Computing Handbook

Year 2

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 2 we are looking to develop the following skills:

Skills Overview Year 2		
Computer Science	DL & IT Beyond school	Information Technology
● . Understand what an algorithm is and demonstrate simple linear algorithms. ● Be able to explain the order needed to do things to make something happen and to talk about it as an algorithm. ● Programme a robot or software to do a particular task. ● Look at a basic program and explain what will happen. ● Use programming software and applications to make objects move. ● Use logical reasoning to predict and debug more complex programs. ● Can create and debug with improved confidence & efficiency. • Begin to program using simple block code.	● Understand the need to keep a password private. ● Understand the need to keep personal information private. ● Demonstrate the use of technology responsibly in terms of how we use it and the time we spend using it. ● Know how to report inappropriate content or contact online. ● Children can explain why they use technology in the classroom, in their homes and in the community. ● Identify the benefits of using technology, such as creating content and communicating efficiently. ● Can identify a computer by knowing that it has inputs, a processor and outputs. ● Can identify parts of a computer including what an input and output is.	● Create a graph or chart using data collected on a specific topic area. ● Talk about the data that is shown in their chart or graph. ● Explain how investigating data can be used to answer a question. ● Use a variety of software to manipulate and present digital content in different ways with increasing independence. ● Talk about the different ways to use technology to collect information, including a camera or sound recorder. ● Use the keyboard on their device to add, delete, edit and format text. ● Talk about an online tool that will help them to share their ideas with other people. ● Save and open files on the device they use from a specific file location.

Year 2 Curriculum Overview

Year 2	*Autumn 1*	*Autumn 2*	*Spring 1*	*Spring 2*	*Summer 1*	*Summer 2*
	IT	*DIGITAL LITERACY*	*COMPUTER SCIENCE*	*COMPUTER SCIENCE*	*IT*	*DIGITAL LITERACY*
	Pupils learn how to identify a computer and its different parts and talk about the role computers display in our society.	Pupils build on their knowledge of what an algorithm is and how we can programme computers to use algorithms	Pupils learn about the concept of programming using Scratch Jnr	Children understand what data is, and how we store that data in different ways. Storing data on a computer allows us to quickly sort it and present it as information in graphs and charts.	*Pupils learn how to present information to an audience using technology.*	*Pupils learn how to identify a computer and its different parts and talk about the role computers display in our society*

Autumn 1 - *Pupils learn how to identify a computer and its different parts and talk about the role computers display in our society*

What the children will learn:

- Children can explain why they use technology in the classroom, in their homes and in the community
- Identify the benefits of using technology, such as creating content and communicating efficiently.
- Can identify a computer by knowing that it has inputs, a processor and outputs.
- Can identify parts of a computer including what an input and output is.

Vocabulary

- Computer, Input, Output, Invention

Ways to support children's learning

- Look around the house to find different objects that have a microprocessor in them. Get the children to draw some of the objects.
- Watch Nina and the Neurons Video – computers are all around us. https://www.bbc.co.uk/cbeebies/watch/nina-and-the-neurons-computers-song

- Play the game connected to the video where children have to find different types of technology around their home.
- https://www.bbc.co.uk/games/embed/g8f82nnl3k?exitGameUrl=https%3A%2F%2Fwww.bbc.co.uk%2Fcbeebies%2Fgames%2Fnina-go-digital-game

Autumn 2 - *Pupils build on their knowledge of what an algorithm is and how we can programme computers to use algorithms*

What the children will learn:

- Use logical reasoning to predict and debug more complex programs
- Can create and debug with improved confidence and efficiency.
- Begin to program using simple block code.
- Programme a robot or software to do a particular task.
- Be able to explain the order needed to do things to make something happen and to talk about it as an algorithm.
- Understand what an algorithm is and demonstrate simple linear algorithms.

Vocabulary

- Sequence, Code, Blocks, Sprites, Repeat, Bug, Debugging

Ways to support children's learning

- Talk about algorithms with the children. Tell them that they are simply a set of instructions.
- Watch this BBC video which explains what an algorithm is. https://www.bbc.co.uk/bitesize/topics/z3tbwmn/articles/z3whpv4
- Go through each step of a task with them. Get them to write a set of instructions for brushing their teeth for example or for making a piece of toast or a sandwich.
- Try the Crazy Character activity from Barefoot https://www.barefootcomputing.org/resources/crazy-character-algorithms

Spring 1 - *Pupils learn about the concept of programming using Scratch Jnr*

What the children will learn:

- Be able to explain the order needed to do things to make something happen and to talk about it as an algorithm.
- Programme a robot or software to do a particular task.
- Look at a basic program and explain what will happen.
- Use programming software and applications to make objects move.
- Use logical reasoning to predict and debug more complex programs.
- Can create and debug with improved confidence and efficiency.
- Begin to program using simple block code.

Vocabulary

- Sequence, Code, Blocks, Sprites, Repeat, Bug, Debugging

Ways to support children's learning

- Download Scratch Jnr app onto a tablet. Let the children experiment with the basic commands. What can you get Scratch to do?
- Let the children use the app to create their own backgrounds and characters.
- Try some activities from Scratch Jnr website https://www.scratchjr.org/teach/activities
- Other useful coding sites:
  https://hourofcode.com/uk/learn - Hour of Code
  https://scratch.mit.edu/ - Scratch 3
- Useful apps to download: Kodable, Lightbot, BeeBot app

Spring *2 - Children understand what data is, and how we store that data in different ways. Storing data on a computer allows us to quickly sort it and present it as information in graphs and charts*

What the children will learn:-

- Identify the benefits of using technology, such as creating content and communicating efficiently.
- Create a graph or chart using data collected on a specific topic area.
- Talk about the data that is shown in their chart or graph.
- Use a variety of software to manipulate and present digital content in different ways with increasing independence.

Vocabulary

- Records, Fields, Value, Data, Database, Graphs, Charts, Sort,

Ways to support children's learning

- Talk to the children about what a database is – a collection of information. Here is a quick explanation.
  https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z8yk87h#:~:text=A%20database%20is%20a%20computerised,'%20and%20teachers'%20contact%20information.

- Look at different types of databases – for example a catalogue from a department store such as Argos, a phonebook, a list of contacts on your phone.
- Play a game of Top Trumps which is a perfect example of a database. Each card is a record which contains fields – (Age, strength and so on)

Summer 1 - *Pupils learn how to present information to an audience using technology*

What the children will learn:

- Know how to report inappropriate content or contact online.
- Identify the benefits of using technology, such as creating content and communicating efficiently.
- Use a variety of software to manipulate and present digital content in different ways with increasing independence.
- Save and open files on the device they use from specific file location.

Vocabulary

- Audience, Font, Online, Audience

Ways to support children's learning

- For online safety tips see section at the end of this document.
- Practice taking photos and editing them by cropping and adding filters. This can be done on your phone or an IPad. Make a collection of your photos using Pic Collage.
- Download pictures from the Internet by using a Google Search and holding the required picture then saving it to your device
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Summer 2 - *Presenting Information*

What the will children learn:

- Demonstrate the use of technology responsibly in terms of how we use it and the time we spend using it.
- Know how to report inappropriate content or contact online.
- Children can explain why they use technology in the classroom, in their homes and in the community.
- Use the keyboard on their device to add, delete, edit and format text.
- Save and open files on the device they use from a specific file location.

Vocabulary

- Text, Bold, Italic, Keyboard

Ways to support children's learning

- Use online programs to improve their typing skills.
  Keyboard climber: https://www.tvokids.com/school-age/games/keyboard-climber-2
  Dance Mat Typing : https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z3c6tfr
- If you have Word or PowerPoint at home ask the children to practice typing out sentences. Experiment with font sizes, colours etc. They could type out birthday lists, invitations etc.
- Get them to add pictures to their documents.

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

Digi Duck's Big Decision..... Esafety book (and more) for KS1 children - A brilliant online safety resource for younger children

https://www.childnet.com/resources/digiduck-stories

Smartie the Penguin – Another fantastic online safety resource for young children.

https://www.childnet.com/resources/smartie-the-penguin