Common Road Infant and Nursery School

Our Computing Curriculum

Our Computing curriculum is guided by the National Curriculum (2014) for KS1 Computing. Pupils should be taught to:

- 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;
- 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.

Intent

At Common Road Infant and Nursery School we aim to equip our children to thrive in a rapidly changing digital world where work and leisure activities are increasingly transformed by technology. We will ensure that children are given the skills and tools to be able to embrace and utilise new technology in a socially responsible and safe way. Computing skills enable children to be confident, creative and independent learners, and it is our intention that children have every opportunity to allow them to achieve this. In a world where digital technologies create a vast amount of new job opportunities, we aim for our children to have the skills, knowledge and passion for computing to allow them to become successful in future employment.

Computing Overview

Key Stage One will cover the following units from Teach Computing. Each unit has an in-built element of e-safety.
In addition to this, children will learn about being safe online and their responsibility as digital citizens by following the UKCIS 'Education for a Connected World' – as outlined below.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1 (Teach Computing)	**Technology around us (1.1)** Recognising technology in school and using it responsibly.	**Digital painting (1.2)** Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.	**Moving a robot (1.3)** Writing short algorithms and programs for floor robots, and predicting program outcomes.		**Grouping data (1.4)** Exploring object labels, then using them to sort and group objects by properties.	**Programming animations (1.6)** Designing and programming the movement of a character on screen to tell stories.
Year 1 (E-safety - UKCIS)	Self Image and Identity Online Relationships Health, Wellbeing and Lifestyle	Copyright and Ownership	Privacy and Security	Managing Online Information	Online Reputation	Online Bullying
Year 2 (Teach Computing)	**Information technology around us (2.1)** Identifying IT and how its responsible use improves our world in school and beyond.	**Robot algorithms (2.3)** Creating and debugging programs, and using logical reasoning to make predictions.	**Digital photography (2.2)** Capturing and changing digital photographs for different purposes.		**Pictograms (2.4)** Collecting data in tally charts and using attributes to organise and present data on a computer.	**Digital music (2.5)** Using a computer as a tool to explore rhythms and melodies before creating a musical composition.
Year 2 (E-safety - UKCIS)	Self Image and Identity Online Relationships	Online Reputation Online Bullying	Privacy and Security	Managing Online Information	Copyright and Ownership	Health, Well-being and Lifestyle

Computing & E-safety

Year 1

Black = Teach Computing

Green = E-safety – Project Evolve

	Autumn 1 Information Technology Around Us (Year 2 Unit)	Autumn 2 Digital Painting	Spring 1 Moving a Robot	Spring 2 Moving a Robot	Summer 1 Grouping Data	Summer 2 Programming Animations
1	Zip it (Self-image and Identity, Online Relationships)	Copyright and Ownership	Privacy and Security (linked to 'Zip it')	Four directions	Online reputation	Online bullying
2	Block it / flag it (Self-image and Identity, Online Relationships)	Copyright and Ownership	Privacy and Security (linked to 'Zip it')	Getting there	Online reputation	Online bullying
3	Block it (kindness) (Self-image and Identity, Online Relationships)	How can we paint using computers?	Buttons	Routes	Label and match	Comparing tools
4	Health, wellbeing and lifestyle.	Using shapes and lines	Directions	Managing online information	Group and count	Joining blocks
5	What is IT?	Why did I choose that?	Forwards and backwards	Managing online information	Describe an object	Make a change
6	IT in school	Comparing computer art and painting			Making different groups	Adding sprites
7					Answering questions	Project design / following my design

Computing & E-safety

Year 2

Black = Teach Computing

Green = E-safety – Project Evolve

	Autumn 1 Information Technology Around Us (Year 2 Unit)	Autumn 2 Robot Algorithms	Spring 1 Digital Photography	Spring 2 Digital Photography	Summer 1 Pictograms	Summer 2 Digital Music
1	Zip it (Self-image and Identity, Online Relationships)	Privacy and security	Online reputation	Lighting	Recap of Zip it, Block it, Flag it	Health, wellbeing and lifestyle
2	Block it / flag it (Self-image and Identity, Online Relationships)	Privacy and security	Online reputation	Effects	Counting and comparing	How music makes us feel
3	Block it (kindness) (Self-image and Identity, Online Relationships)	Giving instructions	Online bullying	Is it real?	Enter the data	Rhythms and patterns
4	IT in the world	Making predictions	Taking photographs	Managing online information	Creating pictograms	How music can be used
5	The benefits of IT	Mats and routes	Landscape or portrait?	Managing online information	What is an attribute?	Notes and tempo
6	Using IT in different ways	Algorithm design	What makes a good photograph?	Copyright and ownership	Presenting information	Creating digital music
7		Debugging				Reviewing and editing music

Key Stage One Computing - Vocabulary Definitions

Term	Definition
Algorithm	A set of steps followed by a human or computer to achieve a task
Attribute (property)	A word or a phrase that can be used to describe an **object** (such as its colour, size, or price)
Code	The instructions that a computer follows
Command	An instruction used to control a **computer**
Computer	A machine that follows instructions to do something
Data	A letter, word or number that has been collected
Debugging	Finding and correcting errors in a **program**
Information technology	Devices that help us to store and send information
Program	A set of **commands** that can be **run** by a **computer** to complete a task
Run (execute)	To follow the **commands** in a **program**

E-safety objectives (from UKCIS 'Education for a Connected World')

	Year 1	Year 2
Self-image and identity	• I can recognise that there may be people online who could make someone feel sad, embarrassed or upset. • If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help.	• I can explain how other people may look and act differently online and offline. • I can give examples of issues online that might make someone feel sad, worried, uncomfortable or frightened; I can give examples of how they might get help.
Online relationships	• I can use the internet with adult support to communicate with the people I know (e.g. video call apps / services). • I can explain why it is important to be considerate and kind to people online and to respect their choices. • I can explain why things one person finds funny or sad online may not always be seen in the same way by others.	• I can give examples of how someone might use technology to communicate with others they don't also know offline and explain why this might be risky. (e.g. email, online gaming, a pen-pal in another school / country). • I can explain who I should ask before sharing things about myself or others online. • I can describe different ways to ask for, give, or deny my permission online and can identify who can help me if I am not sure. • I can explain why I have a right to say 'no' or 'I will have to ask someone'. I can explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. • I can identify who can help me if something happens online without my consent. • I can explain how it may make others feel if I do not ask their permission or ignore their answers before sharing something about them online. • I can explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.
Online reputation	• I can recognise that information can stay online and could be copied. • I can describe what information I should not put online without asking a trusted adult first.	• I can explain how information put online about someone can last for a long time. • I can describe how anyone's online information could be seen by others. • I know who to talk to if something has been put online without consent or if it is incorrect.
Online bullying	• I can describe how to behave online in ways that do not upset others and can give examples.	• I can explain what bullying is, how people may bully others and how bullying can make someone feel. • I can explain why anyone who experiences bullying is not to blame. • I can talk about how anyone experiencing bullying can get help.

Managing online information	• I can give simple examples of how to find information using digital technologies, e.g. **search engines**, **voice activated searching**). • I know / understand that we can encounter a range of things online including things we like and don't like as well as things which are real or make believe / a joke. • I know how to get help from a **trusted adult** if we see content that makes us feel sad, uncomfortable worried or frightened.	• I can use simple keywords in **search engines**. • I can demonstrate how to navigate a simple webpage to get to information I need (e.g. home, forward, back buttons; links, tabs and sections). • I can explain what **voice activated searching** is and how it might be used, and know it is not a real person (e.g. Alexa, Google Now, Siri). • I can explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. • I can explain why some information I find online may not be real or true.
Health, wellbeing and lifestyle	• I can explain rules to keep myself safe when using technology both in and beyond the home.	• I can explain simple guidance for using technology in different environments and settings e.g. accessing online technologies in public places and the home environment. • I can say how those rules / guides can help anyone accessing online technologies.
Privacy and security	• I can explain that passwords are used to protect information, accounts and devices. • I can recognise more detailed examples of information that is personal to someone (e.g where someone lives and goes to school, family names). • I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	• I can explain how passwords can be used to protect information, accounts and devices. • I can explain and give examples of what is meant by 'private' and 'keeping things private'. • I can describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords). • I can explain how some people may have devices in their homes connected to the internet and give examples (e.g. lights, fridges, toys, televisions).
Copyright and ownership	• I can explain why work I create using technology belongs to me. • I can say why it belongs to me (e.g. 'I designed it' or 'I filmed it''). • I can save my work under a suitable title / name so that others know it belongs to me (e.g. filename, name on content). • I understand that work created by others does not belong to me even if I save a copy.	• I can recognise that content on the internet may belong to other people. • I can describe why other people's work belongs to them.

Key Stage One Computing – Skills Progression

Our computing curriculum explores ten strands, which are progressive through Key Stage One. Each strand is revisited across year groups as well as within, and ensures that prior knowledge is built upon.

- **Algorithms** – Be able to comprehend, design, create, and evaluate algorithms
- **Computer networks** – Understand how networks can be used to retrieve and share information, and how they come with associated risks
- **Computer systems** – Understand what a computer is, and how its constituent parts function together as a whole
- **Creating media** – Select and create a range of media including text, images, sounds, and video
- **Data and information** – Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- **Programming** – Create software to allow computers to solve problems
- **Safety and security** – Understand risks when using technology, and how to protect individuals and systems
- **Design and development** – Understand the activities involved in planning, creating, and evaluating computing artefacts
- **Effective use of tools** – Use software tools to support computing work
- **Impact of technology** – Understand how individuals, systems, and society as a whole interact with computer systems

National Curriculum learning objectives are also covered at different points within a year group, and across year groups, as outlined across:

National Curriculum Coverage – Years 1 and 2	1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	1.4 Grouping data	1.5 Digital writing	1.6 Programming animations	2.1 Information technology around us	2.2 Digital photography	2.3 Robot algorithms	2.4 Pictograms	2.5 Digital music	2.6 Programming quizzes
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	✓	✓		✓	✓		✓	✓		✓	✓	✓
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	✓			✓	✓		✓	✓	✓	✓		