



Bentham Community
Primary School

Computing at Bentham CP School

Our Computing Curriculum Aims:

At Bentham Primary School, we want to equip our children with the essential skills required for them to live and participate in a rapidly-changing digital world. Key learning in programming, handling data, multimedia and technology in our lives will ensure our children are not only digitally literate but that they also have the skills to explore, analyse, design and evaluate information. As well as children learning about the benefits of technology, they must also be aware of the risks. This is why we prepare our children to stay safe online through the explicit teaching of e-safety both in our Computing and PSHE curriculum.

Our Curriculum Drivers:



Our place in our world



Our Voice



Ourselves



Our Ambitions

Characteristics of a Computer Technologist:

- Competence in coding for a variety of practical and inventive purposes, including the application of ideas within other subjects.
- The ability to connect with others safely and respectfully, understanding the need to act within the law and with moral and ethical integrity.
- An understanding of the connected nature of devices.
- The ability to communicate ideas well by using applications and devices throughout the curriculum.
- The ability to collect, organise and manipulate data effectively.

Computing and our Locality

We have the following opportunities available to us to enhance our Computing curriculum:

- Children observe Safer Internet Day each year. Children have the opportunity to take part in linked activities and share this learning and safe practice with their family.
- Links with Local High Schools.
- Computer technology shop 'White Knight' in Bentham.

Implementation

Our children should be able to organise their knowledge, skills and understanding around the following key learning concepts:



To code

To connect

To communicate

To collect

To stay safe

This key learning concept underpins learning in each milestone. This enables children to reinforce and build upon prior learning, make connections and develop subject specific language.

The vertical accumulation of knowledge and skills from Years 1 to 6 is mapped as follows:

Key Learning Concept	Milestone 1 Years 1 and 2	Milestone 2 Years 3 and 4	Milestone 3 Years 5 and 6
To Code (programming)	<ul style="list-style-type: none"> • give instructions to my friend and follow their instructions to move around. • describe what happens when I press buttons on a robot. • press the buttons in the correct order to make my robot do what I want. • describe what actions I will need to do to make something happen and begin to use the word algorithm. • begin to predict what will happen for a short sequence of instructions. • begin to use software/apps to create movement and patterns on a screen. • use the word debug when I correct mistakes when I program. • tell you the order I need to do things to make something happen and talk about this as an algorithm. • program a robot or software to do a particular task. • look at my friend’s program and tell you what will happen. • use programming software to make objects move. • watch a program execute and spot where it goes wrong so that debug it. 	<ul style="list-style-type: none"> • break an open-ended problem up into smaller parts. • put programming commands into a sequence to achieve a specific outcome. • keep testing my program and can recognise when I need to debug it. • use repeat commands. • describe the algorithm I will need for a simple task. • detect a problem in an algorithm which could result in unsuccessful programming. • use an efficient procedure to simplify a program. • use a sensor to detect a change which can select an action within my program. • use a variety of tools to create a program. • recognise an error in a program and debug it. • recognise that an algorithm will help me to sequence more complex programs. • recognise that using algorithms will also help solve problems in other learning such as Maths, Science and Design and Technology. 	<ul style="list-style-type: none"> • decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program. • refine a procedure using repeat commands to improve a program. • use a variable to increase programming possibilities. • change an input to a program to achieve a different output. • use ‘if’ and ‘then’ commands to select an action. • talk about how a computer model can provide information about a physical system. • use logical reasoning to detect and debug mistakes in a program. • use logical thinking, imagination and creativity • to extend a program. • deconstruct a problem into smaller steps, recognising similarities to solutions used before. • explain and program each of the steps in my algorithm. • evaluate the effectiveness and efficiency of my algorithm while I continually test the programming of that algorithm. • recognise when I need to use a variable to achieve a required output. • use a variable and operators to stop a program. • use different inputs (including sensors) to control a device or onscreen action and predict what will happen. use logical reasoning to detect and correct errors in algorithms and programs.
To Connect (technology in our lives)	<ul style="list-style-type: none"> • recognise the ways we use technology in our classroom. • recognise ways that technology is used in my home and community. • use links to websites to find information. • begin to identify some of the benefits of using technology. 	<ul style="list-style-type: none"> • save and retrieve work on the Internet, the school network or my own device. • talk about the parts of a computer. • tell you ways to communicate with others online. • describe the World Wide Web as the part of the Internet that contains websites. 	<ul style="list-style-type: none"> • describe different parts of the Internet. • use different online communication tools for different purposes. • use a search engine to find appropriate information and check its reliability. • recognise and evaluate different types of information I find on the World Wide Web.

	<p>.....</p> <ul style="list-style-type: none"> • tell you why I use technology in the classroom. • tell you why I use technology in my home and community. • starting to understand that other people have created the information I use. • identify benefits of using technology including finding information, creating and communicating. talk about the differences between the Internet and things in the physical world. 	<ul style="list-style-type: none"> • use search tools to find and use an appropriate website. <p>think about whether to use images that I find online in my own work.</p> <p>.....</p> <ul style="list-style-type: none"> • tell you whether a resource I am using is on the Internet, the school network or my own device. • identify key words to use when searching safely on the World Wide Web. • think about the reliability of information I read on the World Wide Web. • tell you how to check who owns photos, text and clipart. • create a hyperlink to a resource on the World Wide Web. • recognise that websites use different methods to advertise products. 	<ul style="list-style-type: none"> • describe the different parts of a webpage. • find out who the information on a webpage belongs to. • know which resources on the Internet download and use. <p>describe the ways in which websites advertise their products to me.</p> <p>.....</p> <ul style="list-style-type: none"> • tell you the Internet services I need to use for different purposes. <ul style="list-style-type: none"> • describe how information is transported on the Internet. • select an appropriate tool to communicate and collaborate online. • talk about the way search results are selected and ranked. • check the reliability of a website. • tell you about copyright and acknowledge the sources of information that I find online. • I know that websites can use my data to make money and target their advertising.
<p>To Communicate (multimedia)</p>	<ul style="list-style-type: none"> • be creative with different technology tools. • use technology to create and present my ideas. • use the keyboard or a word bank on my device to enter text. • save information in a special place and retrieve it again. <p>.....</p> <p>use technology to organise and present my ideas in different ways.</p> <ul style="list-style-type: none"> • use the keyboard on my device to add, delete and space text for others to read. • tell you about an online tool that will help me to share my ideas with other people. • save and open files on the device I use. 	<ul style="list-style-type: none"> • create different effects with different technology tools. • combine a mixture of text, graphics and sound to share my ideas and learning. • use appropriate keyboard commands to amend text on my device, including making use of a spellchecker. • evaluate my work and improve its effectiveness. <p>use an appropriate tool to share my work online.</p> <p>.....</p> <p>use photos, video and sound to create an atmosphere when presenting to different audiences.</p>	<ul style="list-style-type: none"> • use text, photo, sound and video editing tools to refine my work. • use the skills I have already developed to create content using unfamiliar technology. • select, use and combine the appropriate technology tools to create effects that will have an impact on others. • select an appropriate online or offline tool to create and share ideas. • review and improve my own work and support others to improve their work. <p>.....</p> <p>talk about audience, atmosphere and structure when planning a particular outcome.</p> <ul style="list-style-type: none"> • confidently identify the potential of unfamiliar

		<ul style="list-style-type: none"> • be confident to explore new media to extend what I achieve. • change the appearance of text to increase its effectiveness. • create, modify and present documents for a particular purpose. • use a keyboard confidently and make use of a spellchecker to write and review my work. • use an appropriate tool to share my work and collaborate online. • give constructive feedback to my friends to help them improve their work and refine my own work. 	<p>technology to increase my creativity.</p> <ul style="list-style-type: none"> • combine a range of media, recognising the contribution of each to achieve a particular outcome. • tell you why I select a particular online tool for a specific purpose. • be digitally discerning when evaluating the effectiveness of my own work and the work of others.
To Collect (data handling)	<ul style="list-style-type: none"> • talk about the different ways in which information can be shown. • use technology to collect information, including photos, video and sound. • sort different kinds of information and present it to others. • add information to a pictograph and talk to you about what I have found out. <p>.....</p> <ul style="list-style-type: none"> • talk about the different ways I use technology to collect information, including a camera, microscope or sound recorder. • make and save a chart or graph using the data I collect. • talk about the data that is shown in my chart or graph. • starting to understand a branching database. • tell you what kind of information I could use to help me investigate a question. 	<ul style="list-style-type: none"> • talk about the different ways data can be organised. • search a ready-made database to answer questions. • collect data help me answer a question. • add to a database. • make a branching database. • use a data logger to monitor changes and can talk about the information collected. <p>.....</p> <ul style="list-style-type: none"> • organise data in different ways. • collect data and identify where it could be inaccurate. • plan, create and search a database to answer questions. • choose the best way to present data to my friends. • use a data logger to record and share my readings with my friends. 	<ul style="list-style-type: none"> • use a spreadsheet and database to collect and record data. • choose an appropriate tool to help me collect data.. • present data in an appropriate way. • search a database using different operators to refine my search. • talk about mistakes in data and suggest how it could be checked. <p>.....</p> <ul style="list-style-type: none"> • plan the process needed to investigate the world around me. • select the most effective tool to collect data for my investigation. • check the data I collect for accuracy and plausibility. • interpret the data I collect. • present the data I collect in an appropriate way. • I use the skills I have developed to interrogate a database.
To Stay Safe (e-safety)	<ul style="list-style-type: none"> • keep my password private. • tell you what personal information is. 	<ul style="list-style-type: none"> • talk about what makes a secure password and why they are important. 	<ul style="list-style-type: none"> • choose a secure password and screen name. • I protect my password and other personal

	<ul style="list-style-type: none"> • tell an adult when I see something unexpected or worrying online. • talk about why it's important to be kind and polite. • recognise an age appropriate website. • agree and follow sensible e-Safety rules. • explain why I need to keep my password and personal information private. • describe the things that happen online that I must tell an adult about. • talk about why I should go online for a short amount of time. • know that not everyone is who they say they are on the Internet. 	<ul style="list-style-type: none"> • protect my personal information when I do different things online. • use the safety features of websites as well as reporting concerns to an adult. • recognise websites and games appropriate for my age. • make good choices about how long I spend online. • I ask an adult before downloading files and games from the Internet. • post positive comments online. • choose a secure password and appropriate screen name when I am using a website. • talk about the ways protect myself and my friends from harm online. • know that anything I share online can be seen by others. • help my friends make good choices about the time they spend online. • talk about why I need to ask a trusted adult before downloading files and games from the Internet. • comment positively and respectfully online and through text messages. 	<p>information.</p> <ul style="list-style-type: none"> • explain why I need to protect myself and my friends and the best ways to do this, including reporting concerns to an adult. • know that anything I post online can be seen, used and may affect others. • talk about the dangers of spending too long online or playing a game. • explain the importance of communicating kindly and respectfully. • discuss the importance of choosing an age-appropriate website, app or game. • explain why I need to protect my computer or device from harm. • protect my password and other personal information. • explain the consequences of sharing too much about myself online. • support my friends to protect themselves and make good choices online, including reporting concerns to an adult. • explain the consequences to myself and others of not communicating kindly and respectfully.
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Aspirations for the Future

Children develop an understanding of how subjects and specific skills are linked to future jobs. Here are some of the jobs you could aspire to do in the future as a Computer Technologist:

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| <ul style="list-style-type: none"> • Software Engineer • Programmer • Web Developer • Cyber Security | <ul style="list-style-type: none"> • Cartoonist • Graphic Designer • Animator • Systems/Database Analyst or Administrator |
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- Ethical Hacker

- Digital Marketing

Impact

Assessment

Through the explicit teaching of the Computing skills, both the teachers and the children assess their learning continuously throughout the lesson. Throughout and at the end of a unit of work, children will reflect on their learning alongside their peers and their teacher. Our assessment systems enable teachers to make informed judgements about the depth of their learning and the progress they have made over time. Subject Leader Portfolios will collate evidence of learning across the year. This will include pupil and parent voice, photographs and examples of children's learning both within and beyond the school day.