# Computer Science Curriculum Intent
# 2022/23

# Key Stage 3

**Summary of the units**

Year 7

| Unit 1 - autumn1 | Impact of technology |
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| Unit 2 - autumn2 | Micro-bit - Sensing |
| Unit 3 - spring1 | Using media to gain support |
| Unit 4 - spring2 | Introduction to Web |
| Unit 5 - summer1 | Introduction to Scratch |
| Unit 6 - summer2 | Flowol – Algorithms 1 |

Year 8

| Unit 1 - autumn1 | Scratch Programming |
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| Unit 2 - autumn2 | Networks |
| Unit 3 - spring1 | Developing for the web |
| Unit 3 - spring2 | |
| Unit 4 - summer1 | Computing Systems |
| Unit 5 - summer2 | Flowol – Algorithms 2 |

Year 9

| Unit 1 - autumn1 | Intro to Python |
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| Unit 2 - autumn2 | Representations |
| Unit 3 - spring1 | Mobile app development |
| Unit 3 - spring2 | |
| Unit 4 - summer1 | Cybersecurity |
| Unit 5 - summer2 | Data Science |

*In Year 7 you will learn about:*

| Unit 1 – Autumn1 | Impact of technology | In this unit you become familiar with the school network and learn about passwords and important online safety issues such as |
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| | | respecting others online, spotting strangers, and the effects of cyberbullying. You will also learn how to use presentation software |
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| Unit 2 – Autumn2 | Micro-bit – Sensing | In this unit you will look at the main programming concepts - sequencing, variables, selection, and count-controlled iteration. You will learn to build and test in the programming environment, before transferring it to your micro:bit. You will have the opportunity to create code and use their design to create your own micro:bit-based step counter |
| Unit 3 – Spring1 | Using media to gain support | During this unit, you will develop your understanding of information technology and digital literacy skills. You will create a blog post about a real-world cause that you would like to gain support for. You will develop software formatting skills and explore concerns surrounding the use of other people's work, including licensing and legal issues |
| Unit 4 – Spring2 | Introduction to the Web | In this unit you will look at HTML and you will use HTML to construct webpages which will include images and hyperlinks to other pages You will investigate various communication methods as well as looking at the impact of these technologies. |
| Unit 5 – Summer1 | Introduction to Scratch | In this unit you will look at the main programming concepts - sequencing, variables, selection, and count-controlled iteration. |

| | | You will use Scratch to develop these skills. You will develop skills that will let you predict, run, investigate, and modify Scratch programmes |
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| Unit 6 – Summer2 | Flowol – Algorithms 1 | In this unit you will explore flowchart symbols which are used in algorithm design. You will produce a control flowchart solution for a simple problem.  This will use simple loops and basic outputs, and then move on to look at systems that have multiple inputs and outputs. |

**In Year 8 you will learn about:**

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| Unit 1 - Autumn1 | Scratch Programming | In this unit you will continue to develop skills in the main programming concepts which are sequencing, variables, selection, and iteration.  You will build a 'Brain Game' and 'Dance Move' Scratch program by adding new questions to subroutines and develop debugging skills |
| Unit 2 - Autumn2 | Networks | This unit looks at networks the benefits of networking, before covering how data is transmitted across networks.  The types of hardware required are explained and wired and wireless data transmission.  You will develop an understanding of the terms 'internet' and 'World Wide |

| | | Web', and of the key services and protocols used |
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| Unit 3 - Spring1<br><br>And<br><br>Unit 3 - Spring2 | Developing for the web | In this unit you will explore the technologies that make up the internet and World Wide Web. Starting with an exploration of the building blocks of the World Wide Web, HTML, and CSS, you will code your own website. You will investigate how websites are catalogued and organised using search engines. You will also look at the hidden network technologies that protect us from the threats that a connected world brings, as well as looking at the impact on us of these services and technologies. |
| Unit 4 - Summer1 | Computing Systems | The unit looks at how computing systems operate. It also looks at two interesting current topics: artificial intelligence and open-source software. You will learn simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming. You will also understand how instructions are stored and executed within a computer system |
| Unit 5 - Summer2 | Flowol – Algorithms 2 | In this unit you will explore flowchart symbols which are used in algorithm design. |

| | | You will produce a control flowchart solution for a more complex problem. This will use loops and multiple inputs and outputs. You will improve your ideas using subroutines and variables |
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*In Year 9 you will learn about:*

| Unit 1 - Autumn1 | Intro to Python | You will be introduced to text based programming with Python Turtle module in this unit. The lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic, operations, randomness, selection and iteration to draw increasingly complex shapes by writing code. Emphasis is placed on tackling common programming misconceptions and developing your understanding of the benefits and drawbacks of programming. |
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| Unit 2 - Autumn2 | Representations | In this unit you will develop your understanding of how computers works. How they transmit instructions around the computer and you will develop an understanding of the binary number system. You will then explore how binary is converted to different computational forms. |
| Unit 3 - Spring1<br><br>And | Mobile app development | In a world where there's an app for every possible need, this unit takes you from designer to project manager |

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| Unit 3 – Spring 2 | | to developer in order to create your own mobile app. Using App Lab from code.org, you will familiarise yourselves with coding. You will consider the needs of the user; decompose the project into smaller, more manageable parts; develop your app; and finish off by evaluating the success of the project against the needs of the user |
| Unit 4 - Summer1 | Cybersecurity | This unit takes you on an eye-opening journey of discovery about techniques used by cybercriminals to steal data, disrupt systems, and infiltrate networks. You will start by considering the value of their data to organisations and what they might use it for. You will then look at social engineering techniques used by cybercriminals to try to trick users into giving away their personal data. The unit looks at the more common cybercrimes such as hacking, DDoS attacks, and malware, as well as looking at methods to protect ourselves and our networks against these attacks |
| Unit 5 - Summer2 | Data Science | In this unit, you will be introduced to data science, and by the end of the unit you will know how to use data to investigate problems and make changes to the world around them. You will look at data sets and gain an understanding of how visualising data can help |

| | | with the process of identifying patterns and trends. |
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