



Progression of Skills and Knowledge in Computing – KS2

Computing Intent:

The technological world is ever-changing and Earlsmead Primary School understands and values the importance of teaching Computing from a young age. Therefore, it is our aim to ensure that the key skills and knowledge needed in Computing are taught, sought and caught, to enable learners to develop in the following three core areas of Computing:

1. **Computer Science.**
2. **Information Technology.**
3. **Digital Literacy.**

Through considered planning and high-quality teaching, we aim to support all pupils in their journey of development. Our teaching objectives are as follows:

- **To embed enthusiasm and curiosity in Computing through engaging and coherently sequenced lessons linked, where possible, to our localised curriculum offer.**
- **To use the Teach Computing Curriculum to support planning across year groups, ensuring that National Curriculum objectives are met in full, and that the progression of skills is clear and sequential.**
- **To ensure staff are supported in offering Computing lessons, providing CDP and specialist support where needed.**
- **To support children to be responsible and safe when using computers.**

| Key Area | EYFS | Year 1 | Year 2 |
|-------------------|--|--|--|
| Units of Learning | <p>Autumn 1 – Computing through continuous provision</p> <p>Autumn 2 – Using a computer</p> <p>Spring 1 – All about instructions</p> <p>Spring 2 – Exploring hardware.</p> <p>Summer 1 – Programming bee bots</p> <p>Summer 2 – Introduction to data</p> | <p>Autumn 1 – Improving mouse skills</p> <p>Autumn 2 – Algorithms unplugged</p> <p>Spring 1 – Rocket to the moon</p> <p>Spring 2 – Programming bee bots</p> <p>Summer 1 – Digital imagery</p> <p>Summer 2 – Introduction to data</p> | <p>Autumn 1 – What is a computer?</p> <p>Autumn 2 – Algorithms and debugging.</p> <p>Spring 1 – Word processing</p> <p>Spring 2 – Introduction to block coding</p> <p>Summer 1 – Stop motion</p> <p>Summer 2 – International space station</p> |



| Online Safety | | | |
|---------------------------------|-------------|--|--|
| Key Area | EYFS | Year 1 | Year 2 |
| Progression of knowledge | N/A | <p>To know that the internet is many devices connected to one another.</p> <p>To know that you should tell a trusted adult if you feel unsafe or worried online.</p> <p>To know that people you do not know on the internet (online) are strangers and are not always who they say they are.</p> <p>To know that to stay safe online it is important to keep personal information safe.</p> <p>To know that 'sharing online means giving something specific to someone else via the internet and 'posting' online means placing information on the internet.</p> | <p>To understand the difference between online and offline.</p> <p>To understand what information I should not post online.</p> <p>To know what the techniques are for creating a strong password.</p> <p>To know that you should ask permission from others before sharing about them online and that they have the right to say 'no.'</p> <p>To understand that not everything I see or read online is true.</p> |



Computer Science

| Key Area | EYFS | Year 1 | Year 2 |
|----------|---|--|--|
| Hardware | <p>Learning how to operate a camera to take photographs of meaningful creations or moments.</p> <p>Learning how to explore and tinker with hardware to develop familiarity and introduce relevant vocabulary.</p> <p>Recognising and identifying familiar letters and numbers on a keyboard. Developing basic mouse skills such as moving and clicking.</p> | <p>Learning how to operate a camera or tablet to take photos and videos.</p> <p>Learning how to explore and tinker with hardware to find out how it works.</p> <p>Recognising that some devices are input devices and others are output devices.</p> <p>Learning where keys are located on the keyboard.</p> | <p>Understanding what a computer is and that it's made up of different components.</p> <p>Recognising that buttons cause effects and that technology follows instructions.</p> <p>Learning how we know that technology is doing what we want it to do via its output.</p> <p>Using greater control when taking photos with cameras, tablets or computers.</p> <p>Developing confidence with the keyboard and the basics of touch typing.</p> |



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| Computational Thinking | <p>Using logical reasoning to understand simple instructions and predict the outcome.</p> | <p>Learning that decomposition means breaking a problem down into smaller parts.</p> <p>Using decomposition to solve unplugged challenges.</p> <p>Using logical reasoning to predict the behaviour of simple programs.</p> <p>Developing the skills associated with sequencing in unplugged activities.</p> <p>Following a basic set of instructions. Assembling instructions into a simple algorithm.</p> | <p>Articulating what decomposition is.</p> <p>Decomposing a game to predict the algorithms used to create it.</p> <p>Learning that there are different levels of abstraction.</p> <p>Explaining what an algorithm is. Following an algorithm.</p> <p>Creating a clear and precise algorithm. Learning that programs execute by following precise instructions.</p> <p>Incorporating loops within algorithms.</p> |
| Programming | <p>Following instructions as part of practical activities and games.</p> <p>Learning to give simple instructions.</p> <p>Experimenting with programming a Bee-bot/Blue- bot and learning how to give simple commands.</p> <p>Learning to debug instructions, with the help of an adult, when things go wrong.</p> | <p>Programming a Floor robot to follow a planned route.</p> <p>Learning to debug instructions when things go wrong.</p> <p>Using programming language to explain how a floor robot works. Learning to debug an algorithm in an unplugged scenario.</p> | <p>Using logical thinking to explore software, predicting, testing and explaining what it does.</p> <p>Using an algorithm to write a basic computer program.</p> <p>Using loop blocks when programming to repeat an instruction more than once.</p> |



Information Technology

| Key Area | EYFS | Year 1 | Year 2 |
|--|---|--|--|
| Using Software | Using a simple online paint tool to create digital art. | <p>Using a basic range of tools within graphic editing software.</p> <p>Taking and editing photographs. Developing control of the mouse through dragging, clicking and resizing of images to create different effects.</p> <p>Developing understanding of different software tools.</p> | <p>Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.</p> <p>Using word processing software to type and reformat text. Using software (and unplugged means) to create story animations.</p> <p>Creating and labelling images.</p> |
| Using Email and Internet Searches | <p>Representing data through sorting and categorising objects in unplugged scenarios.</p> <p>Representing data through physical pictograms.</p> <p>Exploring branch databases through physical games.</p> | <p>Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.</p> <p>Using representations to answer questions about data.</p> <p>Using software to explore and create pictograms and branching databases.</p> | <p>Collecting and inputting data into a spreadsheet.</p> <p>Interpreting data from a spreadsheet.</p> |
| Using Data | <p>Representing data through sorting and categorising objects in unplugged scenarios.</p> <p>Representing data through physical pictograms.</p> <p>Exploring branch databases through physical games.</p> | <p>Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.</p> <p>Using representations to answer questions about data.</p> <p>Using software to explore and create pictograms and branching databases.</p> | <p>Collecting and inputting data into a spreadsheet.</p> <p>Interpreting data from a spreadsheet.</p> |



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| Wider Use of Technology | N/A | <p>Recognising common uses of information technology, including beyond school.</p> <p>Understanding some of the ways we can use the internet.</p> | Learning how computers are used in the wider world. |
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| Digital Literacy | | | |
|-------------------------|--|--|--|
| Key Area | EYFS | Year 1 | Year 2 |
| | <p>Recognising that a range of technology is used for different purposes.</p> <p>Learning to log in and log out.</p> | <p>Logging in and out and saving work on their own account.</p> <p>When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable.</p> <p>Understanding how to interact safely with others online.</p> <p>Recognising how actions on the internet can affect others.</p> <p>Recognising what a digital footprint is and how to be careful about what we post.</p> | <p>Learning how to create a strong password.</p> <p>Understanding how to stay safe when talking to people online and what to do if they see or hear something online that makes them feel upset or uncomfortable Identifying whether information is safe or unsafe to be shared online.</p> <p>Learning to be respectful of others when sharing online and ask for their permission before sharing content.</p> <p>Learning strategies for checking if something they read online is true.</p> |



Computing Systems and Networks

| Key Area | EYFS | Year 1 | Year 2 |
|----------|---|--|--|
| | <p>To be able to understand what a computer keyboard is and recognising some letters and numbers.</p> <p>To know that a mouse can be used to click, drag and create simple drawings.</p> <p>To know that to use a computer you need to log in to it and then log out at the end of your session.</p> <p>To know that different types of technology can be found at home and in school.</p> <p>To know that you can take simple photographs with a camera or iPad.</p> <p>To know that you must hold the camera still and ensure the subject is in the shot to take a photo.</p> | <p>To know that "log in and log out" means to begin and end a connection with a computer.</p> <p>To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.</p> <p>To know that passwords are important for security.</p> <p>To know that when we create something on a computer it can be more easily saved and shared than a paper version.</p> <p>To know some of the simple graphic design features of a piece of online software.</p> | <p>To know the difference between a desktop and laptop computer.</p> <p>To know that people control technology. To know that buttons are a form of input that give a computer an instruction about what to do (output).</p> <p>To know that computers often work together.</p> <p>To know that touch typing is the fastest way to type. To know that I can make text a different style, size and colour.</p> <p>To know that "copy and paste" is a quick way</p> |



Programming

| Key Area | EYFS | Year 1 | Year 2 |
|----------|---|--|---|
| | <p>To know that being able to follow and give simple instructions is important in computing.</p> <p>To understand that it is important for instructions to be in the right order.</p> <p>To understand why a set of instructions may have gone wrong. To know that you can program a Bee-Bot with some simple commands.</p> <p>To understand that debugging means how to fix some simple programming errors.</p> <p>To understand that an algorithm is a set of clear and precise instructions.</p> | <p>To know that being able to follow and give simple instructions is important in computing.</p> <p>To understand that it is important for instructions to be in the right order.</p> <p>To understand why a set of instructions may have gone wrong.</p> <p>To know that you can program a Bee-Bot with some simple commands.</p> <p>To understand that debugging means how to fix some simple programming errors.</p> <p>To understand that an algorithm is a set of clear and precise instructions.</p> | <p>To understand what machine learning is and how that enables computers to make predictions.</p> <p>To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times.</p> <p>To know that abstraction is the removing of unnecessary detail to help solve a problem.</p> <p>To know that coding is writing in a special language so that the computer understands what to do.</p> <p>To understand that the character in ScratchJr is controlled by the programming blocks.</p> <p>To know that you can write a program to create a musical instrument or tell a joke.</p> <p>That programming a computer or device involves giving it instructions to perform specific tasks.</p> <p>That video games, phones, websites and apps are all created using programming. That different devices and programs use different programming languages or 'codes'. That an algorithm becomes a program when it is coded.</p> <p>That programs execute the exact instructions they are given, even if they are incorrect.</p> <p>That a program is a series of instructions (algorithms) that are written for a computer to follow.</p> <p>That a person can program a device by giving it an algorithm/algorithm to follow.</p> <p>That there must be an error if a program does not execute as expected.</p> <p>That an error in a computer program is known as a 'bug' and fixing errors is known as 'debugging'.</p> |



| Creating Media | | |
|----------------|--|---|
| EYFS | Year 1 | Year 2 |
| N/A | <p>To understand that holding the camera still and considering angles and light are important to take good pictures.</p> <p>To know that you can edit, crop and filter photographs.</p> <p>To know how to search safely for images online.</p> | <p>To understand that an animation is made up of a sequence of photographs.</p> <p>To know that small changes in my frames will create a smoother looking animation.</p> <p>To understand what software creates simple animations and some of its features e.g. onion skinning.</p> |

| Data Handling | | |
|---|--|--|
| EYFS | Year 1 | Year 2 |
| <p>To know that sorting objects into various categories can help you locate information.</p> <p>To know that using yes/no questions to find an answer is a branching database.</p> <p>To know that a pictogram is a way of showing information.</p> | <p>To know how that charts and pictograms can be created using a computer.</p> <p>To understand that a branching database is a way of classifying a group of objects.</p> <p>To know that computers understand different types of 'input'.</p> | <p>To understand that you can enter simple data into a spreadsheet.</p> <p>To understand what steps you need to take to create an algorithm.</p> <p>To know what data to use to answer certain questions.</p> <p>To know that computers can be used to monitor supplies.</p> |