Computing Overview

Intent

At Downsview we understand how important a well- rounded Computing education is. We aim to instil a sense of enjoyment around using technology and to develop pupil's appreciation of its capabilities and the opportunities technology offers to create, manage, organise and collaborate. 'Tinkering' with software and programs forms a part of the ethos of the scheme as we want to develop pupils' confidence when encountering new technology, which is a vital skill in the ever evolving and changing landscape of technology. Through our curriculum, we intend for pupils not only to be digitally competent and have a range of transferable skills at a suitable level for the future workplace, but also to be responsible online citizens. The Computing scheme of work enables pupils to meet the end of Key Stage attainment targets outlined in the National curriculum and the aims align with those in the National curriculum.

Teaching computing provides our children with a framework of Knowledge: 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.
Teaching analytical and problem solving skills in computational terms: pupils are equipped to use information technology to create programs and systems, in a range of contexts, in order to develop their ideas and make things happen.
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.
Computational thinking: It allows us to solve problems, design systems, and understand the power and limits of human and machine intelligence. It is a skill that empowers, and one that all pupils should be aware of and develop competence in. Pupils who can think computationally are better able to conceptualise, understand and use computer-based technology, and so are better prepared for today's world and the future.

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Implementation

At Downsview Computing is taught through discrete lessons using the Kapow scheme of work, however computing skills are integrated within other subjects. We ensure we have a broad and balanced coverage of the National Curriculum requirements and that the units provide the pupils with the opportunity to learn and apply transferable skills. Where meaningful units have been created to link to other subjects such as Science, Art, Music and D&T to enable the development of further transferable skills and genuine cross-curricular learning.

Lessons incorporate a range of teaching strategies from independent tasks, paired and group work as well as unplugged and digital activities. The variety means that lessons are engaging and appeal to those with a variety of learning styles. Differentiated guidance is available for lessons to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning are available when required. The Kapow scheme of work is designed with 3 strands which run throughout: **Computer Science, Information Technology and Digital Literacy**.

Within these strands the scheme will be organised into 4 key areas, creating a cyclical route through which pupils can develop their computing knowledge and skills by revisiting and building on previous knowledge: **Computer Systems and networks, Programming, Creating Media and Data Handling**.

Online Safety forms a huge part of our Computing curriculum. Children learn the impact of their own actions on and offline, as well as how to keep themselves protected from the actions of others. There is a strong focus on developing awareness and responsibility in our learners and we do this through using Project Evolve. Some of the main learning points that we teach and embedded in school about online safety include:

- Teaching young people how to effectively evaluate what they see online
- Studying the in-depth techniques that are often used for online persuasion, so that young people can recognise when these persuasive techniques are being applied to them (and how to avoid them).
- Understanding the difference between acceptable and unacceptable online behaviours and how to evaluate them.
- Offering hints and tips for how to recognise online risks.
- Be clear in letting young people know how and when they can seek support if they need it, and to whom they should report any concerning behaviour.

Computing Overview

Computing Skills and Units

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**Computing systems and networks:** Improving mouse skills	**Programming 1:** Algorithms unplugged	**Skills showcase:** Rocket to the moon	**Programming 2:** Programming Bee-Bots	**Creating Media:** Digital Imagery	**Data handling:** Introduction to data
Year 2	**Computing systems and networks 1:** What is a computer?	**Programming 1:** Algorithms and debugging	**Computing systems and networks 2:** Word processing	**Programming 2:** Programming using ScratchJr	**Creating media:** Stop motion using iPads	**Data handling:** International Space Station
Year 3	**Computing systems and networks 1:** Networks	**Programming:** Scratch	**Computing systems and networks 2:** Emailing using Google	**Computing systems and networks 3:** Journey inside a computer	**Creating media:** Video trailers using iPads	**Data handling:** Comparison cards databases
Year 4	**Computing systems and networks:** Collaborative learning	**Programming 1:** Further coding with Scratch	**Creating media:** Website design using Google	**Skills showcase:** HTML	**Programming 2:** Computational thinking	**Data handling:** Investigating weather
Year 5	**Computing systems and networks:** Search engines	**Programming 1:** Programming music with Scratch	**Data handling:** Mars Rover 1	**Programming 2:** Micro-bit	**Creating media:** Stop motion animation using cameras	**Skills showcase:** Mars Rover 2
Year 6	**Computing systems and networks:** Bletchley Park and the history of computers	**Computing systems and networks:** AI	**Data handling 1:** Big Data 1	**Programming:** Intro to Python	**Data handling 2:** Big Data 2	**Skills showcase:** Inventing a product

Computing Overview

Online Safety

For our Online Safety we follow Project Evolve. Children will look at a different part of Online Safety each half Term. Please see each year group for a more detailed break down into what they do as part of our Online Safety programme.

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS (Reception and Nursery)	**Managing Online Information:** I can identify devices that can be used to access the internet **Activity:** What and When	**Privacy and Security:** I can identify some simple examples of my personal information **Activity:** Personal and Private	**Online Bullying:** I can describe ways that some people can be unkind online. I can offer examples of how this can make others feel **Activity:** Spot the Difference	**Online Reputation:** I can identify ways that I can put information on the internet. **Activity:** Keep me informed	**Self-image and Identity:** I can recognise, online or offline, that anyone can say 'no' - 'please stop' - 'I'll tell' - 'I'll ask' **Activity:** Responses and Reactions	**Health, Wellbeing and Lifestyle:** I can identify rules that help keep us safe and healthy in and beyond the home when using technology **Activity:** Which Rules are Fair?
Years 1 to 6	**Copyright and Ownership**	**Privacy and Security**	**Online Bullying**	**Online Reputation**	**Self-image and Identity**	**Health, Wellbeing and Lifestyle**

Impact

After the implementation of Computing, pupils should leave school equipped with a range of skills to enable them to succeed in their secondary education and be active participants in the ever-increasing digital world.

The expected impact of following the National Curriculum is that children will:

- Be critical thinkers and able to understand how to make informed and appropriate digital choices in the future
- Understand the importance that computing will have going forward in both their educational and working life and in their social

and personal futures

- Understand how to balance time spent on technology and time spent away from it in a healthy and appropriate manner
- Understand that technology helps to showcase their ideas and creativity. They will know that different types of software and hardware can help them achieve a broad variety of artistic and practical aims
- Show clear progression of technical skills and across all areas of the National Curriculum- computer science, information technology and digital literacy
- Be able to use technology both individually and as part of a collaborative team
- Be aware of online safety issues and protocols and be able to deal with any problems in a responsible and appropriate manner
- Have an awareness of developments in technology and have an idea of how current technologies work and relate to one another
- Meet the end of Key Stage expectations outlined in the National Curriculum for Computing