Year 5

Subject	Knowledge	Skills	Key Vocabulary
Computational Thinking 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 **Computer Hardware and Digital Literacy** 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 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.	**E Safety** ● I can choose a secure password and screen name. ● I protect my password and other personal information. ● I can explain why I need to protect myself and my friends and the best ways to do this, including reporting concerns to an adult. ● I know that anything I post online can be seen, used and may affect others. ● I can talk about the dangers of spending too long online or playing a game. ● I can explain the importance of communicating kindly and respectfully. ● I can discuss the importance of choosing an age-appropriate website, app or game. ● I can explain why I need to protect my computer or device from harm. **Programming** ● I can decompose a problem into smaller parts to design an algorithm for a specific outcome and use this to write a program. ● I can refine a procedure using repeat commands to improve a program. ● I can use a variable to increase programming possibilities. ● I can change an input to a program to achieve a different output. ● I can use 'if' and 'then' commands to select an action. ● I can talk about how a computer model can provide information about a physical system. ● I can use logical reasoning to detect and debug mistakes in a program. ● I use logical thinking, imagination and creativity to extend a program. **Handling Data** ● I can use a spreadsheet and database to collect and record data. ● I can choose an appropriate tool to help me collect data.. ● I can present data in an appropriate way. ● I can search a database using different operators to refine my search. ● I can talk about mistakes in data and suggest how it could be checked. **Multimedia** ● I can use text, photo, sound and video editing tools to refine my work. ● I can use the skills I have already developed to create content using unfamiliar technology. ● I can select, use and combine the appropriate technology tools to create effects that will have an impact on others. ● I can select an appropriate online or offline tool to create and share ideas. ● I can review and improve my own work and support others to improve their work.	**Computer Science** **Hardware** • Learning that external devices can be programmed by a separate computer • Learning the difference between ROM and RAM • Recognising how the size of RAM affects the processing of data • Understanding the fetch, decode, execute cycle **Networks and Data Representation** • • Learning the vocabulary associated with data: data and transmit • Learning how the data for digital images can be compressed • Recognising that computers transfer data in binary and understanding simple binary addition • Relating binary signals (Boolean) to the simple character-based language, ASCII • Learning that messages can be sent by binary code, reading binary up to 8 characters and carrying out binary calculations • Understanding how bit patterns represent images as pixels **Computational Thinking** Decomposing animations into a series of images • Decomposing a program without support • Decomposing a story to be able to plan a program to	

| Information technology | **Technology in Our Lives**
● I can describe different parts of the Internet.
● I can use different online communication tools for different purposes.
● I can use a search engine to find appropriate information and check its reliability.
● I can recognise and evaluate different types of information I find on the World Wide Web.
● I can describe the different parts of a webpage.
● I can find out who the information on a webpage belongs to
● I know which resources on the Internet I can download and use.
I can describe the ways in which websites advertise their products to me. | tell a story
• Predicting how software will work based on previous experience
• Writing more complex algorithms for a purpose

Programming
• Programming an animation
• Iterating and developing their programming as they work
• Beginning to use nested loops (loops within loops)
• Debugging their own code
• Writing code to create a desired effect
• Using a range of programming commands
• Using repetition within a program
• Amending code within a live scenaio

Information technology

Using Software
• Using logical thinking to explore software more independently, making predictions based on their previous experience
• Using software programme Sonic Pi to create music
• Using the animation software: Stop Motion to create video animation
• Identify ways to improve and edit final products
• Independently learning how to use 3D design software package TinkerCAD

Using Email and Internet
• Developing searching skills to help find relevant information on the internet
• Learning how to use search engines | |

effectively to
find information,
focussing on
keyword searches
and evaluating
search returns

Using Data
Understanding
how data is
collected

Digital Literacy

Wider Use of technology
• Learning what a
- search engine is

Digital Literacy

Identifying possible
dangers online and
learning how to
stay safe.
• Creating an
animation about
digital safety
• Recognising that
information on the
Internet might not
be true or correct
and learning ways
of checking validity
• Learning to use an
- online community