Y6 Computing

Coding

Summer 2 (6 lessons)

Statutory NC Objectives KS2 Computing:

- 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

Key Vocabulary

ANCHOR WORDS

Algorithm - A precise step by step set of instructions used to solve a problem or achieve an objective.
Execute\Run - Clicking the Play button to make the computer respond to the code. Execute is the technical word for when you run the code. We say, 'the program (or code) executes.'

GOLDILOCKS WORDS

Co-ordinates - Numbers which determine the position of a point, shape or object in a particular space.
Function - A block or sequence of code that you can access when you need it, so you don't have to rewrite the code repeatedly.
Input - Information going into the computer. This could be the user moving or clicking the mouse, or the user entering characters on the keyboard.
Output - Information that comes out of the computer e.g. sound. prompt, alert or print to screen.

STEP-ON WORDS

Decomposition - A method of breaking down a task into manageable components. This makes coding easier as the components can then be coded separately and then brought back together in the program.

Key Knowledge

By the end of this unit, the pupils should know that:

- To design a playable game with a timer and a score.
- To plan and use selection and variables.
- To understand how the launch command works.
- To use functions and understand why they are useful.
- To understand how functions are created and called.
- To use flowcharts to create and debug code.
- To create a simulation of a room in which devices can be controlled.
- To understand how user input can be used in a program.

"Bridging Back" (previous years/cross-curricular content)

Year 1 – Coding, Lego Builders, Maze Explorers
Year 2 – Coding, Questioning
Year 3 – Coding, Branching Databases
Year 4 – Coding, Logo, Animation
Year 5 - Coding

"Bridging Forward" (future years/cross curricular content)

KS3 Curriculum
Code in at least two coding languages

Y6 Computing

Online Safety

Autumn 1 (2 lessons)

Statutory NC Objectives KS2 Computing:

- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Key Vocabulary

ANCHOR WORDS	GOLDILOCKS WORDS	STEP-ON WORDS
Password - A secret word, phrase or combination of letters, numbers and symbols that must be used to gain admission to a site or application such as a website. **Print Screen** - Capturing an image of the current screen on a device. Also known as a screen shot. **Screen time** - The time spent using a device with a screen, such as a computer, television, tablet or phone.	**Data analysis** - The process of interpreting and understanding data that has been collected and organised. **Digital footprint** - The information about a person that exists on the Internet as a result of their online activity. **Phishing** - The practice of sending email pretending to be from reputable companies in order to persuade individuals to reveal personal information, such as passwords and credit cards numbers.	**Location sharing** - A way of sharing with others your device's location, these can be switched off for added security.

Key Knowledge

By the end of this unit, the pupils should know that:

- To identify benefits and risks of mobile devices broadcasting the location of the user/device.
- To identify secure sites by looking for privacy seals of approval.
- To identify the benefits and risks of giving personal information.
- To review the meaning of a digital footprint.
- To have a clear idea of appropriate online behaviour.
- To begin to understand how information online can persist.
- To understand the importance of balancing game and screen time with other parts of their lives.
- To identify the positive and negative influences of technology on health and the environment.

"Bridging Back" (previous years/cross-curricular content)

Year 1 – Online Safety, Technology Outside School
Year 2 – Online Safety, Effective Searching
Year 3 – Online Safety, Email
Year 4 – Online Safety, Effective Searching
Year 5 -Online Safety, Word Processing

"Bridging Forward" (future years/cross curricular content)

KS3 Curriculum

Understand a range of ways to use technology safely

Y6 Computing

Spreadsheets

Autumn 2 (5 lessons)

Statutory NC Objectives KS2 Computing:

- 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

Key Vocabulary

ANCHOR WORDS	GOLDILOCKS WORDS	STEP-ON WORDS
Spreadsheet - A computer program that represents data in cells in a grid of rows and columns. Any cell in the grid may contain either data or a formula that describes the value to be inserted based on the values in other cells.	**Formula** - A group of letters, numbers, or other symbols which represents a scientific or mathematical rule. The plural of formula is formulae. **Formula Bar** - An area of the spreadsheet into which formulae can be entered using the '=' sign to open the formula.	**Probability** - The extent to which an event is likely to occur, measured by the ratio of the favourable cases to the whole number of cases possible.

Key Knowledge

By the end of this unit, the pupils should know that:

- To use a spreadsheet to investigate the probability of the results of throwing many dice.
- To use a spreadsheet to calculate the discount and final prices in a sale.
- To use a spreadsheet to plan how to spend pocket money and the effect of saving money.
- To use a spreadsheet to plan a school charity day to maximise the money donated to charity.

"Bridging Back" (previous years/cross-curricular content)

Year 1 – Spreadsheets, Pictograms
Year 2 – Spreadsheets, Questioning
Year 3 – Spreadsheets, Graphing
Year 4 – Spreadsheets,
Year 5 - Spreadsheets, Databases

"Bridging Forward" (future years/cross curricular content)

KS3 Curriculum

Understand key algorithms that reflect computational thinking
Undertake creative projects that involve selecting, suing and combining multiple applications.

Y6 Computing

Blogging

Summer 1 (4 lessons)

Statutory NC Objectives KS2 Computing:

- 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.

Key Vocabulary

ANCHOR WORDS

Blog - A regularly updated website or web page, typically one run by an individual or small group, that is written in an informal or conversational style.
Collaborate - Work jointly on an activity or project.
Commenting - To express an opinion or reaction in speech or writing.
Vlog - A personal website or social media account where a person regularly posts short videos.

GOLDILOCKS WORDS

Archive - In this case, where older blog or vlog posts are stored.
Blog post - A piece of writing or other item of content published on a blog.

STEP-ON WORDS

Approval - The act of acknowledging something is appropriate.

Key Knowledge

By the end of this unit, the pupils should know that:

- To identify the purpose of writing a blog.
- To identify the features of a successful blog.
- To plan the theme and content for a blog.
- To understand how to write a blog and a blog post.
- To consider the effect upon the audience of changing the visual properties of the blog.
- To understand how to contribute to an existing blog.
- To understand how and why blog posts are approved by the teacher.
- To understand the importance of commenting on blogs.

"Bridging Back" (previous years/cross-curricular content)

Year 1 – Online Safety, Technology Outside School
Year 2 – Online Safety, Effective Searching
Year 3 – Online Safety, Email
Year 4 – Online Safety, Effective Searching
Year 5 - Online Safety, Word Processing

"Bridging Forward" (future years/cross curricular content)

KS3 Curriculum: 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 create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns.

Y6 Computing

Networks

Autumn 1 (3 lessons)

Statutory NC Objectives KS2 Computing:

- 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

Key Vocabulary

ANCHOR WORDS

Internet - A global computer network providing a variety of information and communication facilities consisting of interconnected networks using standardized communication protocols.
World Wide Web - An information system on the Internet which allows documents to be connected to other documents by hypertext links, enabling the user to search for information by moving from one document to another.

GOLDILOCKS WORDS

Network - Several interconnected computers, machines, or operations.
Router - A device which forwards data packets to the appropriate parts of a computer network.
Wi-Fi - A facility allowing computers, smartphones, or other devices to connect to the Internet or communicate with one another wirelessly within a particular area.

STEP-ON WORDS

Hub\Switch - The connection point for networks where data packets from many locations converge and are then sent out to different devices.
Local area network (LAN) - A computer network that links devices within a building or group of adjacent buildings, especially one with a radius of less than 1 km.
Wide area network (WAN) - A collection of local-area networks (LANs) or other networks that communicate with one another over a large physical area or even globally.

Key Knowledge

By the end of this unit, the pupils should know that:

- To learn about what the Internet consists of.
- To find out what a LAN and a WAN are.
- To find out how the Internet is accessed in school.
- To research and find out about the age of the Internet.
- To think about what the future might hold.

"Bridging Back" (previous years/cross-curricular content)

Year 1 – Technology Outside School
Year 2 – Effective Searching
Year 3 – Email
Year 4 – Effective Searching, AI

"Bridging Forward" (future years/cross curricular content)

KS3 Curriculum

understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems

Y6 Computing

Binary

Spring 2 (4 lessons)

Statutory NC Objectives KS2 Computing:

- 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

Key Vocabulary

ANCHOR WORDS	GOLDILOCKS WORDS	STEP-ON WORDS
Digit - A single integer used to show a number. **Integer** - Any whole number. This includes negative and positive numbers but not fractions or decimals.	**Base 10** - A number system in which there are ten separate integers that can be used to make all numbers. This is also called the decimal and the denary system. **Switch** - An act of changing to or adopting one thing in place of another.	**Base 2** - A number system in which there are two separate integers that can be used to make all numbers. This is also called the binary system. **Transistor** - A transistor is a tiny switch that is activated by the electronic signals it receives.

Key Knowledge

By the end of this unit, the pupils should know that:

- To examine how whole numbers are used as the basis for representing all types of data in digital systems.
- To recognise that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems).
- To understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics.

"Bridging Back" (previous years/cross-curricular content)

Year 1 – Coding, Lego Builders, Maze Explorers
Year 2 – Coding, Questioning
Year 3 – Coding, Branching Databases
Year 4 – Coding, Logo
Year 5 -Coding

"Bridging Forward" (future years/cross curricular content)

KS3 Curriculum

understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal]