

**Computing At Goostrey – Essentials Curriculum**

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| **Essentials Curriculum Characteristics in Computing** | |
| • 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. | |
| **Breadth of Study** | |
| **Key Stage 1** | **Key Stage 2** |
| • Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following a sequence of instructions.  • Write and test simple programs.  • Use logical reasoning to predict the behaviour of simple programs.  • Organise, store, manipulate and retrieve data in a range of digital formats.  • Communicate safely and respectfully online, keeping personal information private and recognise common uses of information technology beyond school. | • Design and write programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.  • Use sequence, selections and repetition in programs; work with variables and various forms of input and output; generate appropriate inputs and predicted outputs to test programs.  • Use logical reasoning to explain how a simple algorithm works, detect and correct errors in algorithms and programs.  • Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration.  • Describe how internet search engines find and store data; use search engines effectively; be discerning in evaluating digital content; respect individuals and intellectual property; use technology responsibly, securely and safely.  • Select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information. |
| **Threshold Concepts** | |
| * **Code**   This concept involves developing an understanding of instructions, logic and sequences.   * **Connect**   This concept involves developing an understanding of how to safely connect with others.   * **Communicate**   This concept involves using apps to communicate one’s ideas.   * **Collect**   This concept involves developing an understanding of databases and their uses. | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Threshold Concept** |  | **Milestone 1** | **Milestone 2** | **Milestone 3** | | **Code** This concept involves developing an understanding of instructions, logic and sequences. | Motion | • Control motion by specifying the number of steps to travel, direction and turn. | • Use specified screen coordinates to control movement. | • Set IF conditions for movements. Specify types of rotation giving the number of degrees. | | Looks | • Add text strings, show and hide objects and change the features of an object. | • Set the appearance of objects and create sequences of changes. | • Change the position of objects between screen layers (send to back, bring to front). | | Sound | • Select sounds and control when they are heard, their duration and volume. | • Create and edit sounds. Control when they are heard, their volume, duration and rests. | • Upload sounds from a file and edit them. Add effects such as fade in and out and control their implementation. | | Draw | • Control when drawings appear and set the pen colour, size and shape. | • Control the shade of pens. | • Combine the use of pens with movement to create interesting effects. | | Events | • Specify user inputs (such as clicks) to control events. | • Specify conditions to trigger events. | • Set events to control other events by ‘broadcasting’ information as a trigger. | | Control | • Specify the nature of events (such as a single event or a loop). | • Use IF THEN conditions to control events or objects. | • Use IF THEN ELSE conditions to control events or objects. | | Sensing | • Create conditions for actions by waiting for a user input (such as responses to questions like: What is your name?). | • Create conditions for actions by sensing proximity or by waiting for a user input (such as proximity to a specified colour or a line or responses to questions). | • Use a range of sensing tools (including proximity, user inputs, loudness and mouse position) to control events or actions. | | Variables and lists | • From Year 3 onwards. | • Use variables to store a value.  • Use the functions define, set, change, show and hide to control the variables. | • Use lists to create a set of variables. | | Operators | • From Year 3 onwards. | • Use the Reporter operators  () + ()  () - ()  () \* ()  () / ()  to perform calculations. | • Use the Boolean operators  () < ()  () = ()  () > ()  ()and()  ()or()  Not()  to define conditions.  • Use the Reporter operators  () + ()  () - ()  () \* ()  () / ()  to perform calculations.  Pick Random () to ()  Join () ()  Letter () of ()  Length of ()  () Mod () This reports the remainder  after a division calculation  Round ()  () of (). | | **Connect** This concept involves developing an understanding of how to safely connect with others. |  | • Participate in class social media accounts.  • Understand online risks and the age rules for sites. | • Contribute to blogs that are moderated by teachers.  • Give examples of the risks posed by online communications.  • Understand the term ‘copyright’.  • Understand that comments made online that are hurtful or offensive are the same as bullying.  • Understand how online services work. | • Collaborate with others online on sites approved and moderated by teachers.  • Give examples of the risks of online communities and demonstrate knowledge of how to minimise risk and report problems.  • Understand and demonstrate knowledge that it is illegal to download copyrighted material, including music or games, without express written permission, from the copyright holder.  • Understand the effect of online comments and show responsibility and sensitivity when online.  • Understand how simple networks are set up and used. | | **Communicate** This concept involves using apps to communicate one’s ideas. |  | • Use a range of applications and devices in order to communicate ideas, work and messages. | • Use some of the advanced features of applications and devices in order to communicate ideas, work or messages professionally. | • Choose the most suitable applications and devices for the purposes of communication.  • Use many of the advanced features in order to create high quality, professional or efficient communications. | | **Collect** This concept involves developing an understanding of databases and their uses. |  | • Use simple databases to record information in areas across the curriculum. | • Devise and construct databases using applications designed for this purpose in areas across the curriculum. | • Select appropriate applications to devise, construct and manipulate data and present it in an effective and professional manner. | | |