**Computing at Bardsey Primary School**

**Vision**

Bardsey Primary School believes that every child should have the right to a curriculum that champions excellence; supporting pupils in achieving to the very best of their abilities. We understand the immense value technology plays not only in supporting the Computing and whole school curriculum but overall in the day-to-day life of our school. We believe that technology can provide: enhanced collaborative learning opportunities; better engagement of pupils; easier access to rich content; support conceptual understanding of new concepts and can support the needs of all our pupils.

**EYFS Curriculum**

The Computing Development for EYFS can be found using the link below.

https://www.foundationyears.org.uk/files/2012/03/Development-Matters-FINAL-PRINT-AMENDED.pdf

**Key Stage 1 and Key Stage 2 National Curriculum**

The National Curriculum for Computing in Primary Document can be found using the link below.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/239033/PRIMARY_national_curriculum_-_Computing.pdf

**Intent**

**Our Computing curriculum intends to:**

- Are responsible, competent, confident and creative users of information and communication technology.
- Know how to keep themselves safe whilst using technology and on the internet and be able to minimise risk to themselves and others.
- Become responsible, respectful and competent users of data, information and communication technology.
- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- Can analyse problems in computational terms, and have repeated practical experience writing computer programs in order to solve such problems.
- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- Become digitally literate and are active participants in a digital world.
- Are equipped with the capability to use technology throughout their lives.

- Understand the importance of governance and legislation regarding how information is used, stored, created, retrieved, shared and manipulated.
- Have a 'can do' attitude when engaging with technology and its associated resources.
- Utilise computational thinking beyond the Computing curriculum.
- Understand and follow the online safety rules.
- Understand the Online safety messages can keep them safe online.
- Know who to contact if they have concerns.
- Apply their learning in a range of contexts, e.g. at school and at home.
- Know where to locate the CEOP button and how to use it.

**Implementation**

To ensure high standards of teaching and learning in Computing, we implement a curriculum that is progressive throughout the whole school. Computing is a foundation subject in the National Curriculum and at Bardsey Primary School implementation of the Computing curriculum is in line with 2014 Primary National Curriculum requirements for KS1 and KS2 and the Foundation Stage Curriculum in England. This provides a broad framework and outlines the knowledge and skills taught in each key stage.
Computing teaching at Bardsey Primary School will deliver the requirements of the National Curriculum through half-termly units. Teachers plan using our Computing Progression Model which highlights the knowledge, skills and vocabulary for each year group and is progressive from year to year. Our Computing progression model is broken down into three strands that make up the Computing curriculum. These are Computer Science, Information Technology and Digital Literacy. Computer Science underlines the knowledge and skills relating to programming, coding, algorithms and computational thinking. Information Technology underlines the knowledge and skills relating to communication, multimedia and data representation and handling. Digital Literacy underlines the knowledge and skills relating to online safety and technology uses all of which are covered at Bardsey Primary School.

At Bardsey Primary School teachers use the Purple Mash scheme of work. Computing lessons are broken down into weekly units, usually with two units taught per half-term. Units are practical and engaging and allow Computing lessons to be hands on. Units cover a broad range of Computing components such as coding, spreadsheets, Internet and email, databases, communication networks, touch typing, animation and online safety.

When teaching Computing teachers should also follow the children's interests to ensure their learning is engaging, broad and balanced. Teachers should ensure that Computing capability is also achieved through core and foundation subjects and where appropriate and necessary Computing should be incorporated into work for all subjects using our wide range of interactive Computing resources.
Through our Purple Mash subscription our teachers can deliver thematic, cross curricular lessons that also follow children's interests and provide flexibility. Purple Mash has an online portal of age-appropriate software, games and activities as well as topic materials and materials to support children's learning in other subject areas for all key stages. Through pupils Computing lessons they will also use the Purple Mash software to 'make music' using the 2Sequence program, design and make using the 2Animate software and make links with maths through spreadsheets using 2Calculate. Computing teaching is practical and engaging and a variety of teaching approaches and activities are provided based on teacher judgement and pupil ability.

Pupils are fully encouraged to engage with Computing and technology outside of school. Each teacher and pupil at Bardsey Primary School has their own unique Purple Mash login and password. Computing work can be stored and saved using pupil log in details and homework or '2do's' can also be set for pupils to access and complete tasks at home that link with their current class learning. Each class has a display board that also displays a range of Computing/ICT related work. Parents at Bardsey Primary School are also encouraged to support the implementation of Computing where possible by encouraging use of Computing skills at home during homework tasks and support pupils beyond the classroom by registering with the 'Parent Portal'.

Alongside our curriculum provision pupils will also have the opportunity to participate in after school Computing coding clubs ran by teacher or teaching assistants. This club aims to provide additional Computing support and enjoyment whilst further challenging pupils who possess exceptional Computing abilities.

**Key Vocabulary**

The promotion of a language rich Computing curriculum is essential to the successful acquisition of knowledge and understanding in Computing. Key vocabulary and concepts could be presented in knowledge organisers and will be prominent in Computing displays.

**Independent learning**

In Computing, children are encouraged to enquire about their topic of interest and develop their independence when learning new skills and developing confidence in Computing.

**High Quality Resources**

Children will access resources to acquire learning through Bee Bots, iPads, computer suite resources and Google Classroom. Children will use a range of secondary resources to develop their knowledge and understanding that is integral to their learning.

**Fieldwork and Outdoor Learning**

Across both key stages, children have a range of opportunities to experience Computing through practical engaging tasks beyond the classroom.
To enhance the curriculum for Computing, children can use different areas of the curriculum to enhance using Computing skills such as maths and data handling.

**Educational Visits to enhance their cultural capital**

Where applicable, links to Computing will be made to develop the children's topical learning such as Code Club in partnership with Lloyds TSB which is supported by a parent helper from Lloyds TSB.

**CPD**

Continuous training to ensure teacher skill and knowledge is developed to teach the subject with confidence and accuracy.

**Impact**

Our Computing curriculum is high quality, well thought out and is planned to demonstrate progression and build on and embed current skills. We focus on progression of knowledge and skills in the different computational components and alike other subjects discreet vocabulary progression also form part of the units of work.

If children are keeping up with the curriculum, they are deemed to be making good or better progress.

**The impact and measure of our Computing curriculum is that pupils are:**

We measure the impact of our curriculum through the following methods:

- pupil discussions and interviewing the pupils about their learning (pupil voice)
- Governor monitoring with our subject Computing link governor
- moderation staff meetings with opportunities for dialogue between teachers
- photo evidence and images of pupils practical learning
- a reflection on standards achieved against the planned outcomes
- learning walks and reflective staff feedback (teacher voice)
- dedicated Computing leader time

**Leadership, Assessment and Feedback**

The use of key questions ensures opportunities for ongoing assessment. At the end of each Computing unit of work from Year 1 to 6. When assessed, it is likely that children will have a mixture of objectives assessed at emerging, expected and exceeding. To calculate the children's 'overall understanding' the objectives are totalled and then converted into an overall value of emerging, expected and exceeding using the Purple Mash Assessment tool. Questionnaires will also be completed by children which will also help the subject leader have an overview of Computing taught in each year group.

**Progression Map**

| | KS1 | LKS2 | UKS2 |
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| **Computer Science** | • Year 1 - Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program.<br>• Year 1 - Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm, e.g. Colouring in a Bird activity. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code.<br>• Year 1 - When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. Children can, for example, interpret where the turtle in 2Go challenges will end up at the end of the program.<br>• Year 2 - Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.<br>• Year 2 - Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code. | • Year 3 - Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it following the desired algorithm and then fix it.<br>• Year 3 - Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing.<br>• Year 3 - Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this. e.g. traffic light algorithm in 2Code. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.<br>• Year 3 - Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, | • Year 5 - Children may attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code<br>• Year 5 - Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design.<br>• Year 5 - When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables.<br>• Year 5 - Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communications contingent on audience and digital content, e.g. 2Blog, 2Email, Display Boards. |

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| | • Year 2 - Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program. | respond to and attach files to emails using 2Email. They can describe appropriate email conventions when communicating in this way.<br>• Year 4 - When turning a reallife situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs.<br>• Year 4 - Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code.<br>• Year 4 - Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this. e.g. traffic light algorithm in 2Code. In programs such as Logo, they can | • Year 6 - Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.<br>• Year 6 - Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions.<br>• Year 6 - Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole.<br>• Year 6 - Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a |

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| | | 'read' programs with several steps and predict the outcome accurately<br>• Year 4 - Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving. | WAN and LAN are and can describe how they access the internet in school. |

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| **Information Technology** | • Year 1 - Children are able to sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.<br>• Year 2 - Children demonstrate an ability to organise data using, for example, a database such as 2Investigate and can retrieve specific data for conducting simple searches. Children are able to edit more complex digital data such as music compositions within 2Sequence. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound. | • Year 3 - Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines.<br>• Year 3 - Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond.<br>• Year 4 - Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. .<br>• Year 4 - Children are able to make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards. | • Year 5 - Children search with greater complexity for digital content when using a search engine. They are able to explain in some detail how credible a webpage is and the information it contains.<br>• Year 5 - Children are able to make appropriate improvements to digital solutions based on feedback received and can confidently comment on the success of the solution. e.g. creating their own program to meet a design brief using 2Code. They objectively review solutions from others. Children are able to collaboratively create content and solutions using digital features within software such as collaborative mode. They are able to use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email.<br>• Year 6 - Children readily apply filters when searching for digital content. They are able to explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and are able to rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.<br>• Year 6 - Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. |

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| | | | 2Blog. They are able to use criteria to evaluate the quality of digital solutions and are able to identify improvements, making some refinements. |
| **Digital Literacy** | • Year 1 - Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair.<br>• Year 1 - Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.<br>• Year 2 - Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g. 2Publish example template. Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.<br>• Year 2 - Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult. | • Year 3 - Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact.<br>• Year 4 - Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact. | • Year 5 - Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others<br>• Year 6 - Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety. |

**Our Curriculum**

# Bardsey Primary Curriculum

| Computing | | | | | | |
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| | **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
| **Reception** | Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. | | | | | |
| **Year 1** | **Unit 1** Online Safety and Exploring Purple Mash<br>**Unit 2** Grouping and Sorting | **Unit 3** Pictograms<br>**Unit 4** Lego Builder | **Unit 5** Maze Explorers<br>**Unit 6** Animated Story Books | **Unit 7** Coding | **Unit 8** Spreadsheets | **Unit 9** Technology outside school |
| **Year 2** | **Unit 1** Coding | **Unit 2** Online Safety<br>**Unit 3** Spreadsheets | **Unit 5** Effective Searching | **Unit 6** Creating Pictures | **Unit 7** Making Music | **Unit 8** Presenting Ideas |
| **Year3** | **Unit 1** Coding | **Unit 2** Online Safety<br>**Unit 3** Spreadsheets | **Unit 4** Touch Typing | **Unit 5** Email | **Unit 6** Branching Databases<br>**Unit 7** Simulations | **Unit 8** Graphing |
| **Year 4** | **Unit 1** Coding | **Unit 2** Online Safety<br>**Unit 3** Spreadsheets | **Unit 4** Writing for Different Audiences | **Unit 5** Logo<br>**Unit 6** Animation | **Unit 7** Effective Searching | **Unit 8** Hardware Investigators |
| **Year 5** | **Unit 1** Coding | **Unit 2** Online Safety | **Unit 3** Spreadsheets | **Unit 4** Databases | **Unit 5** Game Creator | **Unit 6** 3D Modelling<br>**Unit 7** Concept Maps |
| **Year 6** | **Unit 1** Coding | **Unit 2** Online Safety<br>**Unit 3** Spreadsheets | **Unit 4** Blogging | **Unit 5** Text Adventures | **Unit 6** Networks | **Unit 7** Quizzing |