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| **National curriculum expectation.** | |
| **Key stage 1** | **Key stage 2** |
| Pupils should be taught to:   * understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions; * create and debug simple programs; * use logical reasoning to predict the behaviour of simple programs; * use technology purposefully to create, organise, store, manipulate and retrieve digital content; * recognise common uses of information technology beyond school;   use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. | Pupils should be taught to:   * design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts; * use sequence, selection, and repetition in programs; work with variables and various forms of input and output; * use logical reasoning to explain how some simple algorithms work and to 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; * use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content; * select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information; * use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. |

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| **KS1 and KS2- Classroom monitor** | | | | | | |
|  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Digital literacy.**  Including:  -Online safety.  -Using technology safely and respectfully. | Use technology safely and respectfully.  Keep personal information safe and private when using technology.  Know to ask for help if they feel unsure about any online content. |  | Recognise acceptable and unacceptable behaviour.  Recognise acceptable and unacceptable content. |  | Understand the importance of using technology safely, respectfully and responsibly. | Identify a range of ways to report concerns about content and contact. |
| **Computer Science.**  Including:  -Programming  -Networking  -How searches are performed. | Understand that programmes execute by following precise and unambiguous instructions.  Create simple programs. | Understand what algorithms are and how they are implemented as programs on digital devices.  Debug simple programs.  Use logical reasoning to predict the behaviour of simple programs. | Design and create programs that use a sequence.  Control physical systems.  Understand the opportunities computer networks offer for communication. | Understand how computer networks can provide multiple services.  Design and debug programs that accomplish specific goals.  Design and create content to accomplish a given goal.  Use logical reasoning to detect and correct errors in programs.  Appreciate how search results are selected. | Solve problems in writing programs by decomposing then into smaller parts.  Explain how some simple algorithms work and detect and correct errors in them.  Understand the basic workings of computer networks including the internet. | Work with variables.  Use selection and repetition programs.  Simulate physical systems.  Understand the opportunities computer networks offer for collaboration.  Design and create systems that accomplish given goals. |
| **Information technology.**  Including: -Handling information  -Researching  -Word processing  -Videos etc. | Use technology safely and respectfully. | Describe common uses of information technology beyond school.  Use technology purposefully. | Collect and combine information and data.  Use technology responsibly. | Is selective when using digital content. | Appreciate how search results are ranked.  Combine a variety of software to accomplish given goals on a range of digital devices. | Evaluate digital content discerningly.  Analyse and evaluate information and data. |

**The Computing Curriculum can be divided into three inter-related strands:**

* Computer Science
* Information Technology
* Digital Literacy

**Computer Science:**

Pupils need to understand what algorithms are, write algorithms/ programs, evaluate the programs, find bugs and fix bugs – this is the basis of what they need to know in order to write computer programs. Each programming language has its own vocabulary and grammar but they all follow the same type of logic.  It is possible and beneficial to learn computer science away from computers or other digital devices. Role play and kinaesthetic activities can help pupils develop logical reasoning. As pupils get older the programs they write will become more complicated. They will need to use sequence, selection, repetition and variables in their programs The computer science strand also requires knowledge of networks and how searches are performed.

**Information Technology:**

Students should understand that technology is everywhere, be able to identify the technology they encounter and have a basic understanding of how it works. This will link to work on programming and algorithms. This can often be taught thematically with other subjects. Appropriate activities include word processing, creating images, taking and using photographs and video, creating music and animations, using and creating databases, producing websites and contributing to blogs. As well as creation of digital materials pupils should have experience of manipulating and editing their own work and resources from elsewhere. They need to know how to use the tools available but also to have an element of digital literacy – awareness of audience and good design principles. Pupils should experience a range of different applications and software, initially the teacher will select the programs they use but over time pupils should be encouraged to make decisions themselves Pupils also need to know how to store and organise their files so that it can easily be found again. They need an understanding of the devices they can use including: hard drive, USB sticks, school network server, and the cloud storage on the internet.

**Digital Literacy:**

Children need to be able to use technology safely. They need to keep their personal information private and treat other people with respect. If something goes wrong or they see something they don’t like they should know what to do and where to go for help.  As children get older they need to know about how to use technology responsibly. As well as thinking about how their online behaviour affects others they need to be aware of legal and ethical responsibilities, including respecting copyright and intellectual property rights, keeping passwords and  
personal data secure and observing terms and conditions for online services.

They need to understand the main risks relating to:

Content – being exposed to illegal, inappropriate or harmful material  
Contact – being subjected to harmful online interaction with other users  
Conduct – online behaviour that increases the likelihood of, or causes, harm

Children should understand an age appropriate version of the school’s  
Acceptable Use Policy.  E-Safeguarding should link with the school’s general child protection policy and should not be seen as a separate issue.

**Learning in EYFS at Ryders Green: Computing.**

This document demonstrates which statements from the 2020 Development Matters are prerequisite skills for computing within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for computing.

The most relevant statements for computing are taken from the following areas of learning:

• Personal, Social and Emotional Development

• Physical Development

• Understanding the World

• Expressive Arts and Design

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| **Three and Four-Year-Olds** | **Personal, Social and Emotional Development** | | * Remember rules without needing an adult to remind them. |
| **Physical Development** | | * Match their developing physical skills to tasks and activities in the setting. |
| **Understanding the World** | | * Explore how things work. |
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| **Reception** | **Personal, Social and Emotional Development** | | * Show resilience and perseverance in the face of a challenge. * Know and talk about the different factors that support their overall health and wellbeing:   - sensible amounts of ‘screen time’. |
| **Physical Development** | | * Develop their small motor skills so that they can use a range of   tools competently, safely and confidently. |
| **Expressive Arts and Design** | | * Explore, use and refine a variety of artistic effects to express   their ideas and feelings. |
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| **ELG** | **Personal, Social and Emotional Development** | **Managing Self** | * Be confident to try new activities and show independence,   resilience and perseverance in the face of challenge.   * Explain the reasons for rules, know right from wrong and try to behave accordingly. |
| **Expressive Arts and Design** | **Creating**  **with Materials** | * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. |