Computing Handbook

Year 5

Vision for Computing

Through teaching computing we equip children to participate in a world of rapidly changing technology. 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.

At **INSERT SCHOOL NAME** we intend to

- Enable our children to reach their full potential and recognise their strengths and talent through a progressive, inclusive creative curriculum.
- To further develop the skills learnt in the computing lesson so that they can be used across all subjects. Cross-curricular computing throughout the curriculum should be encouraged.
- Access to learning platforms from home will help raise standards and enhance learning (Education City, Reading Plus, TT Rock Stars).

Scheme Of Work

We have a bespoke curriculum that is ever evolving to suit the needs of the children at school. We have recently carried out a review and have adapted it to meet the ever-evolving needs of our children at school.

In year 4 we are looking to develop the following skills:

Skills Overview Year 5		
Computer Science	DL & IT Beyond school	Information Technology
- Program a condition that uses a sensor to detect a change, which can select an action within a program. - Decomposes more open-ended problems into smaller parts, provides some reasoning for their choices. - Approaches a range of problems using computationally thinking concepts, helping them to design other algorithms for other specific outcomes. - Design, write and execute an efficient program, including selection (IF…THEN) command. - Change an input to a program to achieve a different output. - Use logical reasoning to predict and debug more complex programs including selection. - Uses programs linked to physical systems and sensors e.g. the alarm goes off when the sensor is triggered. - Design, write and execute an efficient program, which demonstrates and understanding of the difference between, and appropriate use of IF…THEN, IF…THEN…ELSE, and nested IF statements.	- Be aware of their digital footprint. - Understand the dangers of building online relationships. - Explain what the consequences might be to using technology inappropriately or accessing inappropriate content intentionally. - Use different online tools for different purposes. - Use a search engine effectively to find appropriate information and check the reliability of a website. - Understand how search results are selected and ranked and the algorithms they use. - Recognise and evaluate different types of information they find on the World Wide Web. - Think about the reliability of information they read on the World Wide Web or other Internet services (Fake News).	- Choose an appropriate tool to help them collect data. - Present data in an appropriate way depending on the theme or audience. - Use a spread sheet and database to collect, record and evaluate data. - Search a database using different operators to refine a search. - Talk about errors in data and suggest how it could be checked. - Use text, photo, sound and video editing tools to evaluate and refine their work. - Be able to use a variety of familiar and unfamiliar software by using a pre existing skill set. - Select, use and combine the appropriate technology tools to create effects in media. - Select an appropriate online or offline tool to create and share ideas. - Evaluate and improve their own work and support others in improving their work. - Acknowledges sources of information appropriately.

Year 5 Curriculum Overview

Year 5	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	IT	*COMPUTER SCIENCE*	*COMPUTER SCIENCE*	*DIGITAL LITERACY*	*DIGITAL LITERACY*	*IT*
	Using Excel to create and search a database	*If statements / If else statements*	*Create music using computer code.*	*Digital Literacy: Pupils to create a short animation about relationships online, who can you trust?* *Understand what stop motion animation is and create their own animation.*	*Digital Literacy: Pupils learn what an online footprint is and the reasons technology holds onto our information.* *Understand the difference between the internet and the World Wide Web and how one uses the other to work.*	*3D Modelling*

Autumn 1 - *Using Excel to create and search a database*

What the children will learn:

- *Use a spreadsheet and database to collect, record and evaluate data.*
- Use the 'Formula' method to make calculations
- Interpret and present the data they collect.
- Use the skills developed to interrogate a spreadsheet

Vocabulary

- Spreadsheet, cell, row, column, formula, calculate, format, insert, ascending, descending, sort, graph, total

Ways to support children's learning

- If you have access to Excel or Google sheets (Free tool with a Google email account) you could get the children to help you calculate the total of a shopping list.

- https://www.thekitchn.com/how-i-use-google-sheets-for-grocery-shopping-227725
- Help them to budget for a birthday party.

Autumn 2 - *If statements / If else statements*

What the children will learn:

- *Design, write and execute an efficient program, including selection (IF…THEN) command.*
- *Use logical reasoning to predict and debug more complex programs including selection.*
- *Decomposes more open-ended problems into smaller parts, provides some reasoning for their choices.*
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Vocabulary

- Algorithm, sprite, loops, variables, events, control, sensing, forever

Ways to support children's learning

- Visit the Scratch 3 website. The site has a number of tutorials available which will guide you through step by step.
- Useful websites:
- https://scratch.mit.edu/ - Scratch 3
- https://code.org/minecraft - Hour of code Minecraft (Try Voyage Aquatic)
- https://codecombat.com/ - Code combat

Spring 1 - *Create music using computer code.*

What the children will learn:

- *Use logical reasoning to predict and debug more complex programs including selection.*

Vocabulary

- Samples, composition, rhythm

Ways to support children's learning

- Download Garageband app on the IPad. This is a popular music app, which allows the children to create some complex pieces of music.
- Useful websites:
- https://isleoftune.com/ - Allows children to create their own compositions
- https://musiclab.chromeexperiments.com/ - Chrome Music Lab
- https://code.org/minecraft - Scratch tutorials show you how to make music
- https://microbit.org/ - Use Microbit to create music. Lessons are available.

Spring 2 - *Understand what stop motion animation is and create their own animation*

What the children will learn:

- *Select, use and combine the appropriate technology tools to create effects in media.*
- *Select an appropriate online or offline tool to create and share ideas*
- *Understand the dangers of building online relationships.*

Vocabulary

- Animation, Frame, Pivot Stick Figure Animator, Image, Stop Frame Animator, editing

Ways to support children's learning

- Make simple flick book with your child. Emphasise the fact that each frame changes slightly from the previous one to give the illusion of movement.
- If you have a computer then download Pivot Animator which allows your child to create their one stick man animations. https://pivotanimator.net/
- Use the costume change commands in Scratch 3 to create animations and stories.
- Download Stop Motion animator on the IPad. Use toy cars or modelling clay to create cartoons.
- Useful website to create an online animation: https://www.abcya.com/games/animate

Summer 1 - *Understand the difference between the Internet and the World Wide Web and how one uses the other to work*

What the children will learn:

- *Be aware of their digital footprint.*
- Know difference between Internet and the Worldwide Web
- Know what a network is and be able to identify parts of a network within their school
- To understand what an IP address is

Vocabulary

- Network, wireless access points, server, router, wired device, wireless device, Ethernet cable

Ways to support children's learning

- Discuss with your child how you access the Internet at home. Locate the router in your home that provides access to the web.
- Are any other devices attached? Phones, TV's, Sky/Virgin Boxes
- Following video demonstrates how the Internet works and describes what an IP address is.
- https://www.bbc.co.uk/bitesize/clips/z94dq6f

Summer 2 - *3D Modelling*

What the children will learn:

- Use different online tools for different purposes.
- Be able to use a variety of familiar and unfamiliar software by using a pre-existing skill set
- Select, use and combine the appropriate technology tools to create effects in media.

Vocabulary

CAD (Computer aided design), Template, Select, Draw, Push /Pull, Orbit, Pan, Zoom, Zoom Extents, extrude, Paint bucket.

Ways to support children's learning

- Children will be using Sketchup or similar in their lessons. Sketchup is free online if you sign in with your email address. There are plenty of videos on YouTube, which will give you some hints and tips.
- **Tinkercad**
- Create 3D models and add code. Also the ability to design and simulate electronic circuits (KS2). Free but you do need to create an account first.

- Cospaces
- Create 3D environments and add characters. Some tutorials available on the website to help you. Works online or on the app. You will need to create an account but the free version has plenty to start off with.

Online safety

At **_INSERT SCHOOL NAME_** we understand the importance of keeping your child safe online. Here are a few tips and websites to help you and your child understand the message.

Home and Family Guidelines

- Talk together and have fun learning together.
- Involve everyone and agree your family guidelines and rules.
- Remember that sometimes what is acceptable for a Year 6 child is not necessarily acceptable for a Year 3 or Reception child.
- Discuss regularly online safety and go online with your children. Communication is the key to eSafety.
- Keep virus and firewall software up-to-date.
- Enable your 'browser safe' search option and/or consider using internet filtering software, walled gardens and child-friendly search engines.
- Keep the computer in a communal area of the house, where it's easier to monitor what your children are viewing. Never let children have webcams, or similar, in their bedroom.
- Talk to your children about why they should not to give out their personal details. If they want to subscribe to any online service then make up a family email address to receive the mail.
- We all love to chat and children are no different. Encourage your children to use moderated chat rooms and never to meet up with an online 'friend' without first discussing it with you.
- Time children spend offline following a range of other activities is equally important. Time spent online should be monitored to help prevent obsessive use of the internet
- Encourage your children, and in fact all family members, to tell you if they feel uncomfortable, upset or threatened by anything they see online.
- Have proportionate responses if the family guidelines are not followed.

Websites for you to use with your child to help with the eSafety conversation

Thinkuknow website.... this website has been specially developed by CEOP for children of all ages to help them to learn about staying safe online. There's information for parents here

too. https://www.thinkuknow.co.uk/

Kidsmart.... Help and advice for children using the Internet.

https://www.childnet.com/resources/looking-for-kidsmart

Play, like share videos – Three videos that look at sharing content, passwords and meeting strangers.

Play like share Video game – game connected with the videos that explore the points that are covered in the videos.
https://www.bbc.com/ownit/take-control/thinkuknow-band-runner

Social Media

Social media is a massive part of our lives now and more and more children are using it to connect with the world. Any form of social media isn't advisably for children under the age of 13. We aware that many children may feel the pressure to open an account. Following links for advice. See home learning book for further information.

https://www.net-aware.org.uk/