

Victoria Dock Primary School

Computing Curriculum Overview



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The Curriculum – Our Approach

Victoria Dock Curriculum – Ambition for All

At Victoria Dock Primary School, we celebrate our rich, multicultural school community through a purposeful and progressive curriculum. Throughout their school journey, our children experience drivers of



Our curriculum is designed to provide a broad and balanced education that meets the needs of each and every one of our pupils. The children are provided with a breadth of learning opportunities, which encourage them to explore and exercise their creativity by growing and developing into enthusiastic and highly motivated learners.

At Victoria Dock Primary School, we acknowledge the importance of developing the whole child instead of solely preparing for academic success. Our curriculum offers excellent opportunities for each child to explore and exercise their passions for sport, music, acting, artistic flair, business and enterprise and much more. These activities are shared regularly with parents, carers and visitors through performances, workshops, exhibitions and assemblies. We consider our local community to be of paramount importance. We believe it is invaluable to educate the children about the area in which they live and learn and to build a sense of pride in our local community.

In addition, we offer the opportunity for children to make a highly influential and tangible contribution to the daily life of the school and the wider community through involvement in our School Council or our Buddy Teams.

Victoria Dock Primary School

Curriculum Drivers

Aspiration

- * Use prior knowledge as a springboard for new learning
 - * Resilience and perseverance
- * Listen and learn from others
 - * Leadership skills
- * Appreciate and use local knowledge
- * Recognise success for all



Collaboration

- * Everyone's contribution has value and worth
 - * Build and maintain healthy relationships with others
- * Encourage respect and the opinion of others
- * Confidence in our own voices
- * Leadership and group work



Community

- * Understand and accept differences
 - * Tolerance
- * Appreciate the uniqueness of others
 - * Compassion
- * Celebrate equality and diversity



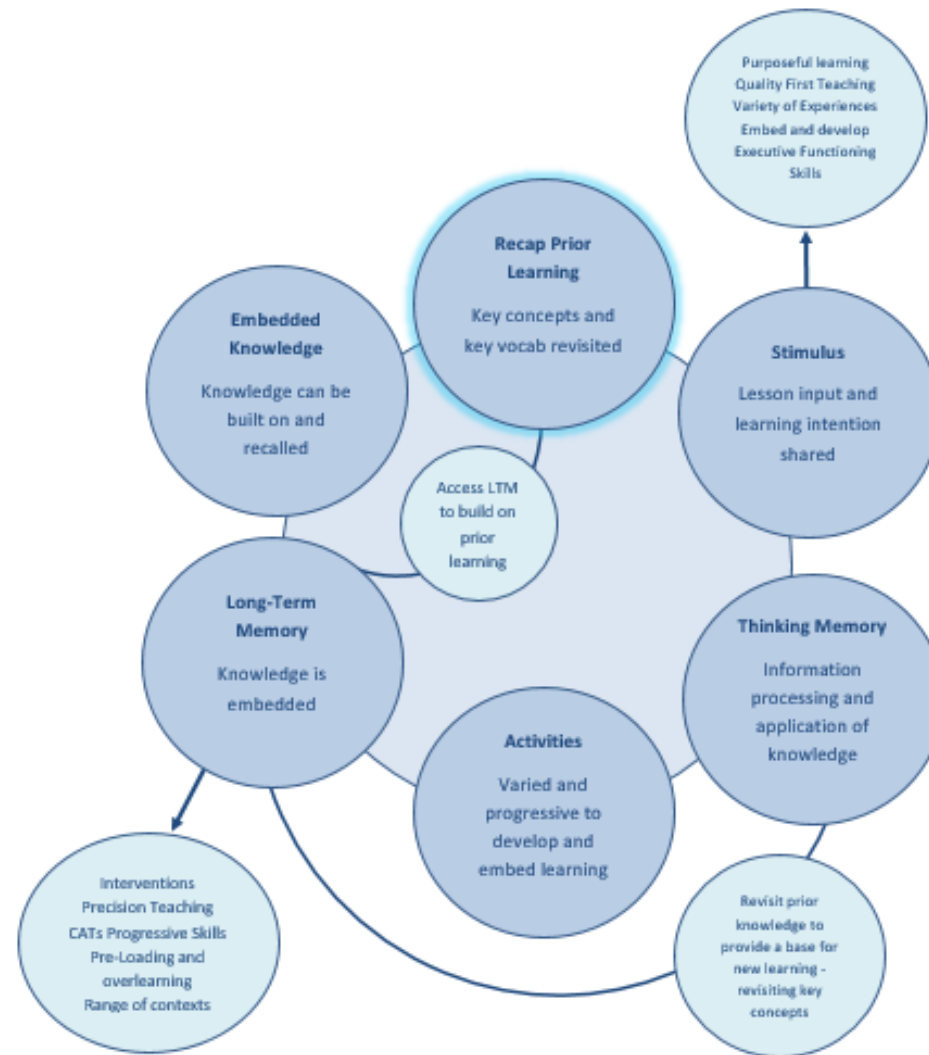
Enrichment

- * Celebrate and embrace talent
 - * Appreciate the Arts
 - * Broaden life skills
- * Have the confidence to learn new and unfamiliar things
- * Ensure visits and visitors enhance learning








Working Memory Model

With the collation of all this extensive research, we have generated a 'Working Memory Model' which enables teachers to ensure that learning is robust and that all pupils are using their interconnected schema to their full potential.



Key Concepts

Through collaboration with subject leaders and subject specialists across our secondary schools, each subject has identified key concepts (big ideas) for their subject. These key concepts are the skills and knowledge essential to pupils achieving and exceeding expected standards in that specific subject. Key concepts are subject specific and build progressively as pupils move through the school. When pupils encounter a key concept, they will revisit other topics where they learnt about the same concept to enable them to make connections between different learning and build the schema they need.

Computing				
				
Programming	Data and Information	Computer Systems & Networks	Creating Media	Operating devices / Searching and selecting information / Using devices safely and responsibly
Computer Science		Information Technology		Digital Literacy

Second Order Concepts

Second order concepts are fundamental knowledge and skills which are transferable across a range of curriculum subjects. For example, we introduce pupils to the concept of ‘similarity and difference’ early in their education, developing the observational skills and language needed to make comparisons. This is developed and applied as pupils move through the school so they can confidently apply this in all areas of the curriculum by upper Key Stage Two.

Curriculum subject	Significance	Similarity and difference	Cause and consequence	Continuity and change	Responsibility	Communication (Oracy & Written)	Enquiry
Computing	Significant inventions and figures from the world of computing	Making comparisons, finding patterns, noticing differences, drawing conclusions	Inputs and outputs, programming	Changes in technology over time, future technology	Being safe online, using social media responsibly and respectfully, privacy, cyberbullying, cyber security, passwords	Using correct terminology, coding language, programming, using technology to communicate and present information	

Key concepts (Big Ideas) in **COMPUTING**

Pupils will develop their knowledge of computing through the three strands of **computer science**, **information technology** and **digital literacy**. The computing curriculum will equip pupils with the knowledge to become creators of digital technologies and digital artefacts.

COMPUTER SCIENCE: This focuses on programming & algorithms and data & information. This will provide pupils with the foundational knowledge needed to understand the rest of the curriculum.

Programming



Pupils will learn how to interpret, create and evaluate algorithms. They will be taught to program to accomplish specific goals and to detect and correct errors. Pupils will implement algorithms as programs on digital devices, working with various forms of input and output. They will use sequence, selection and repetition in programs.

Data and information



Pupils will learn how to collect, analyse, evaluate and present data and information

INFORMATION TECHNOLOGY: Studying this aspect will give children the knowledge of how computers are used in society. They will also explore how computers are used to create digital artefacts such as videos, animations or 3D models.

Computer systems and networks



Pupils will learn about computer systems, networks and how they are used. They will learn about the opportunities for communication and collaboration offered by networks and how to use these services safely and respectfully. They will also learn about the internet and different types of hardware and software.

Creating media














Pupils will learn about the design and development of digital media in different forms. They will learn how to collaborate online, evaluate online content and how to communicate, create and present content in a respectful and responsible way.















DIGITAL LITERACY: This is woven through the key concepts above, ensuring pupils know how to **operate devices**, how to **search and select information**, and how to use digital devices **safely and responsibly**







Computing Key Concepts Year Group Mapping – Cycle A

	Autumn	Spring	Summer
EYFS	In EYFS, we will incorporate the key concepts of Computing throughout our curriculum.		
Years 1 and 2	Programming 	Programming 	
Years 3 and 4	Computer Systems and Networks  Creating Media 	Programming 	
Year 5	Computer Systems and Networks  Creating Media 	Programming 	
Year 6	Computer Systems and Networks  Creating Media 	Programming 	

Science Key Concepts Year Group Mapping – Cycle B

	Autumn	Spring	Summer
EYFS	In EYFS, we will incorporate the key concepts of Computing throughout our curriculum.		
Years 1 and 2		Computer Systems and Networks  Creating Media 	
Years 3 and 4	Computer Systems and Networks  Creating Media 		Programming  Data and Information 
Year 5	Computer Systems and Networks  Creating Media 		Programming  Data and Information 
Year 6	Computer Systems and Networks  Creating Media 		Programming  Data and Information 

Knowledge and skills sequencing		COMPUTING						
		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
COMPUTER SCIENCE	Programming  Related digital media content: Operating devices	Program a floor robot to follow a simple set of instructions Completes a simple program on an electronic device to achieve a goal	Understand what commands are Use commands to control a device Choose commands to achieve a goal Understand that a program is a set of commands Debug and improve programs Know that an algorithm is a set of instructions	Understand that an algorithm is a set of instructions Understand that computers read and follow algorithms without thought Make predictions about programs Write a program to achieve an aim Debug and improve programs	Understand that commands have outcomes Write a program from a task description Develop, adapt and refine a program Develop a process for debugging	Develop understanding in a different environment Use loops in programs Compare infinite loops and count- controlled loops Debug and improve programs	Control a simple circuit connected to a computer Design write and create a program that uses selection Write programs including controlled loops	Understand what variables are Know how to use variables in programs Write a purposeful program using variables Debug, improve and evaluate projects Write code to control a device for a purpose Install software onto hardware
	COMPUTER SCIENCE	Data and information  Related digital media content: Operating devices Searching and selecting information	Group objects by type Discuss data and information and understand that things can be categorised using labels. Create tally charts	Understand that objects can be labelled and grouped Be able to label and group objects based on properties Choose searches and compare groups Debug and improve	Understand that data can be represented in pictograms and tally charts Be able to present and discuss data Draw conclusions from represented data	Understand that attributes can be used to refine data Select appropriate attributes required to find desired data Understand what a branching database is Use a branching database to sort information Compare branching databases/pictograms	Understand that data can be collected over time Be able to use a data logger Select what data need to be collected Answer questions using data	Compare paper and computer-based databases Explain that tools can be used to select specific data Apply knowledge of a database to ask and answer real-world questions

		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
INFORMATION TECHNOLOGY	<p>Computer systems and networks</p>  <p>Related digital media content: Operating devices</p> <p>Searching and selecting information</p> <p>Using devices safely and responsibly</p>	<p>To know that a computer has a mouse and a key-board and be able to recognise them</p> <p>To use a mouse to manipulate a program</p> <p>To use a keyboard and understand keys represent letters and numbers</p> <p>To understand that a tablet is different to a computer in some ways</p>	<p>Understand what technology is</p> <p>Know what technology they have in their lives</p> <p>Be able to use a mouse and a keyboard</p> <p>Be able to open a file</p> <p>Be able to create a typed document and save it</p>	<p>Develop the understanding of where technology can be found in the world</p> <p>Be able to name the types of technology found in shops, schools and at home</p> <p>Understand why we use IT</p> <p>Understand how to use IT safely</p>	<p>Understand how inputs and outputs work in digital technology and use this to achieve an aim</p> <p>Understand why we choose to use technology</p> <p>Understand the difference between digital and analogue outcomes</p> <p>Begin to understand how networks connect people and how they work</p>	<p>Understand how computers are physically connected in networks</p> <p>Start to understand the role of some of the devices in a network</p> <p>Know what the internet and WWW are and that they are different</p> <p>Understand that people create web page</p> <p>Understand that not all information on the WWW is accurate</p>	<p>Understand what a digital system is</p> <p>Understand how larger computer systems work (traffic lights)</p> <p>Understand that the internet forms part of some systems</p> <p>Know what an IP address is</p> <p>Be able to work collaboratively online</p> <p>Understand how systems and networks enable collaborative working</p>	<p>Develop from the understanding of the internet to understand what the WWW is</p> <p>Be able to carry out specific searches on the WWW</p> <p>Understand how search engines work</p> <p>Know that the internet can be used to communicate</p> <p>Understand how to stay safe when communicating online</p>
INFORMATION TECHNOLOGY	<p>Creating media</p>  <p>Related digital media content: Operating devices</p>	<p>To independently listen to digital audio</p> <p>Take photographs using a digital device</p> <p>To record video using a digital device</p> <p>To record audio</p>	<p>Use technology purposefully to create digital content</p> <p>Select and use a range of tools</p> <p>Compare digital and paper-based content</p>	<p>Use technology purposefully to create digital content</p> <p>Produce digital content to meet a brief</p> <p>Edit and improve own pieces</p>	<p>Select, use and combine a variety of software on a range of devices</p> <p>Understand how to create and edit content using IT</p> <p>Use editing tools such as copy and paste to create content.</p> <p>Evaluate work produced</p>	<p>Select, use and combine a variety of software on a range of devices</p> <p>Understand how to create and edit content using IT</p> <p>Use editing tools such to create content.</p> <p>Understand what input and output devices are.</p> <p>Evaluate work produced</p>	<p>Understand what makes digital content effective.</p> <p>Create digital content for a specific purpose</p> <p>Improve and edit work produced</p>	<p>Understand that web pages are written in HTML</p> <p>Plan a web page design</p> <p>Create a web page using software</p> <p>Use navigation paths and consider effective links</p> <p>Improve and edit work produced</p>

	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
 <p>Operating devices</p> <p>Searching and selecting information</p> <p>Using devices safely and responsibly</p> <p>DIGITAL LITERACY</p>	<p>Knows how to access information on a device eg: open an app, open a link, use a QR code</p> <p>Knows to ask an adult if they want to go online</p>	<p>Uses digital technology to find information</p> <p>Knows not to share personal information online</p>	<p>Navigates the web to complete simple searches</p> <p>Knows what personal information is and why to keep it private</p> <p>Can say who they would go to for help if they were worried by something they saw online</p> <p>Can choose appropriate websites and avoid sites/pop ups that are not appropriate or accurate</p>	<p>Searches for information on the web in different ways</p> <p>Know how to access help if they are concerned about anything on social media or the internet</p> <p>Knows how to use technology safely, respectfully and responsibly</p> <p>Understands why passwords are used online and how to use them responsibly</p>	<p>Understands that not all information on the WWW is accurate</p> <p>Understand how to protect their identity online and how to report any concerns</p> <p>Knows what to do if they see inappropriate content or they are contacted by someone they do not know online</p> <p>Understands what cyberbullying is and know how to be a member of a respectful and positive online community</p>	<p>Understands how search results are selected and ranked</p> <p>Know that there are rights and responsibilities in an online community or social network</p> <p>Know that there are rights and responsibilities when playing a game online</p> <p>Know that too much screen time isn't healthy</p> <p>Know how to stay safe when using technology to communicate with friends</p> <p>Knows what to do if they see inappropriate content (including pop ups) or am contacted by someone I do not know online</p> <p>Understands the importance of online security and how to create a secure password</p>	<p>Be able to carry out specific searches on the WWW</p> <p>Understand how search engines work</p> <p>Know some of the dangers of being 'online'</p> <p>Know how to use technology safely and positively to communicate with their friends and family</p> <p>Knows how to protect private information online</p> <p>Understands how to be respectful and responsible online as well as offline</p>