How we Teach Computing at Tudor Primary School

TUDOR PRIMARY SCHOOL

Autumn 2020

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"I like computing because it takes you out of the real world. If you feel upset, it makes you feel calmer. I love every single thing about computing, and I'm so glad there are computers in the world"

- **Alex, Year 6**

"Whether you want to uncover the secrets of the universe, or you just want to pursue a career in the 21st century, basic computer programming is an essential skill to learn"

– Stephen Hawking

I love computing because it makes learning fun"

– Emily, Year 3, Tudor Primary

"Everybody should learn to program a computer, because it teaches you how to think."

- Steve Jobs

"I love to type up my work on computers because it looks good and it's easy to write my ideas. I love taking photos on the Ipads and playing games"

- Max, Year 2, Tudor Primary

"I think it's fair to say that personal computers have become the most empowering tool we've ever created. They're tools of communication, they're tools of creativity, and they can be shaped by their user."

- Bill Gates

"I love experimenting with different computing games and how they work, and their similarities and differences"

- Daisy, Year 5, Tudor Primary

Intent

Introduction:

At Tudor Primary School, we understand the key role that computing and technology plays for our pupils. Children are constantly exposed to computers throughout their daily lives in all different forms, such as tablets, phones, laptops and many others. This makes it vital that they have a solid understanding of how they work and are able to access all of the opportunities they provide.

This document will detail how we provide a broad and balanced Computing curriculum across the year groups which covers all areas of the National Computing Curriculum. As a school with a strong thematic approach to learning, technology is used throughout all aspects of the children's school lives in a wide variety of ways. This cross-curricular approach helps children to not only deepen their computing understanding, but also to practically apply their knowledge in different ways. In addition, the concrete application of technology within the context of a thematic curriculum gives the computing learning real meaning for the children, and makes it more relatable and practical for them.

Aims:

In line with the National Curriculum, we aim 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.*

Implementation

Switched On Computing:

At Tudor Primary, we follow the Switched on Computing scheme to provide a consistent and in-depth approach across all of the year groups. The Switched On Computing comprises of 6 units from year 1 to year 6, all of which enable the children to progress through their learning:

- Programming
- Computational thinking
- Creativity
- Computer networks
- Communication and collaboration
- Productivity
- Online safety

As the children move up the school these units follow the same sequence, but become more challenging as the student's knowledge is deepened and broadened. The teacher starts by recapping previous knowledge, and then building upon this as a foundation for new knowledge. At Tudor, we then link these Computing Days to our Thematic Curriculum to give them context and meaning for the children.

Here is an example of the KS1 Thematic Computing Map:

Tudor Thematic Computing Map

Theme KS1 YEAR A	Homes under the hammer		From Fork to field		Seaside Rescue	
	Autumn 1 -Year 1 1.3 – making an e-book Draw pictures - Stories about homes e.g. three little pigs	Autumn 1 -Year 2 2.3 – We are photographers -Take photographs and write about them - Take photos on IPad of buildings, use simple editing tools, add to book	Spring 1 - Year 1 1.1 – We are treasure hunters Twinkl Beebot costumes - animals	Spring 1 – Year 2 2.1 We are astronauts	Summer 1 – Year 1 1.4 We are collectors Find images	Summer 1 – Year 2 2.5 – We are detectives Writing an email to the head
Resources	Book creator - iPad	Book creator - iPad	Beebot Discovery coding year 1 unit	Beebot Discovery coding year 2 unit	Clips – IPad Puppet Edu - IPad	Email - Laptops
	Autumn 2 – Year 1 1.6 – We are celebrating – create a card electronically - Diwali, Christmas, birthday	Autumn 2 – Year 2 2.4 – We are researchers - Research an artist, find pictures and put information into a presentation.	Spring 2 – Year 1 1.2 – We are TV Chefs/Gardeners- - Filming instructions and setting up a shot	Spring 2 -Year 2 2. 6 – We are zoologists - Different animals and bug hunts	Summer 2 – Year 1 1.5 – We are storytellers Draw pictures and record voce	Summer 2 – Year 2 2.2 – We are games testers
Resources	2 Publish on laptops	Powerpoint - laptops	Clips – iPad Puppet Edu - IPad	2simple infant tool kit	2Simple 2 Create a story	Scratch Jr
Online Safety	Autumn 1 - We are Year 1 Rule writers	Autumn 2 - We are Year 2 Rule writers	Spring 1 - We are responsible internet and devise users	Spring 1 -We are Safe searchers	Summer 1 We are good digital citizens	Summer 1 – We are online behaviour experts
	Autumn 2 – We are kind and thoughtful	Autumn 2 – We are not online bullies	Spring 2 -We are information protectors	Spring 2 - We are code masters	Summer 2 - We are responsible gamers	Summer 2 – We are game raters

The Thematic maps for all Key Stages can be found on the staff drive.

Further information on the Switched on Computing scheme can be found on their website:

https://www.risingstars-uk.com/series/switched-on-computing

Foundation Stage:

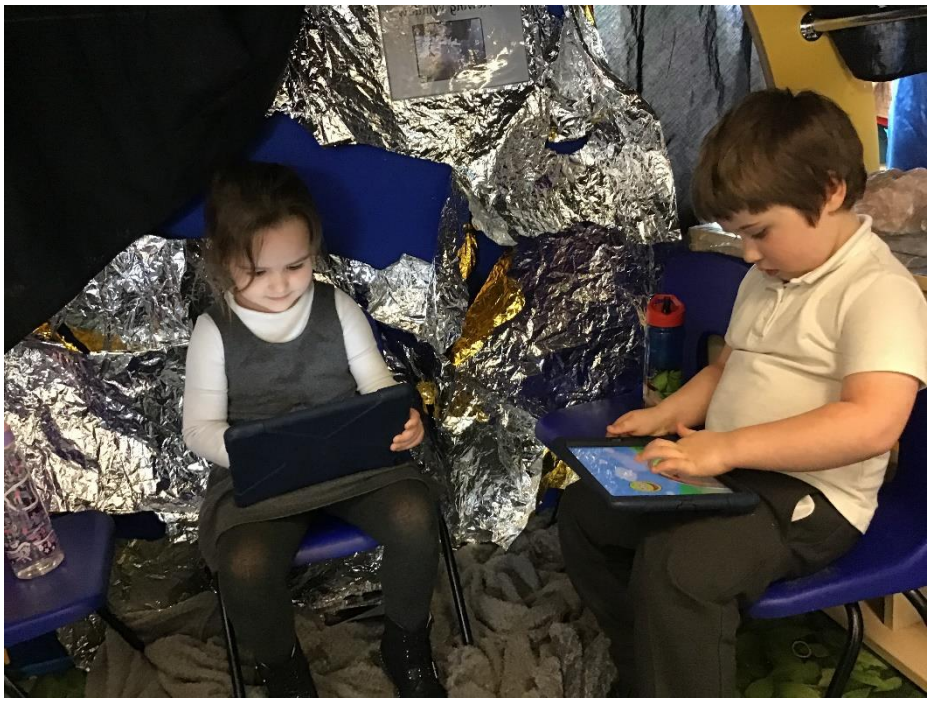
As the Switched On Computing only focusses on Year's 1 to 6, Computing is taught differently in Reception and Nursery. By the end of Early Years Foundation stage, children are expected to be able to complete a simple program on a computer and interact with age appropriate computer software. At Tudor, we provide a huge variety of ways for the children to achieve these targets.

During play and learn, there are two desktop computers open and ready with games and programs for the children to explore. There are also games available on the teachers Interactive White Board for the children to use. Children also have access to "talk buttons", where they hold down a button and record themselves speaking, then press another button to have the recording played back to them.

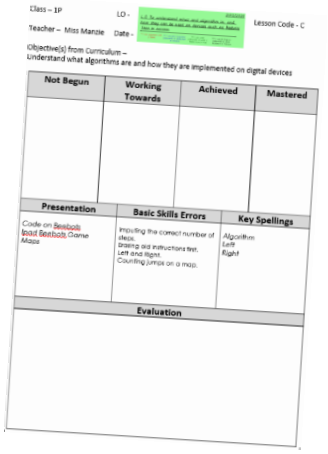
In literacy and numeracy lessons, children are placed in a group of 6 with an adult, and each child has an Ipad. They then play a variety of adult let games or applications to help them with both their computing and their numbers and writing at the same time. Ipads are also used for phonics games, maths games, and for Oxford Reading Tree Books.

In addition to all of these resources, there are also a number of Beebots available for the children to use in both adult led sessions, then in active play. Beebots are little electronic "bees" which children give a set of instructions to in order to make the bee move around a mat on the floor. They help children not only begin to grasp the concept of algorithms (sets of instructions for a computer), but also provide an opportunity for directional language.

Finally, technology is also used by the adults in Foundation stages through the app "tapestry", and to take photographs and videos of the children's learning.



Assessment:


Class – 1P LO - Lesson Code - C
Teacher – Miss Manzie Date -
Objective(s) from Curriculum –
Understand what algorithms are and how they are implemented on digital devices

Not Begun	Working Towards	Achieved	Mastered

Presentation	Basic Skills Errors	Key Spellings
Code on Beebots lead Beebots Game Maze	Inputting the correct number of steps. Erasing old instructions first. Left and Right. Counting jumps on a map.	Algorithm Left Right

Evaluation

At Tudor Primary School, we use Target Tracker to assess the children's success in each individual lesson. Before the lesson, the Class Teacher will find the National Curriculum statements that the lesson is going to teach the children and put this onto a 'Feedback Sheet'. Throughout the lesson, the teacher uses this sheet to record how the pupils are getting on, noting down anyone who is struggling or might need support, and also writing down any excellent vocabulary or other verbal evidence that shows the children are understanding the computing skill. After the lesson, the teacher uses this feedback and also look through the children's work to assess how well they achieved the curriculum statement.

This level of achievement will then be uploaded onto target tracker. The new class teacher is able to use this assessment to evaluate the learning and find any gaps which need re-teaching at the start of the next unit. This also enables the teachers to differentiate their learning for children who were unable to access the learning in previous years, or who require further consolidation. In addition to this, if children mastered the skill the previous year, the teacher can then look ahead to the next year's statements and incorporate a higher level of challenge for those pupils.

As you can see from the example below, in Year 1 mid-way through the year around half of the class statements have been highlighted. The colour is purple which shows that the class had a mixture of Working Towards / Achieved / Mastered for the highlighted statements. As you move through to midway through Year 6, all of the previous years statements have been highlighted in Year 5. You can then see the coverage they have made so far in Band 6 in the first term and a half.

Band 1 (5 statements)	Band 2 (9 statements)
Using Computer Use technology purposefully to create digital content	Using Computer Use technology purposefully to create, organise, store, manipulate and retrieve digital content
E-Safety Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies	Using Computer Use technology purposefully to create digital content comparing the benefits of different programs
Coding Predict the behaviour of simple programs	E-Safety Use technology safely and keep personal information private
Coding Understand what algorithms are and how they are implemented on digital devices	Coding Use logical reasoning to predict the behaviour of simple programs

Example of a Year 1 Class in Spring 1

Band 5 (11 statements)	Band 6 (14 statements)
Networks Begin to use internet services to share and transfer data to a third party	Networks Understand how computer networks enable computers to communicate and collaborate
Using Computer Independently select and use appropriate software for a task	Networks Begin to use internet services within his/her own creations to share and transfer data to a third party
Using Computer Independently select, use and combine a variety of software to design and create content for a given audience	Using Computer Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information
E-Safety Understand the need to only select age appropriate content	Using Computer Design and create a range of programs, systems and content for a given audience
Net Searching Use filters in search technologies effectively	Using Computer Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information
Net Searching Use filters in search technologies effectively and appreciates how results are selected and ranked	E-Safety Use technology respectfully and responsibly

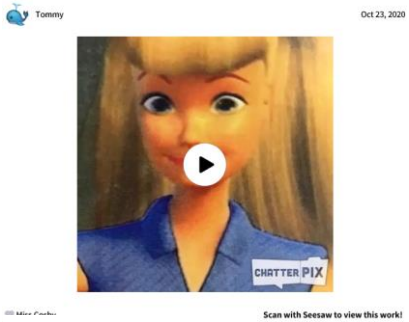
Year 6 Class in Spring 1

For any additional information or tools to support assessment in computing, please follow the hyperlink to the Assessment Folder.

Technology and Resources:

We are incredibly fortunate at Tudor School to have a wide variety of technology available to all year groups. This is not only useful for class computing days, but is also used to supplement children's learning across all subjects. Often, computers and Ipads are used in other lessons across the curriculum to provide children with different ways of finding information or presenting their learning.

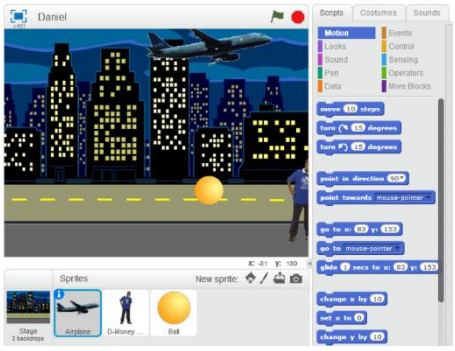
Year 1 Programming their Beebots to race on the carpet, before trying on their treasure maps.



Tommy in Year 2 recorded his video which can be seen by scanning the barcode attached.

In Key Stage 1, there is a set of Laptops which are shared between both Year 1 and 2, and are also available to the Breakfast Club for use in their morning sessions. Both year groups also have their own set of Ipads in each class for the children to use daily in their learning. We regularly use an app called Seesaw, which enables children's work to be uploaded both in school and at home. This can also be used to set homework, or to save evidence on Computing Days (as pictured above). We also have access to lots of resources, such as Beebots, which help our children with basic algorithms and programming. These can also be used in cross curricular ways to plan routes around a map.

In Key Stage 2, is a large variety of different kinds of Laptops and Tablets available for a variety of purposes. There is a trolley of Laptops along the corridor, which can be used for Computing days and also for supplementary learning and activities in class. There is also a brand new set of Chrome Books which are available for the older children to use. In addition to the computers, there is also a full class set of new Ipads with lots of available apps and features to aid children in their learning. On the computers and tablets we have all the applications and programmes needed for Computing days across the years. A few examples of these are scratch, Powerpoint and Moviemaker which are all pictured below.



Daniel in Year 3 has programmed a Scratch with three sprites to move across the screen.

Creating a Movie using Move-Maker in Year 3.

Creating a website in Year 5.

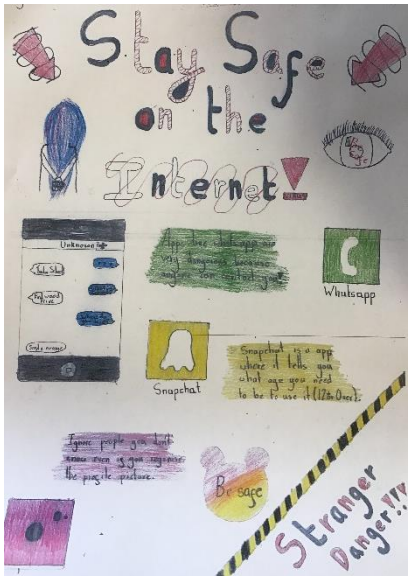
Creating a Powerpoint on the Roman empire.

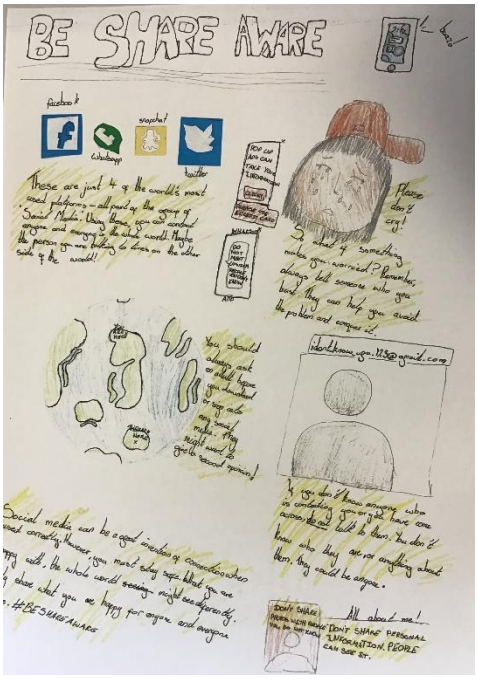
Online Safety:

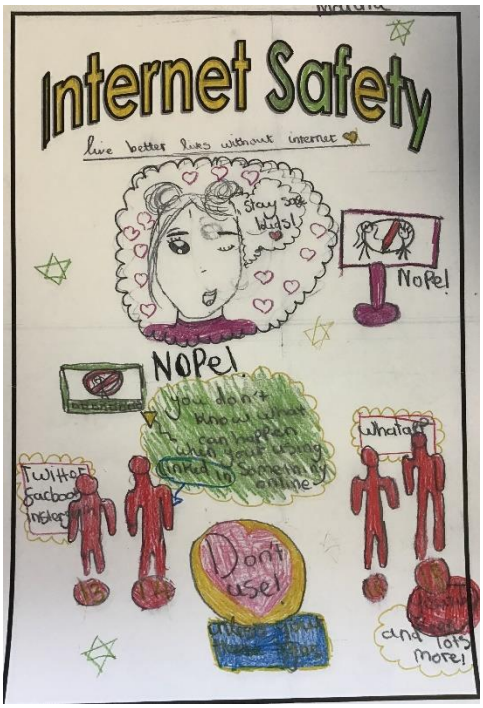
Online safety is a key aspect of the Switched on Computing scheme, and as such each year has a road map which explains how each unit is linked to eSafety. Follow the link below to find the Online Road Safety maps on the staff drive for all year groups:

Here is the Online Safety folder with all of the Road Maps included.

In addition to the teaching of online safety in class, we also celebrate "Safer Internet Day" every year. This includes a school assembly to all year groups, and some kind of activity to be taught in class. Last year, we had a school wide poster competition. A stand-alone lesson was taught in each class about how to stay safe online, and then children were set a task to make a poster for the school at home. Here are just a few examples of some of the amazing posters our children produced:







For any further information about eSafety at Tudor school, please follow the hyperlink below to find the "Internet Safety" section of our school website:

https://www.tudor.herts.sch.uk/page/?title=Internet+Safety&pid=164