Computing Handbook

Year 3

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 3 we are looking to develop the following skills:

Skills Overview Year 3		
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.	● Children consider their responsibilities and actions to others online. ● Children consider that all of the media they see could have been altered. ● Understand how to use a search engine responsibly and safety. ● Save and retrieve work online, on the school network and their own device. ● Tell you ways to communicate with others online. ● Knows how navigate the web responsibly. ● Can carry out effective web searches to collect digital content. ● Think about whether they can use images that they find online in their own work.	●Understand the difference between data and information. ●Talk about the different ways data can be converted into information. ●Search a ready-made database to answer specific questions. ●Collect data to help answer questions about a specific topic or theme. ●Add to and edit an existing database. ●Combine a mixture of text, graphics and sound to share ideas and learning. ●Use appropriate keyboard commands to amend text. ●Be able to effectively use a spell checker. ●Evaluate their work and improve its effectiveness. ●Use an appropriate tool to share their work online.

Year 3 Curriculum Overview

Year 3	*Autumn 1*	*Autumn 2*	*Spring 1*	*Spring 2*	*Summer 1*	*Summer 2*
	IT	*COMPUTER SCIENCE*	*COMPUTER SCIENCE*	*DIGITAL LITERACY*	*DIGITAL LITERACY*	*IT*
	Children consider their responsibilities to others online.	*Input and Sequencing*	*Creating a programmable world using Kodu*	*Pupils to look at the skills behind taking a good photograph and how these photos can be edited in various ways.*	*Pupils to look at the different parts inside a computer and what they do.*	*Pupils to design a poster deciding on text, pictures and layout is most suitable for their audience. They are to use some type of data collection to inform what goes on their poster. E.g. If the poster is a party invite what is the most popular food*

Autumn 1 - *Pupils explore the different advanced features of Microsoft Word. They also use these skills to compose an email*

What the children will learn:

- *Be able to effectively use a spell checker.*
- *Children consider their responsibilities and actions to others online.*
- *Understand how to use a search engine responsibly and safety.*
- *Save and retrieve work online, on the school network and their own device*
- *Understand the difference between data and information*

Vocabulary

- Email, malicious, phishing, social media, networks, internet, world wide web webcam, keyboard

Ways to support children's learning

- Talk about the different ways we can communicate on a computer and the internet. Video calling, messaging, email etc.
- Show them one of your email accounts you may have at home. Look through different features such as the inbox. Get the children to send an email to a member of the family or a friend. This video may help with the basics: https://www.bbc.co.uk/bitesize/clips/zwp3r82 (BBC Bitesize)
- Talk about the tone of the language that you would use – for example if you were writing to a head teacher would be different from writing to a friend.
- Have a discussion about being respectful online.

Autumn 2 - *Pupils will explore sequencing, selection, repetition, inputs and outputs in programs they create*

What the children will learn:

- Understand how an algorithm is implemented using a sequence of precise instructions.
- Can predict the outcome of a sequence of precise instructions.
- Repeatedly test a program and recognise when they need to debug it.
- Detect a problem in an algorithm, which could result in a different outcome to the one intended.
- Understand what inputs and outputs are, how they can be used.
- Provide examples of how to use inputs and outputs effectively.
- Designs, writes, executes and debugs programs of increasing complexity that accomplish a specific goal.
- Use logical reasoning to predict and debug more complex programs including inputs and outputs.

Vocabulary

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

Ways to support children's learning

- The children will be using Scratch in this lesson. The program is now available online and contains various tutorials that you can run through with your child. It is available on PC and will run on IPad.
- https://scratch.mit.edu/projects/editor/?tutorial=home Click on tutorials for examples.
- Other popular coding games available:
- https://code.org/minecraft Minecraft Hour Of Code
- https://code.org/starwars Star Wars Hour of code
- https://codecombat.com/play/dungeon Code Combat

Spring 1 - What children will learn: *Creating a programmable world using Kodu*

What the children will learn:

- Understand how an algorithm is implemented using a sequence of precise Instructions.
- Can predict the outcome of a sequence of precise instructions.
- Repeatedly test a program and recognise when they need to debug it.
- Detect a problem in an algorithm, which could result in a different outcome to the one intended.

- Designs, writes, executes and debugs programs of increasing complexity that accomplish a specific goal.
- Use logical reasoning to predict and debug more complex programs.

Vocabulary

- Kodu, computational, algorithm, programming, debugging, sequence, sprite, artificial intelligence, NPC (non-player character), pathway.

Ways to support children's learning

- Kodu can be downloaded for free onto a PC and an Xbox 360.

https://www.microsoft.com/en-gb/download/details.aspx?id=10056
- Project Spark can be purchased for the Xbox one.
- Kodu has examples that you can look at (Click on Load World on main menu) and there are many examples of games on YouTube.
- Download Sketch Nation app to make your own games on the IPad or a tablet. This requires no coding skills.

Spring 2 - *Children consider that all of the media they see could have been altered*

What the children will learn:

- Children consider that all of the media they see could have been altered.
- Save and retrieve work online, on the school network and their own device.
- Think about whether they can use images that they find online in their own work.

Vocabulary

- Camera, image, Picasa, pixel, portfolio, theme, consent.

Ways to support children's learning

- Give your children the opportunity to take photographs with a phone or with an IPad. Experiment with the different effects. There are many photography apps that can be used to play around with the effects on the photo.
- Review the photos that the children have taken and take about what makes a good photograph. Not blurred, well framed
- Practise editing the photos using things such as the crop tool to take out unwanted objects.

- Children can use the photos taken to create their own collages using Pic Collage or even create their own Comic Strips. (Book Creator, Comic Life paid apps)
- Look at online Photo Editing sites where you can adjust things such as red eye.

Summer 1 - *How things work including networks*

What the children will learn:

- To identify components within a PC/ Laptop and what each component does.
- To understand the basic fundamentals of how a network works.

Vocabulary

- Laptop, desktops, hard drive, fan, heat sink, keyboard, motherboard, microprocessor, memory, disc drive, network, router, hub, switch, Wi-Fi.

Ways to support children's learning

- Talk about where the Internet comes from in your house – locate the router.
- Show the children videos which tell them how a computer works
  https://www.youtube.com/watch?v=AkFi90lZmXA
  https://www.bbc.co.uk/bitesize/topics/zbhgjxs/articles/z9myvcw BBC BITESIZE
- Play the following game where children have to identify parts of a computer, which can be found at the bottom of the page in the previous link.

Summer 2 - *Publishing content on the Internet*

What the children will learn:

- Combine a mixture of text, graphics and sound to share ideas and learning.
- Use appropriate keyboard commands to amend text.
- Be able to effectively use a spell checker.
- Evaluate their work and improve its effectiveness.
- Use an appropriate tool to share their work online.

Vocabulary

- Social media, graphic design, publishing, username, password, marketing, template, elements, text, effect, filter, adjust, crop.

Ways to support children's learning

- Talk to them about the adverts that they see in magazines and on billboards. What techniques do they use to entice people to buy their products? Use of pictures, colour, slogans etc
- Ask them to tell you which aspects they find attractive or not.
- Use a search engine to find adverts/ posters that they like – these could be advertising an up and coming film or a new product.
- Use Pic Collage to create their own advert for a new chocolate bar or a new film. Canva is an alternative online product to use. (Requires a sign in)
- https://www.canva.com/en_gb/

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 which 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