

### Computer Science

At the core of the Computing curriculum is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. There is more to computer science than programming, though. It incorporates techniques and methods for solving problems and advancing knowledge, and includes a distinct way of thinking and working that sets it apart from other disciplines. Every core principle can be taught or illustrated without relying on the use of a specific technology.



# **Cranmere Primary School**

## Computing 2018-2019



### Digital Literacy

Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.



### Information Technology



Information technology deals with applying computer systems to solve real-world problems. This includes the areas

of finding things out, exchanging and sharing information, and reviewing, modifying and evaluating work, remain as important now, for a broad and balanced technological education, as they ever were.

Computers are now part of everyday life. For most of us, technology is essential to our lives, at home and at work. 'Computational thinking' is a skill children must be taught if they are to be ready for the workplace and able to participate effectively in this digital world.

Our Computing curriculum has been developed to equip the children in our school with the foundational skills, knowledge and understanding of computing they will need for the rest of their lives. Through the programme of study for computing, they will learn how computers and computer systems work, design and build programs, develop their ideas using technology and create a range of content using a range of devices, apps and programs.

### Online Safety

Our school aims to:

- Have robust processes in place to ensure the online safety of pupils, staff, volunteers and governors.
- Deliver an effective approach to online safety, which empowers us to protect and educate the whole school community in its use of technology.
- Establish clear mechanisms to identify, intervene and escalate an incident, where appropriate.



|           | Autumn Term  | Spring Term  | Summer Term  |
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| Nursery   | Seeks to acquire basic skills in turning on and operating some ICT equipment.<br>Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car.   | Knows how to operate simple equipment, e.g. turns on CD player and uses remote control. Shows an interest in technological toys with knobs or pulleys, or real objects such as cameras or mobile phones.<br>Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.  | Knows that information can be retrieved from computers<br><br>Begins to explore simple controllable and programmable toys Completes a simple program on a computer.<br>Uses ICT hardware to interact with age-appropriate computer software.   |
| Reception | <p>ELG 04 Moving and handling: children show good control and co-ordination in large and small movements.</p> <p>ELG 02 Understanding: children follow instructions involving several ideas or actions.<br/>They answer 'how' and 'why' questions about their experiences and in response to stories or events.</p> <p>ELG 06 Self-confidence and self-awareness: children are confident to try new activities, and say why they like some activities more than others.<br/>They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities.<br/>They say when they do or don't need help.</p>   | <p>ELG 06 Self-confidence and self-awareness: children are confident to try new activities, and say why they like some activities more than others. They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities. They say when they do or don't need help.</p> <p>ELG 02 Understanding: children follow instructions involving several ideas or actions.<br/>They answer 'how' and 'why' questions about their experiences and in response to stories or events.</p> | <p>ELG 16 Exploring and using media and materials: children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>ELG 17 Being imaginative: children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role-play and stories.</p> <p><b><u>Technology Early Learning Goal</u></b><br/><b>Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</b></p> |
|           | <p>The Computing areas of the ELG are supported through continuous provision of activities involving and/using technology throughout the learning taking place that relates to the current topic. Elements of the Continuous provision provided in each term enable the children to develop an understanding of the role technology plays in our everyday lives. Examples of this continuous provision include: Remote cars and Bee-Bots; Role Play resources (telephones, keyboards, kitchen equipment, tills); Battery operated and push button toys; Digital microscope; Easy-listening headphones; torches; daily weather recording; recording buttons (for example when re-telling stories or events and writing about them).</p> |  |  |

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| Year 1 | <p>I can use a program to create a simple document</p> <p>I can explain that an algorithm is a step by step set of instructions</p> <p>I know to tell an adult if I see anything worrying online</p> <p>I can recognise how I use technology in my home and at school.</p>  | <p>I can predict the behaviour of a programmed toy</p> <p>I can explain that an algorithm is a step by step set of instructions</p> <p>I know to tell an adult if I see anything worrying online</p> <p>I can recognise how I use technology in my home and at school.</p>   | <p>I can use a program to create a simple document</p> <p>I know to tell an adult if I see anything worrying online</p> <p>I can recognise how I use technology in my home and at school.</p>   |
| Year 2 | <p>I can find, open, edit and save files I am working on</p> <p>I can use different software programs and discuss the benefits of their usage</p> <p>I can recognise how others use technology outside of school.</p> <p>I know I need to keep my personal information private</p>  | <p>I can predict the behaviour of a programmed toy, clearly relating each action to part of an algorithm</p> <p>I can create a simple program to perform a task</p> <p>I can create and debug simple programs</p> <p>I can find and fix simple bugs in programs</p> <p>I can understand that programs run by following clear instructions</p>                                      | <p>I can find, open, edit and save files I am working on</p> <p>I can use different software programs and discuss the benefits of their usage</p> <p>I can recognise how others use technology outside of school.</p>   |
| Year 3 | <p>I can produce a simple program that completes a given task</p> <p>I can explain how simple algorithms solve a given problem</p> <p>I can make choices on which program is best for a given task</p> <p>I can recognise acceptable and unacceptable behaviour online</p> <p>I know I need to keep my password and personal information secure</p> | <p>I can make choices on which program is best for a given task</p> <p>I understand that computer networks allow data to be transferred and shared</p> <p>I understand that the internet is a large network that enables computers to share information</p> <p>I can use a search engine to find web pages</p> <p>I understand that not all websites are as reliable as others</p> | <p>I can make choices on which program is best for a given task</p> <p>I know what input and output devices are and how they are used</p> <p>I can use a range of input and output devices efficiently</p> <p>I can use a search engine to find web pages</p> <p>I understand that not all websites are as reliable as others</p> |

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| Year 4 | <p>I can use different software programs to complete a task</p> <p>I understand how search engines order their search results</p> <p>I understand that some computers on a network serve particular functions, such as controlling printers or sharing files</p>  | <p>I can use more complicated input devices</p> <p>I can use different software programs to complete a task</p> <p>I can break programs up into smaller parts</p> <p>I can use logical thinking to identify and solve potential bugs during coding</p> <p>I can use other programs as I code</p>  | <p>I can use more complicated input devices</p> <p>I can use different software programs to complete a task</p> <p>I understand that what I say or post on the internet might be copied, shared and stored by others</p> <p>I know that to do if I see anything worrying online</p>   |
| Year 5 | <p>I can select appropriate software to use for a given task</p> <p>I can confidently use a range of software tools</p> <p>I understand how to choose online content for my age group</p>   | <p>I can write increasingly complex programs</p> <p>I can control external hardware from within my programs</p> <p>I can use loops to repeat tasks within a program</p> <p>I can explain how increasingly complex algorithms solve a given problem</p>  | <p>I can use more advanced features when searching online</p> <p>I can use a range of search tools to find exactly what I'm looking for</p> <p>I understand how to choose online content for my age group</p> <p>I can use the internet to allow me to share data with another person</p>   |
| Year 6 | <p>I can recognise trustworthy sources of information on the internet</p> <p>I can use a broad range of resources online to find exactly what I'm looking for</p> <p>I understand how to protect my computer or device from harm on the internet.</p> <p>I understand how to report concerns about content and contact in and out of school</p> | <p>I can combine software and hardware to solve real life problems</p> <p>I can break code up into related instructions, making debugging easier and quicker</p> <p>I can store and retrieve variables in a program</p> <p>I can use loops, variables and IF statements to alter the way my programs run</p> <p>I can use logical thinking to identify and solve potential bugs during coding</p> | <p>I can use more than one piece of software to complete a task</p> <p>I can design a program for a given audience</p> <p>I can use software to help me analyse and present data and information</p> <p>I can use and combine services on the internet to share information</p> <p>I understand how computers are able to communicate and share information</p> |