

Curriculum: Computing



“We need technology in every classroom and in every student and teacher’s hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world.”

David Warlick

Why do we learn Computing?

There is a common misconception that computing is just about learning how to code. Instead, computing is based on problem-solving and tackling complex tasks both efficiently and creatively. Information and communication technology is an integral part of the national curriculum and is a key skill for everyday life. Chromebooks, tablets, programmable robots and 3D printers are a few of the tools that we use in school to acquire, organise, store, manipulate, interpret, communicate and present information.

In today's society, there is almost no aspect of life today that is not touched by technology: we use it for working, socialising, studying, shopping, accessing healthcare, playing, travelling and communicating. The world that is developing in front of us is increasingly reliant on humans being comfortable with the use and understanding of computers. Not every child at Werrington will work in a related field but it can be argued they will be in contact with someone that is.

The children at Werrington learn Computing because it is a practical subject, in which invention, problem-solving and resourcefulness are encouraged. Computing has deep links with Mathematics, Science, and Design and Technology, and provides pupils with insights into the links between human and machine intelligence.

What are the aims of our Computing curriculum?

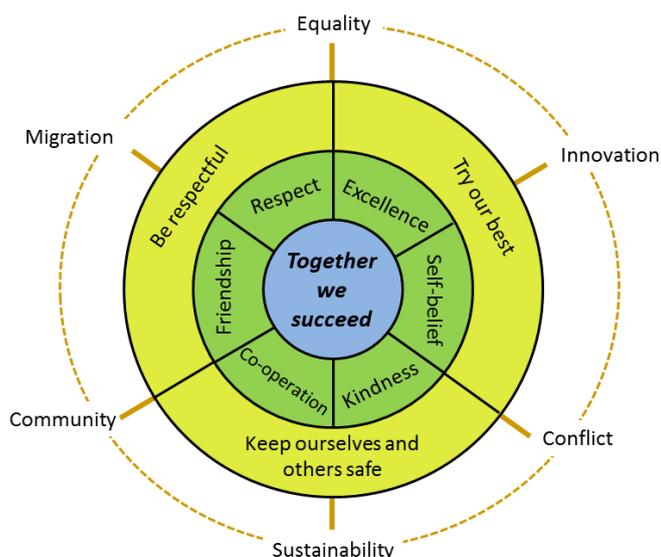
Computing at Werrington Primary School is firmly embedded as an essential part of our curriculum. We aim to provide our pupils with a wealth of learning opportunities and a range of transferable skills.

Through our Computing curriculum, we strive to ensure that all pupils are:

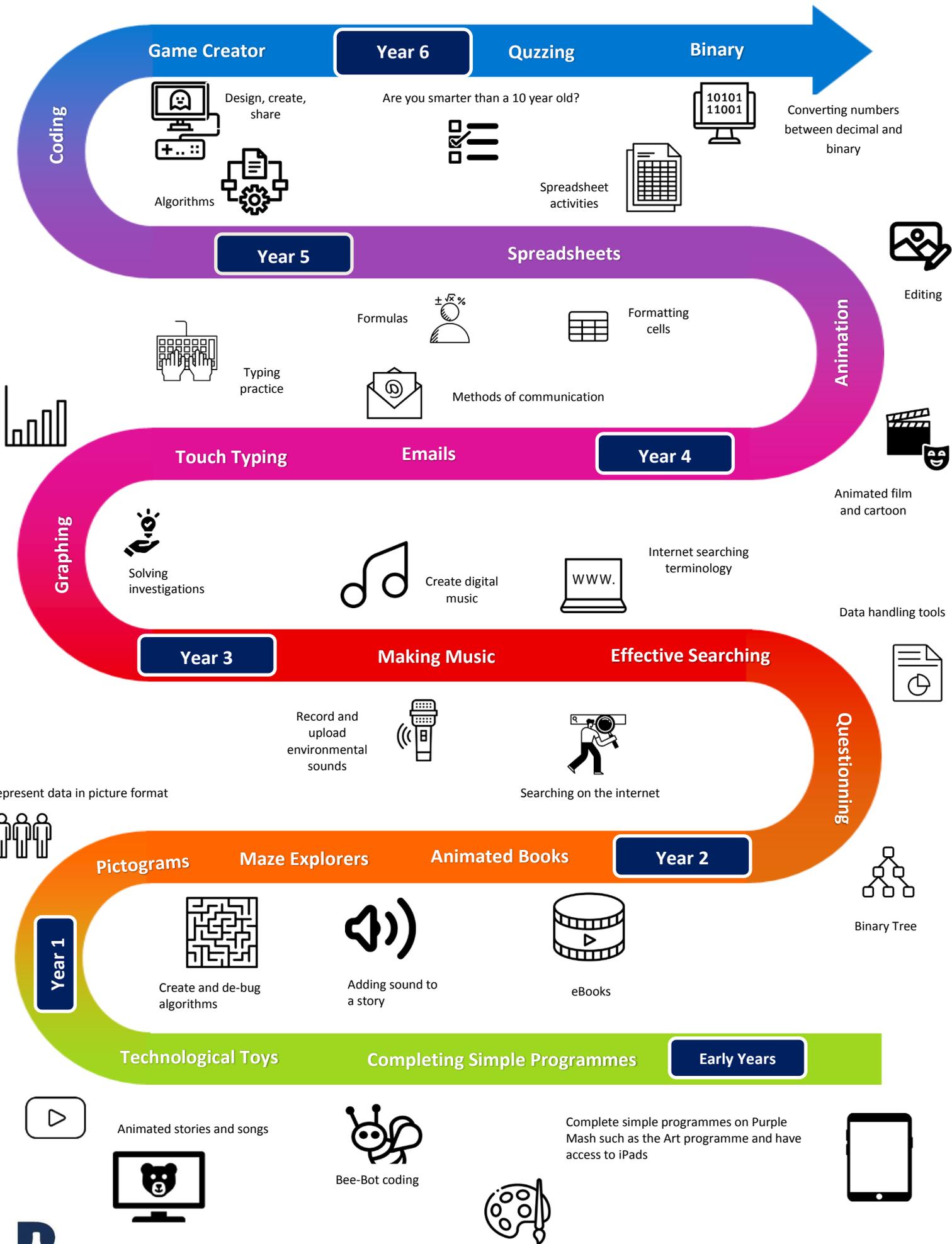
- ☞ Digitally literate.
- ☞ Active participants in an ever-growing digital world.
- ☞ Equipped with key skills and knowledge to use technology effectively and safely.
- ☞ Aware of the consequences of using the internet.
- ☞ Confident, independent learners, with key life skills in problem solving and logical thinking.
- ☞ Life-long learners who enjoy using technology.

At Werrington Primary our bespoke curriculum has 6 golden strands which encompass the core values of our school. These strands run through the Computing curriculum from Nursery to Year 6. Examples of this can be found in the table below.

Equality	In Year 6, all pupils are an active contributor to a class blog. They work collaboratively and must ensure that their posts and responses are always appropriate and respectful towards others.
Innovation	In Year 4, pupils design and create their own animations.
Conflict	In Year 5, pupils overcome problems by debugging programs and solve problems by decomposing them into smaller parts.
Sustainability	In Year 2, pupils study the work of established, historical artists. They use digital tools to replicate and enhance their images.
Community	In Year 1, pupils walk around the local area to identify examples of technology within the community.
Migration	In Year 3, when creating a presentation, pupils learn how to insert images by moving it from an original destination – web browser, digital camera, etc.



What do we learn about in Computing at Werrington Primary School?



An example of progression: Coding

Year 6

Pupils are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. They test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.

Year 5

Pupils can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design.

Year 4

When turning a real-life situation into an algorithm, the pupil's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Pupils make more intuitive attempts to debug their own programs.

Year 3

Pupils can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. Pupils can identify an error within their program that prevents it following the desired algorithm and then fix it

Year 2

Pupils can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, pupils show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.

Year 1

Pupils understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that an algorithm written for a computer is called a program.

EYFS

Pupils will operate simple equipment and show an interest in technological toys. They will show skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound or movement. Pupils will have access to Bee Bot toys to support this learning.

