City of Rochester School Computing Curriculum

Computing Curriculum

Key Stage 1 – 4

Intent

- At City of Rochester school, we believe that computing is an essential part of the curriculum; a subject that not only stands alone but is woven and should be an integral part of all learning.
- Computing, in general, is a significant part of everyone's daily life and children should be at the forefront of new technology, with a thirst for learning what is out there. Computing within schools can therefore provide a wealth of learning opportunities and transferrable skills explicitly within the Computing lesson and across other curriculum subjects.
- Through the study of Computing, children will be able to develop a wide range of fundamental skills, knowledge and understanding that will actually equip them for the rest of their life. Computers and technology are such a part of everyday life that our children would be at a disadvantage were they not be exposed to a thorough and robust Computing curriculum.
- The Board of Trustees which comprises experts in SEN and in particular ASD, have been actively involved in curriculum design. This means that the curriculum is fit for purpose for children with special educational needs. A large part of the curriculum is experiential as it is important for children on the autism spectrum to be able to make cohesive links that are not abstract. A fully immersive experience is required. Examples include through World Book Day, author and poet visits and a range of trips and visits which enrich and complement children's learning.

Implementation

- Computing is taught using a blocked curriculum approach. This ensures children are able to develop depth in their knowledge and skills over the duration of each of their computing topics.
- Teachers use units from Purple Mash as a starting point for the planning of their computing lessons, which are often richly linked to engaging contexts in other subjects and topics.
- We have a computing suite with six computers, twelve laptops and ten ipads to ensure that all year groups have the opportunity to use a range of devices and programs for many purposes across the wider curriculum, as well as in discrete computing lessons. Employing cross-curricular links motivates pupils and supports them to make connections and remember the steps they have been taught.
- The implementation of the curriculum also ensures a balanced coverage of computer science, information technology and digital literacy. The children will have experiences of all three strands in each year group, but the subject knowledge imparted becomes increasingly specific and in depth, with more complex skills being taught, thus ensuring that learning is built upon.
- Staff have access to a bespoke and whole school training programme which enables them to meet the individual needs of pupils in relation to their diagnosis of ASD and other co-morbidities together with subject specific/curriculum training. Examples include: Understanding Autism, how the developing brain works, visits to other schools to observe and learn from best practice, subject specific training, memberships and participation in subject associations, participating in curriculum meetings, access to on-line resources – for example Optimus Education.
- Quality Assurance activities include: half-termly book monitoring, learning walks, formal and informal lesson observations, including peer to peer observations, pupil surveys and curriculum team meetings.

Impact

- Through the implementation of the curriculum pupils will be digitally literate and able to join the rest of the world on its digital platform. They will be equipped, not only with the skills and knowledge to use technology effectively and for their own benefit, but more importantly – safely.
- The biggest impact we want on our children is that they understand the consequences of using the internet and that they are also aware of how to keep themselves safe online.
- As children become more confident in their abilities in Computing, they will become more independent and key life skills such as problem-solving, logical thinking and self-evaluation become second nature.
- Attainment is measured using SIMs and is designed for continuous use. Teachers record the small steps pupils make and use these steps to build a bigger picture of the pupils' learning and achievements.
- Regular feedback is sought from pupils through the School Council (half-termly), pupil surveys, (termly), parent surveys (annually), staff surveys (annually)
- Confidence, Resilience and Success are core values at City of Rochester School. This means that the acquisition of social skills and personal development are of paramount importance to our pupils to life beyond school. Impact is therefore demonstrated through social and linguistic development which the school evidences through case studies.
- Pupils have significant barriers to learning which the school works hard to help pupils overcome. This means that the school works with a wide variety of partners such as medical professionals, curriculum partners, parents/carers, education professionals and the wider community to promote pupil's engagement in learning.

Statutory Guidance – Computing

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

Links To Other Subjects

As a school we are all aware that IT and computing skills should be developed through all subjects.

Where appropriate, IT and computing should be incorporated into schemes of work for all subjects. IT and computing should be used to support learning in other subjects as well as developing computing knowledge, skills and understanding.

Links are also made to our experiential curriculum – in particular Film School and Programming School.

Curriculum Overview

* Our curriculum is designed with our children in mind but is subject to change. Units may be moved around to suit children's interests, current affairs and to make better use of resources. If this happens staff ensure that there is breadth and balance across the year to ensure coverage.

KS1

	Term 1	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Year 1	Unit 1.1 Online Safety & Exploring Purple Mash Unit 1.2 Grouping & Sorting	Unit 1.3 Pictograms	Unit 1.4 Lego Builders Unit 1.5 Maze Explorers	Unit 1.6 Animated Story Books	Unit 1.7 Coding	Unit 1.8 Spreadsheets Unit 1.9 Technology outside school
Year 2	Unit 2.1 Coding	Unit 2.2 Online Safety Unit 2.3 Spreadsheets	Unit 2.4 Questioning	Unit 2.5 Effective Searching	Unit 2.6 Creating Pictures	Unit 2.7 Making Music Unit 2.8 Presenting Ideas

KS2

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 3	Unit 3.1 Coding	Unit 3.2 Online Safety Unit 3.3 Spreadsheets	Unit 3.4 Touch-Typing	Unit 3.5 Email (including email safety)	Unit 3.6 Branching Databases	Unit 3.7 Simulations Unit 3.8 Graphing
Year 4	Unit 4.1 Coding Unit 2.2 Online Safety	Unit 2.3 Spreadsheets	Unit 2.4 Questioning	Unit 2.5 Effective Searching	Unit 2.6 Creating Pictures	Unit 2.7 Making Music Unit 2.8 Presenting Ideas
Year 5	Unit 5.1 Coding	Unit 5.2 Online Safety	Unit 5.3 Spreadsheets	Unit 5.4 Databases	Unit 5.5 Game Creator	Unit 5.6 3D Modelling Unit 5.7 Concept Maps
Year 6	Unit 6.1 Coding	Unit 6.2 Online Safety	Unit 6.3 Spreadsheets	Unit 6.4 Blogging	Unit 6.5 Text Adventures	Unit 6.6 Networks Unit 6.7 Quizzing

KS3

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	Networking - e-safety, using computers and the internet	Programming – Scratch and Marty the Robot	Representing Data - Excel	Graphic Design	Web Design, Blogging and HTML	Collaborative Project
Year 8	Networking - e-safety, using computers and the internet	Programming – Scratch and Marty the Robot	Representing Data - Excel	Graphic Design	Python	Collaborative Project
Year 9	Networking - e-safety, using computers and the internet	Programming – Scratch and Marty the Robot	Representing Data - Excel	Graphic Design	Python	Collaborative Project

KS4

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10 Functional Skills	Using ICT	Finding and selecting information	Working with numbers, data and charts	Working with text and images	Combining and presenting information	Using ICT to communicate
Year 11 Functional Skills	Using ICT	Finding and selecting information	Working with numbers, data and charts	Working with text and images	Combining and presenting information	Using ICT to communicate

Detailed Curriculum Map

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 1	Unit 1.1 Online Safety & Exploring Purple Mash Unit 1.2 Grouping & Sorting	Unit 1.3 Pictograms	Unit 1.4 Lego Builders Unit 1.5 Maze Explorers	Unit 1.6 Animated Story Books	Unit 1.7 Coding	Unit 1.8 Spreadsheets Unit 1.9 Technology outside school
Learning Objectives Covered	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • 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.	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• 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	• 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	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content. • Recognise common uses of information technology beyond school

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 2	Unit 2.1 Coding	Unit 2.2 Online Safety Unit 2.3 Spreadsheets	Unit 2.4 Questioning	Unit 2.5 Effective Searching	Unit 2.6 Creating Pictures	Unit 2.7 Making Music Unit 2.8 Presenting Ideas
Learning Objectives Covered	• 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 • 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.	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content • Recognise common uses of information technology beyond school	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content	• Use technology purposefully to create, organise, store, manipulate and retrieve digital content

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 3	Unit 3.1 Coding	Unit 3.2 Online Safety Unit 3.3 Spreadsheets	Unit 3.4 Touch-Typing	Unit 3.5 Email (including email safety)	Unit 3.6 Branching Databases	Unit 3.7 Simulations Unit 3.8 Graphing
Learning Objectives Covered	• 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	• Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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.	• 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. • 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.	• 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.	• 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.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 4	Unit 4.1 Coding Unit 4.2 Online Safety	Unit 4.3 Spreadsheets	Unit 4.4 Writing for Different Audiences	Unit 4.5 Logo	Unit 4.6 Animation	Unit 4.7 Effective Searching Unit 4.8 Hardware Investigators
Learning Objectives Covered	• 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 • 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.	• 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 technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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.	• 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 • 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.	• 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.	• 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.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 5	Unit 5.1 Coding	Unit 5.2 Online Safety	Unit 5.3 Spreadsheets	Unit 5.4 Databases	Unit 5.5 Game Creator	Unit 5.6 3D Modelling Unit 5.7 Concept Maps
Learning Objectives Covered	• 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. • 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.	• 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. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	• 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.	• 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.	• Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. • 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.	• 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.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 6	Unit 6.1 Coding	Unit 6.2 Online Safety	Unit 6.3 Spreadsheets	Unit 6.4 Blogging	Unit 6.5 Text Adventures	Unit 6.6 Networks Unit 6.7 Quizzing
Learning Objectives Covered	• 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. • 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.	• 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. • Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact	• 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.	• 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. • 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	• 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. • 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.	• 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. • 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.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	Networking - e-safety, using computers and the internet	Programming – Scratch and Marty the Robot	Representing Data - Excel	Graphic Design	Web Design, Blogging and HTML	Collaborative Project
Learning Objectives Covered	• design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • understand the hardware and software components that make up computer systems,and how they communicate with one another and with other systems • create, re-use, revise and re-purpose digital artefacts for a given audience, withattention to trustworthiness, design and usability • understand a range of ways to use technology safely, respectfully, responsibly andsecurely, including protecting their online identity and privacy; recognise inappropriatecontent, contact and conduct and know how to report concerns.	• understand several key algorithms that reflect computational thinking [for example,ones for sorting and searching]; use logical reasoning to compare the utility ofalternative algorithms for the same problem • use two or more programming languages, at least one of which is textual, to solve avariety of computational problems; make appropriate use of data structures [forexample, lists, tables or arrays]; design and develop modular programs that useprocedures or functions • understand simple Boolean logic [for example, AND, OR and NOT] and some of itsuses in circuits and programming; understand how numbers can be represented inbinary, and be able to carry out simple operations on binary numbers [for example,binary addition, and conversion between binary and decimal	• understand how instructions are stored and executed within a computer system;understand how data of various types (including text, sounds and pictures) can berepresented and manipulated digitally, in the form of binary digits • undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users	• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users	• understand the hardware and software components that make up computer systems,and how they communicate with one another and with other systems	• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 8	Networking - e-safety, using computers and the internet	Programming – Scratch and Marty the Robot	Excel	Graphic Design	Python	Collaborative Project
Learning Objectives Covered	• design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • understand the hardware and software components that make up computer systems,and how they communicate with one another and with other systems • create, re-use, revise and re-purpose digital artefacts for a given audience, withattention to trustworthiness, design and usability • understand a range of ways to use technology safely, respectfully, responsibly andsecurely, including protecting their online identity and privacy; recognise inappropriatecontent, contact and conduct and know how to report concerns.	• understand several key algorithms that reflect computational thinking [for example,ones for sorting and searching]; use logical reasoning to compare the utility ofalternative algorithms for the same problem • use two or more programming languages, at least one of which is textual, to solve avariety of computational problems; make appropriate use of data structures [forexample, lists, tables or arrays]; design and develop modular programs that useprocedures or functions • understand simple Boolean logic [for example, AND, OR and NOT] and some of itsuses in circuits and programming; understand how numbers can be represented inbinary, and be able to carry out simple operations on binary numbers [for example,binary addition, and conversion between binary and decimal	• understand how instructions are stored and executed within a computer system;understand how data of various types (including text, sounds and pictures) can berepresented and manipulated digitally, in the form of binary digits • undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users	• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users	• understand several key algorithms that reflect computational thinking [for example,ones for sorting and searching]; use logical reasoning to compare the utility ofalternative algorithms for the same problem • use two or more programming languages, at least one of which is textual, to solve avariety of computational problems; make appropriate use of data structures [forexample, lists, tables or arrays]; design and develop modular programs that useprocedures or functions • understand simple Boolean logic [for example, AND, OR and NOT] and some of itsuses in circuits and programming; understand how numbers can be represented inbinary, and be able to carry out simple operations on binary numbers [for example,binary addition, and conversion between binary and decimal	• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 9	Networking - e-safety, using computers and the internet	Programming – Scratch and Marty the Robot	Excel	Graphic Design	Python	Collaborative Project
Learning Objectives Covered	• design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • understand the hardware and software components that make up computer systems,and how they communicate with one another and with other systems • create, re-use, revise and re-purpose digital artefacts for a given audience, withattention to trustworthiness, design and usability • understand a range of ways to use technology safely, respectfully, responsibly andsecurely, including protecting their online identity and privacy; recognise inappropriatecontent, contact and conduct and know how to report concerns.	• understand several key algorithms that reflect computational thinking [for example,ones for sorting and searching]; use logical reasoning to compare the utility ofalternative algorithms for the same problem • use two or more programming languages, at least one of which is textual, to solve avariety of computational problems; make appropriate use of data structures [forexample, lists, tables or arrays]; design and develop modular programs that useprocedures or functions understand simple Boolean logic [for example, AND, OR and NOT] and some of itsuses in circuits and programming; understand how numbers can be represented inbinary, and be able to carry out simple operations on binary numbers [for example,binary addition, and conversion between binary and decimal	• understand how instructions are stored and executed within a computer system;understand how data of various types (including text, sounds and pictures) can berepresented and manipulated digitally, in the form of binary digits • undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users	• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users	• understand several key algorithms that reflect computational thinking [for example,ones for sorting and searching]; use logical reasoning to compare the utility ofalternative algorithms for the same problem • use two or more programming languages, at least one of which is textual, to solve avariety of computational problems; make appropriate use of data structures [forexample, lists, tables or arrays]; design and develop modular programs that useprocedures or functions • understand simple Boolean logic [for example, AND, OR and NOT] and some of itsuses in circuits and programming; understand how numbers can be represented inbinary, and be able to carry out simple operations on binary numbers [for example,binary addition, and conversion between binary and decimal	• undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals,including collecting and analysing data and meeting the needs of known users

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10	Using ICT	Finding and selecting information	Working with numbers, data and charts	Working with text and images	Combining and presenting information	Using ICT to communicate
Learning Objectives Covered	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 11	Using ICT	Finding and selecting information	Working with numbers, data and charts	Working with text and images	Combining and presenting information	Using ICT to communicate
Learning Objectives Covered	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.	• develop their capability, creativity and knowledge in computer science, digital media and information technology • develop and apply their analytic, problem-solving, design, and computational thinking skills • understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns.