COMPUTING LONGTERM PLAN

Underpinning subject context Yr1

Computer Science:
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

Information Technology:
Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Digital Literacy:
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

Year 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Theme: Think Big	**Theme:** Into the Woods	**Theme:** Rags to Riches		**Theme**: From the City to the Seaside	
	Concept: Manipulate digital content. Making choices to perform an action. **Activity:** Create an avatar. **Programs and Resources:** 2Paint 2 Explore Paint.net **Computing Strand:** Information Technology Digital Literacy	**Concept:** Introduction to 3D modelling **Activity:** 3D modelling: Create a Woodland creature Coding **Programs and Resources:** 2Paint 2Design & Make 3D Printer 2Go **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Learn how to create an animated story based on a traditional tale. **Activity:** Virtual story telling **Programs and Resources:** 2CreateaStory **Computing Strand:** Information Technology Digital Literacy	**Concept:** Creating short sets of algorithms and debugging them **Activity:** Animation: Knights in battle **Programs and Resources:** 2Code **Computing Strand:** Computer Science Information Technology	**Concept:** Sequence digital audio to create a piece of harmonious music **Activity:** Digital Musicians: Music composition to reflect a scene in the story. **Programs and Resources:** 2Explore 2Sequence headphones **Computing Strand:** Information Technology Digital Literacy	**Concept:** Inserting basic formulas (+ - = symbols) **Activity:** Spreadsheets - costings for a picnic (Discrete) Internet Explorers: Technology outside of school **Programs and Resources:** 2Calculate **Computing Strand:** Information Technology Digital Literacy

Underpinning g subject context Yr2

Computer Science:

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

Information Technology:

Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Digital Literacy:

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

Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Theme: From Bugs to Beasts!		**Theme:** Food of the Gods		**Theme:** The Greatest Show	
	Concept: Logical thinking to create a 3D virtual garden. **Activity:** Animation: Design your own edible garden. **Programs and Resources:** 2DIY3D **Computing Strand:** Information Technology Digital Literacy	**Concept:** Understand the services that the worldwide web provides Develops problem-solving skills and encourages 3D thinking. **Activity:** Emails + Shared Blogs Create a Gorilla and 3D print a 2d image. **Programs and Resources:** 2Email/2blog Paint 3D Printer **Computing Strand:** Digital Literacy Computer Science Information Technology Digital Literacy	**Concept:** Inserting formulas (* / Boolean) **Activity:** Data representation **Programs and Resources:** 2Calculate MS Excel **Computing Strand:** Information Technology	**Concept:** Introduction to physical systems and the debugging processes required **Activity:** Program a floor turtle **Programs and Resources:** 2Logo **Computing Strand:** Computer Science	**Concept:** Writing sets of algorithms and debugging them. Interactivity between more than one sprite. **Activity:** Building knowledge of coding fundamentals. **Programs and Resources:** 2Code **Computing Strand:** Computer Science	**Concept:** Writing sets of algorithms and debugging them. Interactivity between more than one sprite. **Activity:** Circus animation: Program sprites to perform different circus tricks. **Programs and Resources:** 2Code **Computing Strand:** Computer Science

Underpinning subject context Yr3

Computer Science:

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

Information Technology:

Use search technologies effectively.
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

Digital Literacy:

Understand the opportunities [networks] offer for communication and collaboration
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

Year 3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Theme: Building a Civilisation	**Theme:** Our Community: Highfields	**Theme:** Latin and Londinium	**Theme:** Pharaohs and mummies	**Theme:** Along the Nile	**Theme:** Environment: World in danger
	Concept: Understand what a network is and the multiple services that they provide. **Activity:** Network infrastructure Emails – blogging **Programs and Resources:** 2Email/2Blog **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Apply variables and the IF command to control potions to have different impacts on a sprite. **Activity:** Potion making **Programs and Resources:** Scratch **Computing Strand:** Computer Science	**Concept:** Manipulate and scale down geometric shapes to 3D design a Roman Villa. **Activity:** 3D modelling: Roman Villa **Programs and Resources:** TinkerCAD 3D Printer **Computing Strand:** Computer Science Information Technology Digital Literacy		**Concept:** Remove interferences when making music in a band. **Activity:** Kandinsky Art in the form of music. **Programs and Resources:** 2BusyBeats Chrome Music Lab Headphones **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Voice editing skills and evaluating online content. Make a judgement about the digital content. **Activity:** Digital directors: Podcast campaign: World In Danger **Programs and Resources:** IPad Voice Memos **Computing Strand:** Computer Science Information Technology Digital Literacy

Underpinning subject context Yr4

Computer Science:
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

Information Technology:
Use search technologies effectively.
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

Digital Literacy:
Understand the opportunities [networks] offer for communication and collaboration
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

Year 4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Theme: Anglo-Saxons and Vikings	**Theme:** Ancient Greece	**Theme:** Antarctica	**Theme:** The Age of Enlightenment	**Theme:** Ancient Baghdad	**Theme:** Ancient Sumer
	Concept: Create a shape and use the copy and paste tool to build a forestry, using scale with the X,Y and Z axis. **Activity:** 3D Modelling: Design a forestry **Programs and Resources:** TinkerCAD **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Use real instruments to import music to GarageBand (combine digital and instrumental music). **Activity:** Digital Greek music composition **Programs and Resources:** GarageBand Musical instruments IPad **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept** Declares and assign variables. Use post-tested loop e.g. 'until', and a sequence of selection statements. **Activity:** Physical computing: program an electrical circuit to switch on and off. **Programs and Resources:** Scratch Circuit components **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Manipulate a camera image using layering. **Activity:** Design a monster **Programs and Resources:** Paint.net Google Images **Computing Strand:** Computer Science Information Technology	**Concept:** Create digital content by combining several pieces of software. **Activity:** Trailer for the movie: storyboard, filming, accompanying music. **Programs and Resources:** Movie Maker IPad/Tripod Garage Band Green Screen **Computing Strand:** Computer Science Information Technology Digital Literacy	

Underpinning subject context Yr5

Computer Science:
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

Information Technology:
Use search technologies effectively.
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

Digital Literacy:
Understand the opportunities [networks] offer for communication and collaboration
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.

Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1 and 2
	Theme: Climate Change	**Theme:** Ancient Greek Culture/ Exploration	**Theme:** Shakespeare's Kings and Queens	**Theme:** Dystopia	**Theme:** Natural World in Perspective
	Concept: Complex problem-solving skills and algorithmic solutions. **Activity:** Robotics **Programs and Resources:** Lego Mindstorms **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Introduction to HTML **Activity:** Website development about architectural renaissance. **Programs and Resources:** HTML Notepad CSS **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Create a rule-based algorithm for a Caesar cipher cryptic device using cryptography language. **Activity:** History of cryptography and the changes the internet has made to communication. **Programs and Resources:** Word Scratch **Computing Strand:** Computer Science Digital Literacy	**Concept:** Create a piece of art digitally using graphic effects in the style of an artist. **Activity:** Graphic design **Programs and Resources:** Paint.net **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Creating voice recordings with QR codes to represent information. **Activity:** Geocaching history from an infographic **Programs and Resources:** Canva.com Vocaroo QR Code Headphones **Computing Strand:** Computer Science Information Technology Digital Literacy

Underpinning subject context Yr6

Computer Science:
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

Information Technology:
Use search technologies effectively.
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

Digital Literacy:
Understand the opportunities [networks] offer for communication and collaboration
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

Year 6	Autumn	Spring	Summer	Transition
	Theme: Victorian England	**Theme:** Partition of India	**Theme:** Nature	**Theme:** Imitation vs invention
	Concept: Create, design and program an educational app. **Activity:** App development **Programs and Resources:** Paint.net MIT App Inventor **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Create and edit a piece of music for a video with no sound. **Activity:** Produce a utopic/dystopic film score to a chosen scene **Programs and Resources:** Movie player Garageband QR code generator YouTube **Computing Strand:** Computer Science Information Technology Digital Literacy	**Concept:** Create flowcharts to help understand transition. **Activity:** Networks and data representations. **Programs and Resources:** PurpleMash **Computing Strand:** Computer Science Digital Literacy	**Concept:** Mechanical engineering of the future. **Activity:** Robotics: Smart systems **Programs and Resources:** Scratch Robotics devices D&T materials **Computing Strand:** Computer Science Information Technology Digital Literacy