consider the impact of the choices made when making and sharing a video | To control a simple circuit connected to a computer<br><br>To write a program that includes count-controlled loops<br><br>To explain that a loop can stop when a condition is met<br><br>To explain that a loop can be used to repeatedly check whether a condition has been met<br><br>To design a physical project that includes selection<br><br>To create a program that controls a physical computing project | To use a form to record information<br><br>To compare paper and computer-based databases<br><br>To outline how grouping and then sorting data allows us to answer questions<br><br>To explain that tools can be used to select specific data<br><br>To explain that computer programs can be used to compare data visually<br><br>To apply my knowledge of a database to ask and answer real-world questions | To identify that drawing tools can be used to produce different outcomes<br><br>To create a vector drawing by combining shapes<br><br>To use tools to achieve a desired effect<br><br>To recognise that vector drawings consist of layers<br><br>To group objects to make them easier to work with<br><br>To evaluate my vector drawing | To explain how selection is used in computer programs<br><br>To relate that a conditional statement connects a condition to an outcome<br><br>To explain how selection directs the flow of a program<br><br>To design a program which uses selection<br><br>To create a program which uses selection<br><br>To evaluate my program |
| **National Curriculum Strand** | Design, write and debug programs that accomplish specific goals, including controlling | Use search technologies effectively, appreciate how results are selected and ranked, and be | Design, write and debug programs that accomplish specific goals, including controlling | Use search technologies effectively, appreciate how results are selected and ranked, and be | Select, use and combine a variety of software (including internet services) on a range of digital devices to design | Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve |

# LONG TERM OVERVIEW FOR COMPUTING

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| | or simulating physical systems; solve problems by decomposing them into smaller parts<br><br>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>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<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information<br><br>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | discerning in evaluating digital content<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information<br><br>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | or simulating physical systems; solve problems by decomposing them into smaller parts<br><br>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information | discerning in evaluating digital content<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information | and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. | problems by decomposing them into smaller parts<br><br>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information |

# LONG TERM OVERVIEW FOR COMPUTING

**KEY:** **AL – Algorithms, CS – Computing systems, CM – Creating Media, DI – Data & Information, DD – Design & Development, ET – Effective use of tools, NW – Networks, PG – Programming, SS – Safety & Security, IT – Impact of Technology**

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| **Online Safety Focus** | ✓ | ✓ | | | | |
| **Suggested Trips / Enrichment** | -PCSO visits to discuss elements of online safety<br>-Enterprise Project | | | | | |

# LONG TERM OVERVIEW FOR COMPUTING

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| Year 6 | Autumn Term | | Spring Term | | Summer Term | |
|---|---|---|---|---|---|---|
| Topic | VICTORY IS OURS! | | GREAT EXPECTATIONS | | TROY STORY | |
| Term | AUTUMN 1 | AUTUMN 2 | SPRING 1 | SPRING 2 | SUMMER 1 | SUMMER 2 |
| Unit | Internet communication | Webpage creation | Variables in gaming | Introduction to spreadsheets | 3D modelling | Sensing |
| Computing Strand | NW<br>ET | CM<br>DD | PG<br>DD | ET<br>DI | ET<br>CM | PG<br>CS |
| Knowledge National Curriculum Strand | To identify how to use a search engine<br><br>To describe how search engines select results<br><br>To explain how search results are ranked<br><br>To recognise why the order of results is important, and to whom<br><br>To recognise how we communicate using technology<br><br>To evaluate different methods of online communication | To review an existing website and consider its structure<br><br>To plan the features of a web page<br><br>To consider the ownership and use of images (copyright)<br><br>To recognise the need to preview pages<br><br>To outline the need for a navigation path<br><br>To recognise the implications of linking to content owned by other people | To define a 'variable' as something that is changeable<br><br>To explain why a variable is used in a program<br><br>To choose how to improve a game by using variables<br><br>To design a project that builds on a given example<br><br>To use my design to create a project<br><br>To evaluate my project | To identify questions which can be answered using data<br><br>To explain that objects can be described using data<br><br>To explain that formulas can be used to produce calculated data<br><br>To apply formulas to data, including duplicating<br><br>To create a spreadsheet to plan an event<br><br>To choose suitable ways to present data | To use a computer to create and manipulate three-dimensional (3D) digital objects<br><br>To compare working digitally with 2D and 3D graphics<br><br>To construct a digital 3D model of a physical object<br><br>To identify that physical objects can be broken down into a collection of 3D shapes<br><br>To design a digital model by combining 3D objects<br><br>To develop and improve a digital 3D model | To create a program to run on a controllable device<br><br>To explain that selection can control the flow of a program<br><br>To update a variable with a user input<br><br>To use an conditional statement to compare a variable to a value<br><br>To design a project that uses inputs and outputs on a controllable device<br><br>To develop a program to use inputs and outputs on a controllable device |

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| Computing Strand | | | | | | |
|---|---|---|---|---|---|---|
| | Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.<br><br>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<br><br>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information<br><br>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information<br><br>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.<br><br>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information | 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, including collecting, analysing, evaluating and presenting data and information<br><br>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. | Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.<br><br>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output<br><br>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs<br><br>Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information |

# LONG TERM OVERVIEW FOR COMPUTING

| Knowledge | ✓ | ✓ | | | ✓ | |
|---|---|---|---|---|---|---|
| **Suggested Trips / Enrichment** | -PCSO visits to discuss elements of online safety<br>-Enterprise Project | | | | | |