



love the journey

Curriculum Implementation 2023-24

Secondary

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| LCA Strand | Technology, Enterprise & Sport |
| Subject | Computer Science and ICT |
| Key Stage | Key Stage 3 (Chapter 7-9) |

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| <p>What are the key concepts taught?</p> | <p>At Key Stage Three in Computer Science and ICT pupils will learn the following concepts:</p> <ul style="list-style-type: none"> • Algorithms: they will understand what algorithms are, how they work and how to write them and use them • Programming: they will learn to program using a variety of languages like Kodu, Scratch and Python. This will include concepts such as variables, loops, conditions and functions. • Data representation: they will understand how data is represented and stored in a computer, including binary, hexadecimal and ASCII • Computer networks: they will understand how computers communicate with each other (internet, local area networks (LANs) and wide area networks (WANs) • Hardware and software: they will understand the basic components of a computer system and their function. • Computational thinking: they will learn to become resilient in solving problems by developing the ability to break down complex problems into smaller parts. • Digital literacy and e-safety: they will learn how to stay safe online, use digital tools effectively and also consider the ethical implications of technology. |
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| <p>What is the sequencing of units?</p> | <p>Chapter 7:</p> <ul style="list-style-type: none"> • Who are you talking to? E-Safety • Introduction to Computer Science (pioneers, i/o devices, networks, binary and encryption) • Visual programming (Kodu) • Spreadsheet modelling • Scratch programming <p>Chapter 8</p> <ul style="list-style-type: none"> • Photoshop |
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| | <ul style="list-style-type: none"> • Advanced spreadsheet modelling • Mobile app development • Developing for the web (HTML & CSS) • Robotix unit <p>Chapter 9</p> <ul style="list-style-type: none"> • Graphics and multimedia product design • Cyber security • Physical computing (Microbits) |
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| <p>How do we encourage pupils to see the links between different units and concepts?</p> | <p>By showing links between the different concepts taught helps to develop the pupils critical thinking and problem-solving skills. Some methods used are:</p> <ul style="list-style-type: none"> • Real-world examples to show pupils the connection and to see how they are applied in the real world. • Visual aids: diagrams/mind maps/flowchart • Class discussions to allow pupils to hear different opinions from their peers |
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| <p>What are the planned opportunities for adaptive teaching, including for SEND, the more and able and disadvantaged pupils?</p> | <ul style="list-style-type: none"> • Real-time feedback – providing feedback to pupils as they're working through the lesson activities. • Varying the lesson pace allowing pupils to work at their own speed through scaffolded resources or video tutorials. • Variety of teaching strategies to support different learners, i.e. hands-on activities to help pupils learn best through practical tasks. • Gamification of lesson activities to engage learning particularly with disadvantaged or SEND pupils |
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| <p>What are the planned opportunities for retrieval and reflection by pupils?</p> | <ul style="list-style-type: none"> • Do it now / retrieval tasks at the start of the lesson to check previous understanding • Review quizzes: Like Kahoot or Quizlet can be used to recall information from previous lessons. • Peer feedback: pupils give their peers valuable feedback on tasks completed • Evaluation documents so pupils can reflect on their learning. • Exit tickets at the end of the lesson so that pupils can write a brief response to a question related to the concepts learnt in the lesson. |
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| <p>What are the opportunities for feed forward by the teacher post assessment outcomes?</p> | <ul style="list-style-type: none"> • In coding lessons pupils are given specific recommendations for improving the syntax of the code, structure or logic. • In multimedia projects pupils are given ways to improve the design or layout of the project • Teachers regularly review the levels of attainment of each pupil to set them targets for the next progress phase. Pupils |
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| | <p>are also encouraged to set their own targets on the LC assessment record forms.</p> <ul style="list-style-type: none"> • Departmental data allows teaching staff to analyse and identify pupils' levels, which helps to inform future planning. |
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| <p>What are the planned opportunities for developing Reading?</p> | <ul style="list-style-type: none"> • Giving pupils the opportunity to read out loud, i.e. reading the instructions for an activity or reading a context statement. • Key technical terminology displayed for all pupils to see • Using case studies to provide pupils with real world examples of how technology is used in industry. • Using online digital resources (e.g. online tutorials to provide pupils with interactive reading opportunities) • The regular KS3 online homework (iDEA website) requires pupils to work at their own pace to investigate CS/ICT topics of interest and then answer questions at the end, based on what they've learnt. |
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| <p>What are the planned opportunities for developing literacy, numeracy, oracy and SMSC?</p> | <p>Literacy:</p> <ul style="list-style-type: none"> • pupils are given the opportunity to write in a range of styles, like technical reports, instructions and code documentation, using appropriate grammar and spelling. <p>Numeracy:</p> <ul style="list-style-type: none"> • Pupils will learn numeracy through algorithm design as it will develop their logical reasoning skills to solve problems. • Using binary and hexadecimal allows pupils to learn new number systems and be able to convert between them. • Teaching pupils to program helps to develop their ability to use mathematical concepts like: variables and functions to solve problems. • Encouraging pupils to solve real world problems using mathematical skills. <p>Oracy:</p> <ul style="list-style-type: none"> • By modelling clear and effective speaking in the teacher's own communication. • Pupils have the opportunity to deliver presentations to the rest of the class • Provision of regular feedback on pupil's oracy skills • Pupils also get the opportunity to have paired/group discussions to help develop their speaking and listening skills. <p>SMSC:</p> <ul style="list-style-type: none"> • Pupils at KS3 get the opportunity to work on joint tasks/projects to help develop their social skills and to help them work effectively in teams. |
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| | <ul style="list-style-type: none">• Looking at a variety of computer science pioneers who all come from very different backgrounds.• Pupils also look at the responsible and safe use of technology through e-safety training. They look into topics like cyber bullying and consider the impact of their actions on others. |
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