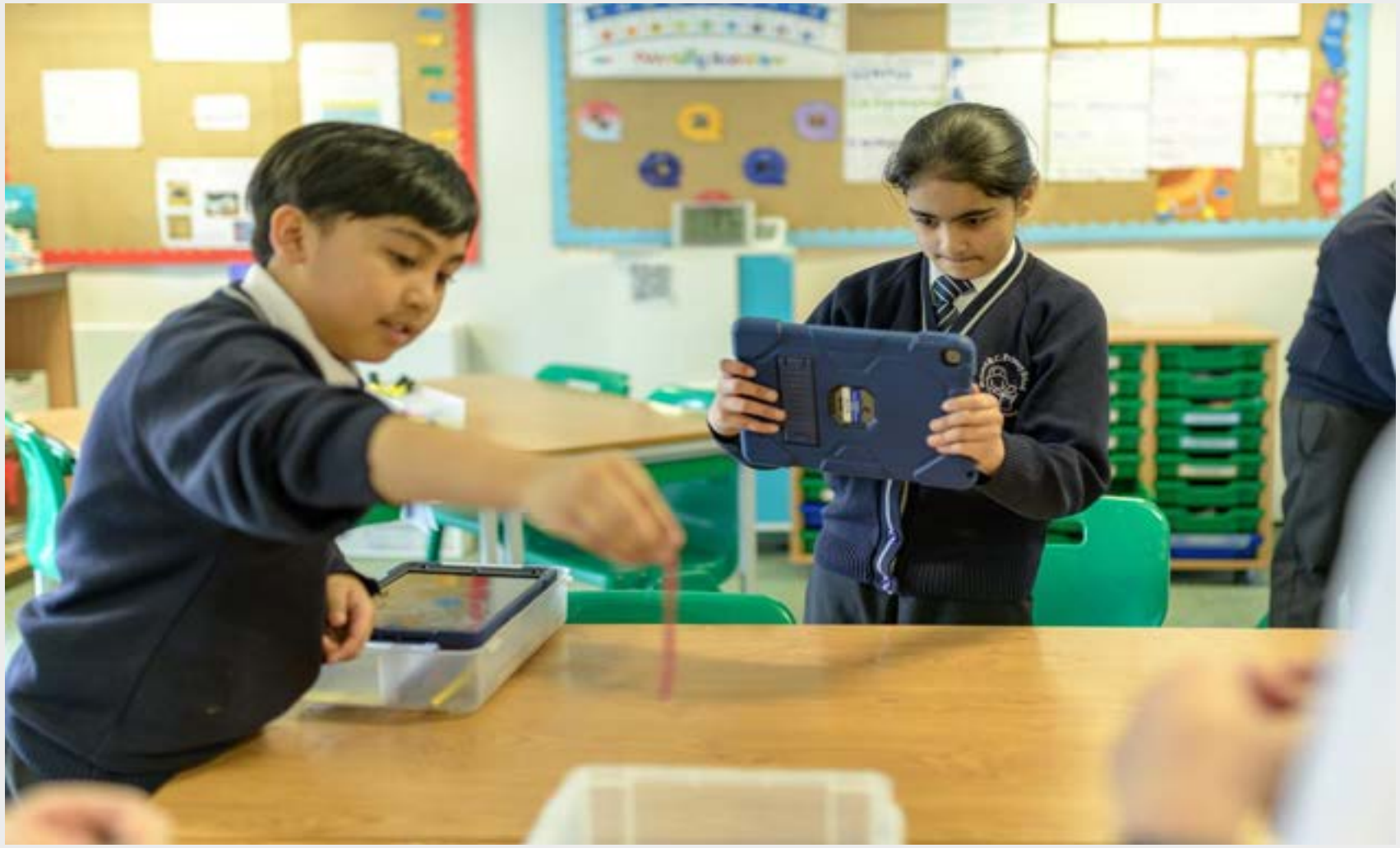
Computing the St Anne's Way



'Alan Turing gave us a mathematical model of digital computing that has completely withstood the test of time. He gave us a very, very clear description that was truly prophetic.' George Dyson

Technology is everywhere and will play a pivotal part in students' lives. Therefore, at St Anne’s we model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creative content providers, not simply consumers and our progressive curriculum encompassing computer science, information technology and digital literacy reflects this. Our curriculum is based on the framework provided by the National Curriculum and invokes the children’s curiosity by allowing them to use a vast variety of equipment, software and devices to achieve their learning focuses.

National Curriculum

‘A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.’

The national curriculum for computing aims to ensure that all pupils: ‘can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation; can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems; can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems; are responsible, competent, confident and creative users of information and communication technology.’

Vision

We want our pupils to understand that there is always a choice with using technology and as a school we utilise technology (especially social media) to model positive use. We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education. We recognise that technology can allow pupils to share their learning in creative ways and we also understand the accessibility opportunities technology can provide for our pupils. Our knowledge rich curriculum has to be balanced with the opportunity for pupils to apply their knowledge creatively which will in turn help our pupils become skilful computer scientists.

Key Strands

We aim to build high levels of competence in the subject specific skills of:

- Computer Science
- Information Technology
- Digital Literacy and Online Safety

Concepts

Children will be taught to understand concepts such as:

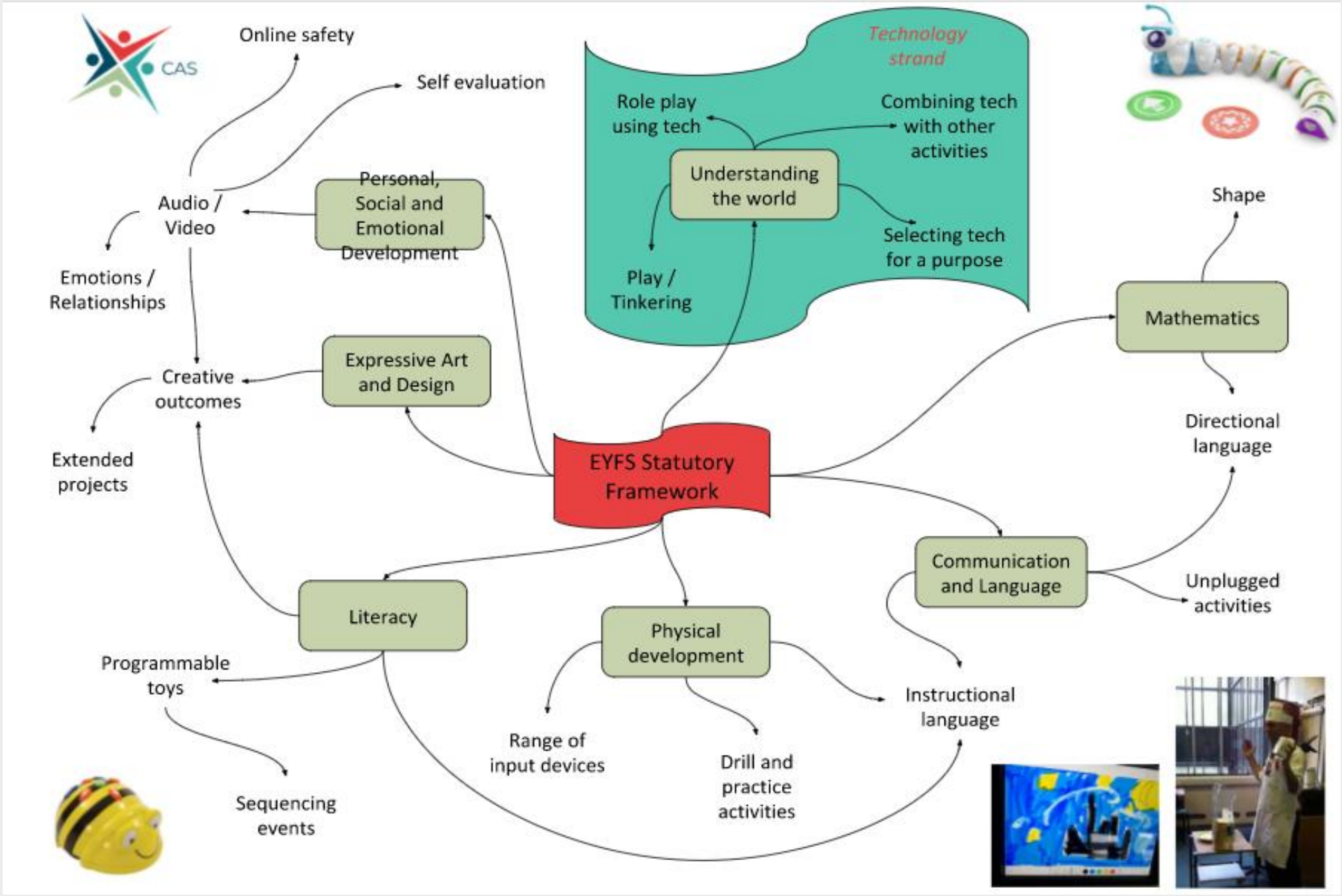
- Algorithms
- Debugging
- Programming
- Predicting behaviour

Intent

The knowledge and skills of Computer Science and Information Technology are taught in units over the course of the year. The units, where appropriate, have cross –curricular links to make the learning purposeful but at times some units cover knowledge and skills that do not link directly to a year group's specific topic but could be used in lesson to promote retention of knowledge from other subject areas. Teachers are made aware of the software children are taught to use and can add this into any area of the curriculum they wish. Most learning will occur using iPads however there will be a strong encouragement for children to select the softwares they believe will be the best for the task at hand.

At St Anne's we have a wealth of resources: each class has 10 iPads and 20 shared across the key-stage, 30 key-stage shared laptops, Roamers, Bee-Bots, Lego Wedo, Mindstorms and Spike kits, Green Screen, Crumble kits, Makey Makey kits and many other Apps to use alongside these devices. We use SeeSaw as a communication, sharing and learning tool in classes, enabling pupils to upload their own work, comment and collaborate with other's work.

EYFS


CAS
Online safety
Self evaluation
Technology strand
Role play using tech
Combining tech with other activities
Understanding the world
Selecting tech for a purpose
Play / Tinkering
Audio / Video
Personal, Social and Emotional Development
Emotions / Relationships
Shape
Mathematics
Directional language
Expressive Art and Design
Creative outcomes
Extended projects
EYFS Statutory Framework
Communication and Language
Unplugged activities
Literacy
Physical development
Programmable toys
Sequencing events
Range of input devices
Drill and practice activities
Instructional language

KS1

Computing will take place for 1 hour each week and weaved throughout the challenge curriculum in year 1. The KS1 curriculum, has been tailored to include the key technologies which children will be using day to day in the classroom. They will be taught new concepts surrounding computer science such as coding and programming with We Do Lego, Beebots and Scratch. Children are provided with the tools to understand algorithms, debugging and the unpredictable behaviour of technology. We also ensure children are being educated in Online Safety and keeping safe on social media.

KS2

Computing is also taught 1 hour a week in KS2. The focus is to build upon knowledge learnt in KS1 while introducing concepts relating to today's cultural capital such as blogging, fake news and creating a podcast. Children are given the chance to explore and be curious with different programmes and devices.

Computing Coverage

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	IT SeeSaw on iPads. Photography/videos, photos being uploaded to Seesaw. How to Edit.	IT eBook Record audio and add titles, manipulating images. App-Book Creator for a celebration book.	IT Painting in different styles. App- Brushes Redux	CS Beebots- Introduction to algorithms Outside giving instructions using arrows on playground Progress to instructions on Beebot and recording code		It eBook or apple clips - Cooking instructional film. Fruit Salad
Year 2	IT Brushes Redux Day of the Dead (half and half image)	IT Photography Unit - Linked to travel App-iMovie Website-Pixabay for images	CS Green Screen- Magic show, superhero (flying, disappearing, teleporting) skills using Chromo	CS ScratchJR- Programming a dialogue between two sprites Links to current topic.	IT Building our presenting skills – iMovie planning, filming and recording. Dips & Dippers	CS Lego WeDo - Developing our Lego programming Skills Getting started lessons. Assessment tool on Lego we-do Cooling Fan/ Windmill

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	CS Scratch- Creating an alternative TTRS. Adding variables/levels	IT iMovie - Horrible Histories type news bulletin about The Stone Age.	IT Spreadsheets, using weather equipment	IT/CS Digital Art Hieroglyphs Keynote Use of **abstraction** to create a story using icons	IT Clips Planning, recording and exporting video. Forces, Movement Bull Fighting	IT/CS Geometric shapes Inkscape (Scratch) Repetition and functions in scratch.
Year 4	IT Key note Fake news - presenting images and text using an alternative to Word	DL Create a song on Garage Band	IT Blogging GoBubble Create and edit their own blog post.	CS Scratch- Maze Repetition, conditionals, variables, functions. (Minotaur)	CS Physical Programming Name Badges Making their own (Microbit) using trial and error.	IT Imovie – movie Combination of live shot video Pictures Title & credit History Theme Green Screen (Crime + Punishment)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	IT Plan an adventure game (Google Slides/Powerpoint) Adding text and images	IT Stop-Motion Animation	CS VR - Viking settlement.	IT AI – Range of lessons Design, write and debug programs. Controlling and simulating systems. including animals	IT Garage Band- Creating a human body video with iMovie Use sequence and repetition various forms of input and output. Creating a soundtrack	CS Lego We-do Select use and combine a variety of media for a purpose. Creating a prototype of a space vehicle/rover
Year 6	IT Podcast about food (Garage Band)	IT Digital Art/AR Brushes Redux	CS Sketch-up - Design a refugee centre	IT Presenting on iMovie linked to theme of Explorers Select use and combine a variety of software for a given purpose.	CS Physical Programming Name Badges Making their own (Microbit) using trial and error. (same as year 4 as they have missed out)	CS (1 Week) LEGO We-do- Mastering Lego programming (Spike?) Logical reasoning to explain how some simple algorithms work.

*During Summer 1 the learning focus will be on Online Safety.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