COMPUTING Enquiry Questions and Assessment Checkpoints

Y1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Lead Enquiry (Composite Outcome)	**I know how to stay safe online** **I can control a computer using mouse skills**	**I can what an algorithm is**	**I can program Bee-bots to follow specific instructions**	**I can use technology to gather and sort data**	**I can use the features of digital imagery**	**I can use a graphics editing software**
WALTS (Components)	<u>Online Safety</u> C1: Know what the internet is and how to use it safely C2: Understand different feelings when using the internet C3: Understand how to treat others, both online and in-person C4: Understand the importance of being careful about what we post and share online <u>Mouse Skills</u> C1: Log into a computer and access a website C2: Develop mouse skills C3: Use mouse skills to draw and edit C4: Create a self-portrait using digital images	C1: Understand what an algorithm is C2: Follow instructions precisely to carry out an action C3: Understand that computers and devices around us use inputs and outputs C4: Understand and be able to explain what decomposition is C5: Know how to debug an algorithm	C1: Explore a new device C2: Create a demonstration video C3: Plan and follow a precise a se of instructions C4: Program a device C5: Create a program that tells a story	C1: Represent data in different ways C2: Use technology to represent data C3: Collect and record data C4: Sort data C5: Design an invention to gather data	C1: Understand and create a sequence of pictures C2: Take clear photographs C3: Edit photographs C4: Search for and import images C5: Create a photo collage	C1: Recognise that digital content can be represented in many forms C2: Design a rocket using a graphics editing programme C3: Sequence a set of instructions C4: Build a rocket C5: Test a design and record data digitally

Assessment Checkpoint	Children who are **secure** will be able to: ✓ Know how the internet can be used ✓ Know what is appropriate to share and what is not ✓ Log in and navigate around a computer ✓ Drag, drop, click and control a cursor using a mouse ✓ Use software tools to create art on the computer	Children who are **secure** will be able to: ✓ Explain what an algorithm is ✓ Write and follow clear algorithms ✓ Know what inputs and outputs are ✓ Know how to fix bugs in an algorithm	Children who are **secure** will be able to: ✓ Know how a Bee-Bot works ✓ Give clear instructions in a sequence ✓ Program a Bee-Bot to reach a destination ✓ Identify and correct mistakes in their programming	Children who are **secure** will be able to: ✓ Represent data in different ways – objects and technology ✓ Navigate a computer using mouse and keyboard skills ✓ Click and drag objects to create a branching database	Children who are **secure** will be able to: ✓ Take clear photos using a device ✓ Edit photos by cropping, filtering and resizing ✓ Search and import images ✓ Explain how to keep themselves safe online	Children who are **secure** will be able to: ✓ Know the benefits of making a list on a computer ✓ Use a basic range of tools on graphics editing software ✓ Input data about their rockets into a table or spreadsheet

Y2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Lead Enquiry Question (Composite Outcome)	**I know how to stay safe online** **I know what makes a computer**	**I understand computer algorithms and the process of debugging**	**I can word process documents**	**I can use Scratch Jr to being programming**	**I can create a stop motion animation**	**I can read and interpret digital data**
WALTS (Components)	<u>Online Safety</u> C1: Know what happens to information posted online C2: Know how to keep things safe and private online C3: Explain what should be done before sharing information online C4: Explain why I have the right to say no and deny permission C5: Understand strategies that will help me decide if something seen online is true or not <u>What is a computer?</u> C1: Recognise the parts of a computer C2: Recognise how technology is controlled C3: Recognise technology C4: Create a design for an invention C5: Understand the role of computers	C1: Decompose a game to predict the algorithms that are used C2: Understand that computers can use algorithms to make predictions (machine learning) C3: Plan algorithms that will solve problems C4: Understand what abstraction is C5: Understand what debugging is	C1: Begin to learn to touch-type C2: Understand how to use a word processor C3: Understand how to add images to a text document C4: Create a poetry book using sources from the internet C5: Create a digital piece of writing	C1: Explore a new application C2: Create an animation C3: Use characters as buttons C4: Follow an algorithm C5: Plan and use code to create an algorithm	C1: Understand what animation is C2: Understand what stop motion animation is C3: Create a stop motion animation from instructions C4: Plan my own stop motion animation C5: Create my own stop motion animation	C1: Understand how computers can help humans survive in space C2: Create a digital drawing of essential items for life in space C3: Understand the role of sensors on the ISS C4: Create an algorithm for growing a plant in space C5: Interpret data
Assessment Checkpoint	Children who are **secure** will be able to:	Children who are **secure** will be able to:	Children who are **secure** will be able to:	Children who are **secure** will be able to:	Children who are **secure** will be able to:	Children who are **secure** will be able to:

	✓ Recognise what safe to be shared online ✓ Explain what makes a strong password ✓ Understand why they need to ask for permission before sharing content online ✓ Say who they can ask for help with online worries ✓ Recognise that buttons cause effects ✓ Name some computer peripherals and their function ✓ Explain the role of computers in the world around them	✓ Predict algorithms ✓ Define decomposition ✓ Write clear and precise algorithms to solve problems ✓ Use loops in their algorithms to make their code more efficient ✓ Explain what abstraction is	✓ Know the keys on the keyboard and use them correctly ✓ Search for, import and alter appropriate images for a text document ✓ Modify text in a document ✓ Use the copy and paste function ✓ Explain what information is safe to be shared online	✓ Use the blocks on Scratch Jr for a purpose ✓ Recognise a loop in coding and why it is useful ✓ Create an animation of a moving animal ✓ Program code to run 'on tap'	✓ Create a flip book animation ✓ Decompose a story into smaller parts to plan a stop motion animation ✓ Create stop motion animations with small changes between images	✓ Describe and explain how astronauts' survival needs are met about the ISS ✓ Digitally draw items which fulfil human needs when aboard the ISS ✓ Create an algorithm that addresses all plants' needs ✓ Read data to identify whether a planet might be habitable

Y3	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Lead Enquiry Question (Composite Outcome)	**I can keep myself and others safe online** **I can explain what a computer network is**	**I can use Scratch to program**	**I can use email to communicate online**	**I understand parts of how a computer works**	**I can use an iPad to create a video**	**I can use data software to sort, filter and interpret data online**
WALTS (Components)	<u>Online Safety</u> C1: Understand how the internet can be used to share beliefs, opinions and facts C2: Understand the effects that some internet use can have on our emotional wellbeing C3: Understand the ways personal information can be shared on the internet C4: Understand the rules for social media platforms <u>What is a network?</u> C1: Understand what a network is and understand our school network C2: Understand how information moves around a network and begin to recognise real world networks C3: Understand how the internet works and explain a website's journey C4: Explore the role of routers C5: Understand the role of packets	C1: Explore a programming application C2: Use repetition (a loop) in a program C3: Program an animation C4: Program a story C5: Program a game	C1: Understand how we communicate with technology C2: Understand what emails are and how to send one C3: Know how to create an email with an attachment C4: Understand the importance of being kind online C5: Recognise when an email is not genuine	C1: Recognise basic inputs and outputs C2: Decompose a laptop C3: Understand the purpose of computer parts C4: Decompose a tablet computer	C1: Plan a digital book trailer C2: Take photos and/or videos that tell a story C3: Edit a video C4: Add text and transitions to a video C5: Evaluate video editing	C1: Understand the terminology around databases C2: Compare and computerised databases C3: Sort, filter and interpret data C4: Represent data in different ways C5: Sort data for a purpose

Assessment Checkpoint	Children who are **secure** will be able to: ✓ Differentiate between fact, opinion and belief online ✓ Explain how to deal with any upsetting online content ✓ Explain what social media platforms are used for ✓ Know why social media platforms are age-restricted ✓ Know what a network is ✓ Explain how information moves around a network and the role of the server ✓ Explain the purpose of a router ✓ Explain that websites are split into packets to be sent via the internet	Children who are **secure** will be able to: ✓ Explain what some of the blocks do in Scratch ✓ Explain what a loop is and include one in their program ✓ Suggest possible additions to an existing program ✓ Use a systematic approach to find bugs ✓ Explain what an algorithm is and its purpose	Children who are **secure** will be able to: ✓ Send a simple email ✓ Edit an email ✓ Add an attachment to an email ✓ Send an email with an awareness of how it will make the recipient feel ✓ Recognise unkind behaviour online and know how to report it ✓ Recognise when an email may be fake and explain how they know	Children who are **secure** will be able to: ✓ Recognise inputs and outputs ✓ Explain that the parts of a laptop work together and the purpose of each part ✓ Explain what an algorithm is ✓ Suggest what memory is for inside a computer ✓ Make comparisons between different types of computer	Children who are **secure** will be able to: ✓ Describe the purpose of a trailer ✓ Consider camera angles when taking photos or videos ✓ Import videos and photos into film editing software ✓ Add text to a video ✓ Incorporate transitions between images ✓ Evaluate their own and others' trailers	Children who are **secure** will be able to: ✓ Explain what is meant by 'field', 'record' and 'data' ✓ Put values into a spreadsheet ✓ Sort, filter and interpret data in a spreadsheet ✓ Create a graph on Microsoft Excel ✓ Explain the purpose of visual representations of data

Y4	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Lead Enquiry Question (Composite Outcome)	**I understand the balance of using technology** **I can generate my own data**	**I can create variables in Scratch**	**I can plan, create and evaluate a webpage**	**I can interrogate and edit webpages**	**I can use computational thinking to solve problems**	**I can create an automated machine to respond to sensor data**
WALTS (Components)	<u>Online Safety</u> C1: Describe how to search for information within a wide group of technologies C2: Make a judgement about the probable accuracy of information C3: Describe some of the methods used to encourage people to buy things online C4: Explain why lots of people sharing the same opinion/beliefs online do not make those true C5: Explain that technology can be designed to act like or impersonate living things C6: Explain how technology can be a distraction and identify when I might need to limit the amount of tie spent using technology <u>Collaborative Learning</u> C1: Understand that software can be used to work online collaboratively	C1: Recall the key features of Scratch C2: Understand how a Scratch game works be using decomposition to identify key features C3: Understand what a variable is and how to make one C4: Understand how to make a variable in Scratch C5: Use knowledge of how variables work to create a quiz	C1: Explore the features of Microsoft Sway C2: Plan content for a collaborative webpage C3: Create an engaging webpage C4: Plan and create a website C5: Create and evaluate a website	C1: Understand and identify examples of HTML tags C2: Change HTML code for specific purpose C3: Change the HTML and CSS to alter the appearance of an object on the web C4: Understand and explore the complex components of a webpage C5: Alter key elements on a webpage including text and images	C1: Understand that computational thinking is made up of four key strands C2: Understand what decomposition is and how to apply it to solve problems C3: Understand what pattern recognition and abstraction mean C4: Understand how to create an algorithm and what it can be used for C5: Combine computational thinking skills to solve a problem	C1: Log data from online sources into a spreadsheet C2: Design a weather station C3::Design an automated machine to respond to sensor data C4: Understand how weather forecasts are made C5: Use tablets to present a weather forecast

	C2: Understand how to contribute to someone else's work effectively C3: Understand how to create a digital survey C4: Create and share a Microsoft form C5: Analyse data					
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Describe how to search over multiple platforms ✓ Be aware of the accuracy of results ✓ Explain what a bot is and give examples ✓ Explain some positive and negative distractions of technology ✓ Identify strategies to reduce the amount of time spent on technology ✓ Use Microsoft Forms effectively with a range of question and answer types ✓ Export data to a spreadsheet highlighting and interpreting data	Children who are **secure** will be able to: ✓ Understand how to create a simple script in Scratch ✓ Use decomposition to identify key features and understand how to decipher actions ✓ Understand what a variable is and how to use the 'say' and 'ask' blocks ✓ Use a variable to record a score ✓ Understand how a variable works within a program	Children who are **secure** will be able to: ✓ Use the features in Sway ✓ Create a webpage with useful information and a clear style ✓ Create a webpage with clear sections and with a range of features in	Children who are **secure** will be able to: ✓ Activate the goggles to investigate a webpage ✓ Explain how they altered the HTML to create their own posters ✓ Change the colours and sizes of their object elements ✓ Change an image and/or text within a webpage	Children who are **secure** will be able to: ✓ Understand that problems can be solved more easily using computational thinking ✓ Understand what the different code blocks do ✓ Understand the terms 'pattern recognition' and 'abstraction' ✓ Apply computational thinking to solve problems	Children who are **secure** will be able to: ✓ Search the web efficiently for specific data ✓ Design a weather station that gathers and records sensor data ✓ Design an automated machine that uses selection to respond to sensor data ✓ Search for and record weather forecast information in a spreadsheet, explaining how this data is used

Y5	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Lead Enquiry Question (Composite Outcome)	**I can understand ways to keep myself and others safe from bullying online** **I can use search engine efficiently**	**I can program music using Scratch**	**I can understand the use of binary data**	**I can use micro-bits to code**	**I can create a stop motion animation with characters**	
WALTS (Components)	<u>Online Safety</u> C1: Understand how apps can access our personal information and how to alter permissions C2: Be aware of the positive and negative aspects of online communication C3: Understand how online information can be used to form judgements C4: Discover ways to overcome bullying C5: Understand how technology can affect health and wellbeing <u>Search Engines</u> C1: Understand what a search engine is and how to use it C2: Be aware that not everything online is true C4: Search online efficiently C5: Create an informative digital poster	C1: Explore Scratch music elements C2: Create a program that plays themed music C3: Plan a soundtrack program C4: Program a soundtrack C5:Program music for a specific purpose	C1: Identify how and why data is collected from space C2: Read and calculate numbers using binary code C3: Identify the computer architecture of the Mars Rover C4: Use simple operations to calculate bit patterns C5: Represent binary as text	C1: Explore a piece of software C2: Program an animation C3: Recognise coding structures C4: Create a program for a specific task C5: Create and evaluate a program	C1: Recall what animation is C2: Understand what stop motion is (recalling previous learning) C3: Plan a stop motion animation with characters C4: Create my stop motion animation C5: Edit and assess my stop motion animation	C1: Recognise how bit patterns represent images as pixels C2: Explain how the data for digital images can be compressed C3: Identify and explain the fetch, decode and execute cycle C4: Create a safe online profile and explore 3D software C5: Modify the design of a 3D object using CAD software

	C6:Understand how search engines work					
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Understand why passwords need to be strong ✓ Search for simple information about a person ✓ Know what bullying is and that this can occur online ✓ Recognise impact of online use on our health and wellbeing ✓ Explain what a search engine is ✓ Suggest search engines to use ✓ Explain why keywords are important ✓ Make parallels between book searching and internet searching	Children who are **secure** will be able to: ✓ Explain what basic commands do ✓ Explain how their program links to the theme ✓ Correct their own simple mistakes ✓ Code a piece of music that combines a variety of structures ✓ Use loops in their programming	Children who are **secure** will be able to: ✓ Identify some of the types of data that the Mars Rover could collect ✓ Explain how the Mars Rover transmits data back to Earth ✓ Read any binary number, up to eight bits ✓ Relate binary signals (Boolean) to a simple character-based language, ASCII	Children who are **secure** will be able to: ✓ Make connections with previous programming interfaces they have used ✓ Recognise the different between 'on start' and 'forever' ✓ Make predictions about how variable work ✓ Choose appropriate block sot complete the program ✓ Break a program down into smaller steps, suggesting appropriate blocks and match the algorithm to the program	Children who are **secure** will be able to: ✓ Create a short stop motion with small changes between images ✓ Make small changes to the models to ensure a smooth animation and delete unnecessary frames ✓ Add effects such as extending parts and titles ✓ Provide feedback to other groups about their animations	Children who are **secure** will be able to: ✓ Create a pixel picture and explain that binary is used to code and transfer ths data ✓ Save a JPEG as a bitmap ✓ Explain the 'fetch, decode, execute' cycle in relation to real-world situations ✓ Begin to use 3D design tools

Y6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Lead Enquiry Question (Composite Outcome)	**I know how to create positive online reputation** **I know the key figures who advanced computer science**	**I can use Python to program**	**I can explain how big data is transmitted using bar an QR codes**	**I can explain the impact of the advances of computer science on our world**	**I can explain the advantages of using data systems in different ways**	**I can design a product and use a range of technology to promote it**
WALTS (Components)	<u>Online Safety</u> C1: Describe issues online that give us negative feelings and know how to get help C2: Consider the impact and consequences of sharing online C3: Know how to create a positive online reputation C4: Know how to capture bullying content as evidence C5: Manage personal passwords effectively C6 : Know strategies to help to be protected online <u>Bletchley Park</u> C1: Understand there are lots of types of different secret codes C2: Understand the importance of having a secure password C3: Understand the importance of Bletchley Park to the WW2 effort C4: Know about some of the historical figures that	C1: Explore a new piece of software C2: Understand nested hoops C3: Understand basic Python commands C4: Use loops when programming C5: Understand the use of random numbers	C1: Identify how bar codes and QR codes work C2: Know how infrared waves transmit information C3: Recognise hoe RFID is used C4: Input and analyse real-world data C5: Analyse and evaluate date	C1: Explore the functions of sound on a computer C2: Record, edit and add sound effects to a radio play C3: Understand how computers have changed and the impact of this on the modern world C4: Research and present information on one of the computers that changed the world C5: Design a computer of the future	C1: Explain how data can be safely transferred C2: Investigate the data usage of online activities C3: Identify how data analysis can improve city life C4: Design a system for turning a school into a smart school C5: Present ideas for a smart school	C1: Design an electronic product C2: Code and debug a program C3: Use CAD to design a product C4: Create a website C5: Create and edit a video C6: Understand the techniques used in advertising a product

	have contributed to technological advances in computing					
Assessment Checkpoint	Children who are **secure** will be able to: ✓ Know how to get help for any online issues ✓ Explain what a 'digital reputation' is ✓ Know how to capture evidence of online bullying ✓ Describe ways to manage passwords ✓ Explain ways to increase privacy settings ✓ Explain that codes can be used for a number of different reasons ✓ Understand the importance of Bletchley Park ✓ Know some of the key historical figures for their contribution to computer science	Children who are **secure** will be able to: ✓ Explain what their program does ✓ Use nested loops in their designs, explaining why they need two repeats ✓ Use Python commands ✓ Modify a program to personalise it	Children who are **secure** will be able to: ✓ Understand why barcodes and QR codes were created ✓ Create and scan my own QR code ✓ Explain how infrared can be used to transmit a Boolean type signal ✓ Explain how RFID works ✓ Enter real-time data into a spreadsheet ✓ Analyse and evaluate data – considering how this provides a useful service to commuters	Children who are **secure** will be able to: ✓ Explain how to record sounds and add in sound effects ✓ Produce a simple radio play with sound edits ✓ Describe all the features that we'd expect a computer to have ✓ Design the next stage in computer science	Children who are **secure** will be able to: ✓ Recognise differences between mobile data and WiFi ✓ Use a spreadsheet to compare and identify high and low-use data activities ✓ Explain ways that Big Data or Internet of Things could be used to improve efficiency within the school ✓ Present ideas to others	Children who are **secure** will be able to: ✓ Evaluate code, understanding what it does and adapt existing to code for a specific purpose ✓ Debug programs making them more efficient ✓ Use CAD software ✓ Create an appealing website aimed at a target audience ✓ Create an edited video