Computing Curriculum at Lace Hill Academy

Who are we?

At Lace Hill all children have access to the use of computing regardless of ability, age, culture, disabilities, gender or race. Through our planning we use computing to equip our pupils to understand and change the world through computational thinking. This is by thinking logically, precisely and creatively. The Foundation Stage children have an entitlement to access the EYFS curriculum at appropriate curriculum levels; all KS1 and 2 pupils have an entitlement to access the National Curriculum computing programmes of study at appropriate levels. For children in KS1 and KS2 we are using a bespoke curriculum built on student agency that draws on learning from Teach Computing and project-based approach that uses real world apps and websites that the children will use once they leave primary school.
By using this bespoke compilation, we are encouraging pupils to become critical thinkers, problems solvers and computational thinkers while creating purposeful content to demonstrate how learning can be applied across the wider curriculum.

The aim of this approach is to provide lessons that deepen children's knowledge of computing so they can creatively apply their learning across the curriculum in a personalised and accessible way.

What do we need to know? Why?

At the very beginning of our pupil's journey at Lace Hill we provide opportunities for the children to explore the different types of everyday technology we use and make available interactive software for children to explore during their self-chosen activities and thus gain an understanding of the safe and appropriate use of technology. We then develop basic understanding of the hardware and software to manipulate information. Throughout their time at Lace Hill we will be developing their computing competence in their knowledge and understanding of the importance of information and communication technology.
The computing opportunities in our school will ensure that the pupils understand and apply the fundamental principles of computing science (logic, algorithms, data representation and communication) and become digitally literate at a suitable level for future workplace and as active participants in our digital world.

What do we need to experience? Why?

When a child leaves our school they will…	I am a Lace Hill digital learner because…
• Be a confident person • Be an independent thinker and self-starter • Empathise with others • Have an inquisitive mind • Take risks with their learning • Bounce back and move forward when faced with a challenge • Be proactive and innovative • Have a sense of belonging	• I feel confident when using technology • I understand the importance of being safe online • I can interpret what I have learnt and apply it to technology around me • I can solve problems using different strategies • I enjoy exploring different applications, programs and software • I can help those around me with the knowledge I have learnt

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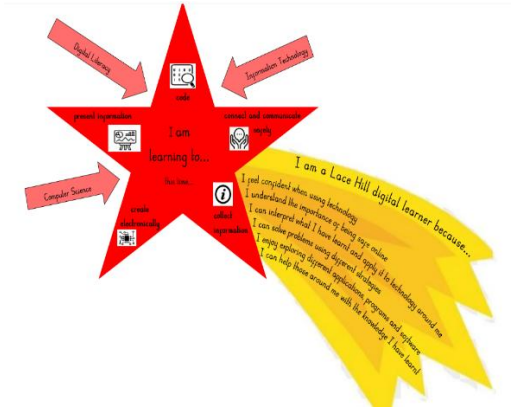
Three Pillars	Declarative knowledge - What	Procedural knowledge - How	Conditional knowledge - when
Computer Science - Coding/Programming - Computational thinking - Problem solving **Information Technology** - Using technology to demonstrate understanding - Use of multimedia to create digital artefacts **Digital Literacy** - Education for a Connected World (DfE 2020) o Self-Image and Identity o Online Relationships o Online reputation o Online Bullying o Managing Online Information o Health, Well-being and lifestyle o Privacy and Security o Copyright and Ownership	**Computer Science** - What is an algorithm? **Information Technology** - What are applications? **Digital Literacy** - Where can I get support if I need it? Vocabulary: Know, Identify, Describe, Explain, Define, List, Recognise, State, Recall, Understand, Summarise, Label, Name, Distinguish, Classify	**Computer Science** - How to write an algorithm **Information Technology** - Create my own app prototype. **Digital Literacy** - How to safely use a new application. Vocabulary: Perform, Execute, Create, Construct, Demonstrate, Operate, Assemble, Build, Implement, Compose, Design, Develop, Manipulate, Produce, Use	**Computer Science** - I can evaluate and change my algorithm **Information Technology** - I can decide when I need to change the font on a presentation **Digital Literacy** - I know when to speak to an adult Vocabulary: Apply, Decide, Determine, Evaluate, Judge, Select, Choose, Adapt, Modify, Assess, Recommend, Justify, Analyse, Critique, Reflect
			

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At Lace Hill we will provide opportunities through a cross-curriculum links with the teaching of mathematics, science, and Design and Technology to ensure pupils become digitally literate at a suitable level for future workplace and as active participants in a digital world. At Lace Hill we also want to provide opportunities to develop interests, knowledge and expertise in computing for teaching and non-teaching staff, as the children will learn and experience from a varied wealth and breadth of skills and knowledge.

Each class has access to iPads and laptops to enable them to use technology throughout the curriculum. Learning can then be evidenced through the use of Padlet. On Padlet students upload pictures, voice notes, videos and their work to capture learning.

By using technology throughout the curriculum this will break down many barriers that might make learning more challenging for pupils. We also firmly believe that if it's necessary for some then it's good for all.

In KS1 Digital Literacy and E-Safety will be taught through stories. It is important for children to be able to communicate and articulate their learning. Therefore, it must be presented in a recognisable and accessible format. In KS2 Digital literacy will be taught explicitly in Autumn 1 to best prepare the children for the year. We believe that although it is important to cover these objectives explicitly, many of these themes will be covered in our Computer Science and Information Technology lessons. Children will be using a new range of apps, accessing different websites so need to have a constantly developing knowledge of digital literacy that can be applied in contexts.

See below table coverage for the 8 main themes.

Colour	Topic	3	4	5	6
	Self-Image and Identity				
	Online Relationships				
	Online reputation				
	Online Bullying				
	Managing Online Information				
	Health, Well-being and lifestyle				
	Privacy and Security				
	Copyright and Ownership				

Digital Literacy coverage

The themes of Online Relationships, Online Reputation and Online Bullying are also covered during our relationships units in PSHE.

Year 3 and 4 will revisit these topics in Summer 1 whereas Year 5 and 6 will cover these topics in Autumn 2.

As a subject lead the themes of Digital Literacy will be revisited in our subject assemblies and when we celebrate Safer Internet Day in February. Although, as a school, we believe that everyday should be Safer Internet Day. In a technologically advanced society, it is our duty to best prepare these children to become digitally literate and responsible citizens.

Celebrating Computing:

Digital Leaders (Subject Ambassadors), Computing Club run periodically through the year, Safer Internet Day, Subject Leader Assemblies

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LHA Computing Journey (Progression)							
	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Units covered	**Core skills:** typing, communication, technology, control and data **Online Safety:** self-image, cyber bullying, stranger, reporting **Digital Creativity:** image, video, audio **Coding:** computational thinking	E-Safety Programming Animation Data & Information Creating Media Programming	E-Safety Programming Digital Art Data & Information Photography Programming	E-Safety Programming Presentations (App) Computer Networks AR/VR (3D Design) Programming	E-Safety Programming Presentations (Data) Computer Networks AR/VR (3d Design) Programming	E-Safety Programming Presentations (website) Computer Networks Video Production Programming	E-Safety Programming Presentations (Keynote) Computer Networks Sound (Podcast) Programming
LHA Computing Journey (Progression in Knowledge and Skills)							
	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computer Science	**Nursery** I can explore technology I can repeat an action with technology to trigger a specific outcome I can follow simple instructions to control a digital device	**Programming** I can explain what a given command will do I can act out a given word I can plan a simple program **Data & Information** I can label objects I can count objects with the same properties	**Programming** I can describe a series of instructions as a sequence I can explain what happens when I change the order of instructions I can use logical reasoning to predict the outcome of a program	**Programming** I can create a program using a design I can create a **sequence** of code I can work with a variety of inputs and outputs **Computer Networks** I can identify input and output devices	**Programming** - I can use **repetition** in programs I can work with a variety of inputs and outputs I can use logical reasoning to systematically detect and correct errors in programs **Computer Networks**	**Programming** I can create programs by decomposing them into smaller parts I can use a variety of **selection** commands in programs I can use conditions in	**Programming** I can use a range of sequence, selection and repetition commands to implement my design I can identify the need for, and work with, **variables**

	Reception I can recognise the success or failure of an action I recognise that we control computers I can input a short sequence of instructions to control a device	I can answer questions about groups of objects **Programming – quizzes** I can choose a command for a given purpose I can show that a series of commands can be joined together I can explain that each sprite has its own instructions	**Data & Information** I can count and compare objects using tally charts I can use pictograms to answer simple questions to select objects by attribute and make comparisons **Programming** I can explain that a sequence of commands has an outcome I can create a program using a given design I can make improvements to my design	I can explain how a computer network can be used to share information I can explore how digital devices can be connected **Programming – Events & Actions** I can explain how a sprite moves in an existing project I can adapt a program to a new context I can identify and fix bugs in a program	I can describe how networks physically connect to other networks I can recognise how networked devices make up the internet I can evaluate the consequences of unreliable content **Programming - Intelino Indi** I can use decomposition to help solve complex problems I can use abstraction to help solve complex problems I can identify suitable commands to use when solving a problem.	**repetition** commands **Computer Networks** I can explain that computers can be connected together to form systems I can describe how search engines select results I can recognise why the order of results is important, and to whom **Programming** I can explain how **selection** is used in computer programs I can explain that a conditional statement connects a condition to an outcome I can explain how **selection** directs	I can create procedures to hide complexity in programs **Networks** I can explain the importance of internet addresses I can recognise how data is transferred across the internet I can explain how sharing information online can help people to work together **Programming** I can explain that **selection** can control the flow of a program I can use a conditional statement to compare a **variable** to a value

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						the flow of a program	I can develop a program to use inputs and outputs on a controllable device
	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Information Technology	**Nursery** I can use technology to explore and access digital content **Reception** I can operate a digital device with support to fulfil a task I can create simple digital content I can choose media to convey information	**Animation** I can explain what animation is I know that animations require consistency and being careful I can plan and create my own animation **Creating Media** I can identify and find keys on a keyboard I can type a sentence using a variety of keys I can use the toolbar to make changes I can choose appropriate tools to make a picture	**Digital Art** I can describe the main features of different art types I can use an app to recreate pieces of artwork I can make choice about what tools I use to design my own artwork **Photography** I can use a digital device to take photographs I can describe what makes a good photograph I know what photos can be changed	**Presentations** I can explain why we use prototypes I can identify the features of effective apps I can design an app that helps inform people **AR/VR** I can explain the difference between AR and VR I can explain that AR/VR can change how we see the world I can select, combine and place shapes in a workspace to create a simple design	**Data Handling** I can explain that data is collected to answer questions I can interpret data that has been collected I can answer questions using data. **AR/VR – 3D design** I can explain how AR/VR is used in the world I can explain what jobs may need or use these skills I can select appropriate tools needed to meet a target audience	**Presentation** I can identify the key features of a website I can consider the ownership and use of images I can create a webpage and embed media **Video Creation** I can capture video using a range of techniques I can identify when I need to reshoot or edit my clips I can consider the impact of choices made when	**Presentation** I can decide what information needs to be shared with an audience on screen I can record audio and overlay this on a slide I can add in transitions and animations to make the presentation effective **Sound** I can explain what a podcast is and why they are popular I can identify and explain the key features

						making and sharing videos	I can plan, produce and edit my own podcast
	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital Literacy	**Nursery** I recognise a selection of digital devices I can use a mouse, touchscreen or appropriate access device to target and select options on screen **Reception** I can use different digital devices I recognise that you can access content on a digital device I recognise the basic parts of a computer, e.g. mouse, screen, keyboard	I can explain why things one person finds funny or sad online may not always be seen in the same way by others I can recognise that there may be people online who could make someone feel sad, embarrassed or upset If something happens that makes me feel sad, worried, uncomfortable or frightened I can give examples of when and how to speak to an adult I can trust and how they can help I can give examples of when I should ask permission to do something online and explain why this is important I can use the internet with adult support to	I can explain how information put online about someone can last for a long time I can explain how other people may look and act differently online and offline I can explain who I should ask before sharing things about myself or others online I know who to talk to if something has been put online without consent or if it is incorrect I can explain what bullying is, how people may bully others and how bullying can make someone feel I can explain why anyone who	https://assets.publishing.service.gov.uk/media/5efa05b4e90e075c5492d58c/UKCIS_Education_for_a_Connected_World_.pdf			

	I can select a digital device to fulfil a specific task I know to tell an appropriate adult if I see something on the computer that upsets me	communicate with people I know I can describe what information I should not put online without asking a trusted adult first I can describe how to behave online in ways that do not upset others I know how to get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened and can give examples I can explain rules to keep myself safe when using technology both in and beyond the home I can explain how passwords are used to protect information, accounts and devices I can recognise more detailed examples of information that is personal to someone	experiences bullying is not to blame I can talk about how anyone experiencing bullying can get help I can explain simple guidance for using technology in different environments (Home and school) I can say how those rules can help anyone accessing online technologies I can use simple keywords in search engines I can demonstrate how to navigate a simple webpage to get information I need I can explain and give examples of what is meant by private and keeping things private I can describe and explain some rules	

		I can explain why it is important to always ask a trusted adult before sharing any personal information online, belonging to myself or others.	for keeping personal information private	