

# Bitterne C of E Primary School



## Policy for Computing

At Bitterne CE Primary School, we believe that computing is an integral part of preparing children to live in a world where technology is rapidly changing and evolving, where children are going to be expected to interact with technology that hasn't even been invented yet. Due to this, we will inspire every child to develop curiosity and fascination in technology and computing which will remain with them for the rest of their lives. Through high quality lessons, we will encourage children to ask questions about computing and relevant technology in an enquiry-based approach, leading to a high-level of achievement in Computing and preparing them well to contribute to the wider society in which they live.

Headteacher

Andy Peterson

<b>Reviewed by</b>	Leadership Team and Full Governing Board	<b>Authorised by</b>	Leadership Team
<b>Last Review</b>	November 2020	<b>Date</b>	20 <sup>th</sup> April 2020
<b>Next Review</b>	November 2022	<b>Review Cycle</b>	Annually

Signed for Governors: Amanda Humby, Chair of Governors

## **The Nature of Computing at Primary School.**

'A high-quality computing education equips pupils to understand and change the world through logical thinking and creativity, including making links with mathematics, science and design and technology.

The core of computing is computer science, in which pupils are taught the principles of information and computation, and how digital systems work. Computing equips pupils to use information technology to create programs, systems and a range of media. It 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.' NC 2014 page 188

## **The Nature of Computing at Bitterne CE Primary**

At Bitterne CE Primary School, we facilitate the children's enquiry of Computing through the school's Christian values of Love, Trust and Forgiveness. We believe that Computing has the potential to teach the children how to be citizens of the world. Through love, the children will develop an awe and wonder of technology present all around them and a fascination about the interaction between humans and the technology they create. In trust, the children will learn about how we all have a obligation in using technology responsibly with a high regard for E-safety and how this applies to their everyday lives. Through forgiveness, the children learn about how communicate with others and use technology alongside one-another and the impact their actions can have on those around them, and how through their own choices can learn from the mistakes of the past to contribute to a safer community.

Throughout their time at Bitterne CE Primary, all children will have the opportunity to foster their love and enjoyment of Computing. Trips, visits and special visitors have been carefully selected to develop experiences that the children will remember for the rest of their lives, which in turn will underpin their love of Computing.

## **The Computing Curriculum**

The National Curriculum sets out the programmes of study for each year group. However, within each key stage, there is flexibility to introduce content earlier or later as appropriate. The school can also introduce key stage content earlier than the current key stage. It is also expected that children will use a variety of information and communication technologies across the curriculum and will develop basic skills for word processing, spread sheets, data bases, presentation software etc. in order that they can apply these skills in a confident and creative way.

The national curriculum for computing aims to ensure that all pupils:

- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- Can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- Can evaluate and apply information technology, including new and unfamiliar technologies, analytically to solve problems.
- Are responsible, competent, confident and creative users of information and communication technology.

By the end of the Computing Learning Journey all pupils should be fluent in the use of different technologies and programmes and be able to creatively apply the skills they have learnt to solve problems and use unfamiliar technologies.

## **Planning for computing**

The **planning for computing** should follow the National Curriculum programmes of study. The scheme of work for computing from KS1 and KS2 should be followed.

The planning for computing should follow the agreed format across the school. It should outline the 'Learning Journey' over a unit with a clear expected outcome. The learning will be progressive and ensure the children are taught the skills, knowledge and understanding needed over the unit so that by the end of the unit good progress is evident.

**The planning should not be over detailed or bureaucratic.** The teacher must keep in mind that the planning is a working document that will change as the unit progresses as a result of assessment for learning. By the end of a unit, the planning will have annotations on it where barriers for individuals, groups or the whole class have been identified and addressed.

The Computing Leader will monitor that the planning follows the agreed format but will not expect the audience for the planning to be anyone other than the teacher themselves. SLT and the Computing Leader will however be looking at the **impact of planning on the learning** in a lesson or over time in the books. It may be that in lesson observations, the planning is not studied in detail as it is the learning in the class at the time as a result of the planning that will be judged.

All planning should dedicate appropriate time to children **working on computing for a sustained period of time** for both teacher structured work and independent work. The productivity of the children over time is a key element of work scrutiny. It generally follows that good teaching with high expectations results in at least good productivity and therefore greater evidence of progress. Over a unit of work there should be a good variety of learning activities to interest and engage students.

A clear focus on using and applying learning tasks should be evident in the planning and children should talk enthusiastically about their learning.

Children should have planned opportunities to say and/or write explanations or share their reasoning.

The work books should show examples of where children have written explanations, described planning or reflected on their learning. The quality of the writing should be at least equal to that in other subjects.

Learning Intentions and success criteria are an important tool, when used effectively, to ensure the thread of learning is clear to the children. It also helps them to know what their next step in the lesson is. In computing it is sometimes useful to have process success criteria (Steps to success) as well as outcome success criteria. It is motivating for children to create their own process success criteria after the process has been modelled to them. On occasions, it may be that the teacher will deliberately not reveal the learning intentions at the start of a lesson and the pupils will be challenged to articulate what they have learnt later in the lesson.

**Problem solving** should be integrated into all unit planning to accomplish specific goals. The children should have opportunities to think hard and draw on previous knowledge.

**Guided groups-** Within the computing lesson, there should be opportunities for the teacher or TA to work with a small group in order to support the learning or provide challenge. These groups can be planned based on the assessment information from the previous day, or they can be groups formed during a lesson where the teacher judges that a focus group would move the children's learning on. At all times, the groups for computing will be flexible depending on what the children need. Teaching Assistants should work with a variety of ability groupings over time.

### **Practical and visual activities and resources**

Carefully chosen practical resources and activities aid conceptual understanding and make learning more interesting.

Regardless of ability or age, all children should have access to practical and visual resources appropriate to their understanding. Many resources for computing will be web based. However such resources should be used with caution as some websites are task rather than learning based. Indeed some online resources are the equivalent of a worksheet but digitally. Resources that promote creativity and independence in solving a problem are preferred.

### **Progression for computing**

Please refer to the overview for Computing in Appendix 1.

### **Coaching and computing**

Every teacher and teaching assistant has access to high quality coaching for Computing. This can be planned or informal. The basic skills for IT such a word processing, data bases, spread sheets etc. should be used across the curriculum and staff training will be given to ensure all staff can use these applications to an appropriate standard.

## **Inclusion in Computing**

**Disadvantaged / SEND** – It should be clear in planning that these groups of children have been catered for during each lesson and if /when/where they made need extra support with tasks. Planning should show how teachers are trying to close the gap where possible. Within the lessons there should be opportunities for everyone to access the same activities, they may however be differentiated where it is needed. Every child must have equal opportunity to access and succeed. This may require individualised support or resources in order for progress in computing to be of a consistently good standard for all children. In provisions such as Woodlands/Shooting Stars children will be able to access elements of the computing curriculum relevant to their attainment.

Research has proven that children are stimulated by the outdoors, and typically in this environment, memories are created that build on the children's self-esteem and enthusiasm for learning. For children in the Woodlands group, the curriculum has been specially designed to teach the children about Computing in a different environment. Targeting statements at a Lower Key Stage 2 level, children will receive lessons that are carefully designed to build understanding in Computing and develop their emotional wellbeing.

For children in the Shooting Stars group, the curriculum overview provides opportunities for children to develop their knowledge of Computing at a level appropriate to their development. Teachers liaise with the Shooting Stars Lead to ensure learning can be reinforced back in the classroom.

### **Greater Depth**

It should be clear in planning that this group of children has been catered for during each lesson and if /when/where they made need extra support to help them to achieve the higher standard. Planning should show how teachers are trying to challenge this group of children where possible. Within the lessons there should be opportunities for everyone to access the same activities, they may however be differentiated where it is needed. This may be more opportunities for these children to reflect on the work they have done and evaluate it with a chance to edit and improve their work.

### **Computing in Early Year Foundation Stage**

Children typically learn through a mix of free-choice play and more focused activities with adults both inside and outside. The provision will be IT rich and tailored to the needs of different groups of children, including challenge for those higher attaining children and support for the lower attaining children. Adults will use language related to Computing and question effectively to develop the children's vocabulary and thinking. A focus on the basic skills to operate a computer form the foundation for Computing in KS1.

## **Computing across the curriculum**

**Expectation- Children will be able to demonstrate the independent application of taught computing skills across the entire curriculum.**

Children will have opportunities for Computing activities linked to other subjects in the curriculum but particularly so in mathematics, science, English and design and technology

### **Links to Personal Development**

**Spiritual development:** Through helping children to recognise modern and technologically advanced world around them, this awareness helps children understand their place within it. Computing provides opportunities for children to learn about aspects of the world they otherwise may not have been able to access.

**Moral development:** Through helping children to reflect on how the world around them can be affected by choices made online, they can make informed choices in the future. Through discussion, the children learn to appreciate the moral dilemmas that can be posed through their use of different technologies and in particular social media. Introducing these dilemmas to them helps them to understand the effects their choices can have.

**Social development:** Through helping children to understand the need to consider the views of others when discussing their use of technology and the different experiences and exposure people have had to it, it allows children to consider other people's opinions and experiences.

**Cultural development:** Through the use of technology children can research and learn about the different cultures around them giving them a more rounded and balanced view of the world they live in.

### **Links to reading**

Please refer to the Policy for Reading. Children should experience a wide range of reading and this includes as part of their computing lessons. This may be reading and understanding problems or reading and interpreting data.

### **Links to writing**

Children should be introduced to key computing vocabulary in a progressive way across the school. The vocabulary should be modelled precisely by all staff and children should be expected to accurately use the vocabulary when speaking and in their written work.

There should be examples of written work printed in computing where the children are explaining their thinking, reasoning or justifying their results. The writing should follow the non-negotiables for writing and should be of the same standard as the writing in English books.

### **Links to maths**

Children in KS2 should begin to be able to use computing lessons as a way to access statistics or create their own charts/graphs. This should be modelled by staff to demonstrate how to use this software accurately. The graphs created can be used in maths lessons / topic lessons to show understanding.

### **Links to speaking and Listening and spoken language.**

All adults model and develop children's speaking and listening by talking to children, asking questions, modelling new vocabulary and helping children to express their ideas orally.

There should be planned opportunities to develop skills in speaking and listening and this should be linked in computing lessons. All adults in school should be good role models for the correct use of the correct use of computing vocabulary showing that they understand the meaning of the word (See Appendix 2)

### **Links to the wider curriculum**

Children across KS1 and KS2 will be able to participate in engaging and relevant activities to their stage of development in the Computing Curriculum as well as any relevant curriculum topics. This may include participating in school trips, role play, having visitors in school or other activities relating to the topic they are studying. This will not only enhance their learning of computing but also support their personal and social development in becoming an effective citizen.

### **Practical and visual activities and resources**

Carefully chosen practical resources and activities aid conceptual understanding and make learning more interesting.

Regardless of ability or age, all children should have access to practical and visual resources appropriate to their understanding. Many resources for computing will be web based. However, such resources should be used with caution as some websites are task rather than learning based. Indeed, some online resources are the equivalent of a worksheet but digitally. Resources that promote creativity and independence in solving a problem are preferred.

## **Assessment of Computing**

### **Marking and feedback**

The computing work should always be marked in accordance with the 'Marking and Feedback Policy'. There should be a tick, tip and time given for talkback activities to respond to the marking. The tip should be the next step to improve the maths work. During sustained periods of working, the adults should be pen marking the work already done and giving advice on how to improve further in the lesson (where the work is paper based). During the lesson, teachers should be questioning to check or probe the child's understanding, identifying and tackling misconceptions and adapting planning for individuals, groups or the class accordingly.

### **Assessment in Computing**

In EYFS, KS1 and KS2 the teacher should be assessing throughout the lesson. This would involve listening to any discussion, responses to questions or problems orally or in writing. Computing will be included in the annual report to parents where strengths and next steps will be identified. Each teacher should keep assessment overview for each computing unit to record how well each child is doing. This would be a class list with the unit success criteria and a not made as to whether each child's achievement is working towards, expected or exceeding in their year group.

### **Pupil views on Computing**

The pupils will be asked regularly - what makes their learning in computing so successful. This can be done orally or through a written survey. The Computing Leader will analyse and report to staff and governors on the children's perception of their learning in computing lessons. This information will support the termly RAP.

## **Leadership of Computing**

[Please see the Curriculum Leadership Overview for full details of the Subject Leader's role and how this relates to the wider Leadership structure].

The Computing subject leader should:

- Clearly communicate an ambitious vision for Computing, providing inclusive education to all pupils
- Complete a current subject Raising Attainment Plan (RAP) securely based on accurate evaluation of the school's strengths and areas to develop.
- Ensure full curriculum coverage in every year group. Within this, the subject lead should ensure skills progress from year group to year group and topic to topic.
- Be relentless in ensuring that the Computing in the school follows this policy, which will result in greater consistency in the teaching and learning for geography.
- Monitor the Behaviour and Attitudes of children within Computing and review where provision could be adapted to encourage enjoyment and engagement within the subject.
- Undertake regular monitoring activities for Computing (undertake learning walks, pupil conference, data analysis, work sample, planning scrutiny etc).
- Proactively seek opportunities to develop the Computing curriculum within the local community of the school, including involving parents, carers and local services where relevant.

This policy will be reviewed every 2 years or sooner as appropriate.

# Appendix 1: 2019-2020 Computing Overview

	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	<p>Early Learning Goals 40-60 months</p> <p>Completes a simple program on a computer.</p> <p>Interacts with age-appropriate computer software.</p>	<p><b>*E-safety</b> to be taught alongside each unit <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a> g/ digitalcitizenship/ index.htm</p> <p><b>General Computing skills</b> (Switch computers on and off, logging on and off)</p> <p><b>Create, organise, store, manipulate and retrieve data</b> - 2simple+ linked to current topic.</p>	<p><b>*E-safety</b> to be taught alongside each unit <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a> g/ digitalcitizenship/ index.htm</p> <p><b>General Computing skills</b> (Switch computers on and off, logging on and off, saving, editing etc.)</p> <p><b>Word Processing Skills</b> - <b>Create, store, manipulate and</b></p>	<p><b>*E-safety</b> to be taught alongside each unit <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a> digitalcitizenship/ index.htm</p> <p><b>General Computing skills</b> - Web Research (Link to topic)</p> <p><b>Word processing skills</b> - Producing a document relevant to the web research completed.</p>	<p><b>*E-safety</b> to be taught alongside each unit <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a> digitalcitizenship/ index.htm</p> <p><b>General Computing skills</b></p> <p><b>Word processing skills</b> -Microsoft Word (Extension from Year 3 unit)</p>	<p><b>*E-safety</b> to be taught alongside each unit <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a> digitalcitizenship/ index.htm</p> <p><b>Spread sheets</b> Design spreadsheet to collect data (Linked to current topic) (Microsoft Excel)</p> <p><b>Publishing/ Presentation</b> - Use Microsoft Word/ PowerPoint to present findings from Spread sheet work.</p>	<p><b>*E-safety</b> to be taught alongside each unit <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a> digitalcitizenship/ index.htm</p> <p><b>Scratch</b> Making a sandwich (unplugged) - <a href="http://code-it.co.uk/resources/sandwich_algorithm.pdf">http://code-it.co.uk/resources/sandwich_algorithm.pdf</a></p> <p>Smoking Car (plugged) <a href="http://www.code-it.co.uk/scratch/smoking_car/">http://www.code-it.co.uk/scratch/smoking_car/</a> smokingcaroverview.html</p>



			retrieve data - Microsoft Word (adapted to suit KS1) (Linked to current topic)				
Spring	<p>Early Learning Goals 40-60 months</p> <p>Completes a simple program on a computer.</p> <p>Interacts with age-appropriate computer software</p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">digitalcitizenship/index.htm</a></p> <p><b>Understand use of algorithms (unplugged) - Getting dressed for school</b></p> <p><b>Write, test and debug simple programs; Use logical reasoning to make predictions- Beebots</b></p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">digitalcitizenship/index.htm</a></p> <p><b>Understand use of algorithms (unplugged) - Human Crane</b>  <a href="http://www.code-it.co.uk/csplanning.html">http://www.code-it.co.uk/csplanning.html</a></p> <p><b>Write, test and debug simple programs; Use logical reasoning to make predictions- Roamers</b></p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">digitalcitizenship/index.htm</a></p> <p><b>Publishing - publishing a comic strip using an online publisher</b></p> <p><b>Presentation Media (PowerPoint) Linked to topic.</b></p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">digitalcitizenship/index.htm</a></p> <p><b>Presentation Media (Design cross curricular PowerPoint presentation for a purpose)</b></p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">digitalcitizenship/index.htm</a></p> <p><b>Logo - Introduction to Logo and basic movement controls. Use <a href="http://www.transum.org/software/Logo/">http://www.transum.org/software/Logo/</a> to create shapes. Links with Numeracy.</b></p> <p><b>Algorithms (unplugged) - Create a 'Butler Bot' .Children to design a robot to help them at home. They should think</b></p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/">http://code-it.co.uk/dlplanning/</a>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">digitalcitizenship/index.htm</a></p> <p><b>PowerPoint - Create a set of instructional slides showing how scratch works. Children should use screen shots and examples of their own projects to demonstrate what they have learnt.</b></p> <p><b>Web Research - Linked to current topic</b></p>

						of the tasks they want to robot to do and they will need to create algorithms for these jobs to be completed. Children can test algorithms on their peers to debug.	
Summer	<p>Early Learning Goals 40-60 months</p> <p>Completes a simple program on a computer.</p> <p>Interacts with age-appropriate computer</p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/g/digitalcitizenship/index.htm">http://code-it.co.uk/dlplanning/g/digitalcitizenship/index.htm</a></p> <p><b>Recognise uses of IT outside school</b> - How a supermarket works  <a href="http://www.code-it.co.uk/csplanning.html">http://www.code-it.co.uk/csplanning.html</a></p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/g/digitalcitizenship/index.htm">http://code-it.co.uk/dlplanning/g/digitalcitizenship/index.htm</a></p> <p><b>Recognise uses of IT outside school (unplugged)</b> (Link to current topic)</p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm</a></p> <p><b>Scratch</b></p> <p>Smoking Car (plugged)  <a href="http://www.code-it.co.uk/scratch/smoking_car/smokingcaroverview.html">http://www.code-it.co.uk/scratch/smoking_car/smokingcaroverview.html</a></p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm</a></p> <p><b>Web Research</b></p> <p><b>Scratch</b>  Conversation/ Animation -  <a href="http://www.code-it.co.uk/scratch/scratchconversation.html">http://www.code-it.co.uk/scratch/scratchconversation.html</a></p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm</a></p> <p><b>Web Research</b></p> <p><b>Introduction to Kodu</b>  Simple game design using Scratch programming principles.</p>	<p><b>*E-safety to be taught alongside each unit</b>  <a href="http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm">http://code-it.co.uk/dlplanning/digitalcitizenship/index.htm</a></p> <p><b>End of year project</b> - Design and create a Year book using children's choice of software. (e.g. word, PowerPoint, publisher etc )</p>

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Appendix 2: Vocabulary Word Bank

Hardware	Delete	Software	Programming
Computer	Copy	Network	Input
Laptop	Paste	Internet	Repetition
Keyboard	Click	Browser	Debug
Mouse	Save	IP Address	Algorithm
Monitor	Home	ISP - Internet Service Provider	Output
Tablet	Enter	LAN - Local Area Network	Sequence
Cursor	Insert	Wireless	Program
Shift	Process	Search	Cause / Effect
Alt	Download		Sequence
Space Bar	Selection		Simulate
Ctrl (Control)			Variable