Computing Knowledge Sequencing at Knavesmire Primary

Computing Understanding, Knowledge and Skills objectives:	
Intent:	Our Intent is that Computing teaching at Knavesmire Primary school enables children to be responsible, competent, confident and creative users of computing devices. At Knavesmire Primary school, the children make use of a wide range of new technologies and applications to develop knowledge in e-safety, Programming, Digital Literacy and Technology in our lives. Programming is taught progressively throughout the school – a specialist delivers this in Year 1, Year 3 and Year 6 and class teachers deliver one coding unit per year in other year groups. Through the use of Google for Education, computing knowledge is used enhance work produced in other areas of the curriculum. The school uses Google Drive, which gives pupils access to their own files, printers and other applications. Pupils have access to Chromebooks across school. All Year 5 and 6 pupils have access to their own, individually assigned, Chromebook. Chromebooks are a versatile tool that can be used across all subjects in the curriculum: they enhance learning experiences by providing an interactive approach to all lessons.
Substantive knowledge in Computing:	By the end of KS2, children will know how different technology is used in our lives; they will have developed knowledge of Digital Literacy; they will understand the basic principles of programming and coding and they will know how to stay safe using the internet.
Disciplinary knowledge in Computing:	At Knavesmire, children experience and discuss the different types of technology in our lives including VR, iPads and Interactive Whiteboards. They will develop Digital Literacy knowledge by primarily using Chromebook technology across the curriculum. They are able to use G-suite to create Slides, Docs and Drawings to create and edit their creations; they can access applications to enhance their learning and creativity such as FlipGrid and SeeSaw; they can programme Bebots and access coding applications and sites such as CS First and they can engage in workshops and discussions about staying safe when using technology.
Computing:	The study of computers, how they work and data application to real world problems.

EYFS Building the foundations for Computing:

Nursery

Personal, Social and Emotional Development, **Communication and Language, Expressive Arts and Design, Physical Development** and **Knowledge and Understanding of the World** are building foundations for children to succeed when they embark on the National Curriculum. Computing does however play a part throughout every area of the EYFS curriculum.

e-Safety	Programming	Digital Literacy	Technology in our lives
Know that the **internet** is not always safe and appropriate. (PSED)	Increasingly follow rules and understand why they are important. (PSED, C&L)	Develop their small motor skills so that they can use a range of devices to make marks and express their ideas. (PD)	Begin to talk about how we use technology and what we use it for. (C&L)
	Explore stories using the Toby box. (EAD, LIT) Use the touch screen smart board and Ipads for simple drawing games. (PHY)		I can show resilience when beginning to use technology in the classroom. (PSED)

EYFS Building the foundations for Computing:

Reception

Personal, Social and Emotional Development, **Communication and Language, Expressive Arts and Design, Physical Development** and **Knowledge and Understanding of the World** are building foundations for children to succeed when they embark on the National Curriculum. Computing does however play a part throughout every area of the EYFS curriculum.

e-Safety	Programming	Digital Literacy	Technology in our lives
I know and talk about the different factors that support overall health and wellbeing including sensible amounts of 'screen time'. (PSED, PHY)	I can explain the reasons for rules. (PSED, C&L)	Explore, use and refine a variety of artistic effects of technological devices to express their ideas and feelings. (EAD)	Talk about how we use technology and what we use it for. (C&L) Explore how things work including; Beebots, Ipads, chrome books - VR headsets and interactive Whiteboards. (UTW)
			Show resilience when developing further use of technology in the classroom. (PSED)

Key Knowledge in Computing:

Year 1

e-Safety		Programming		Digital Literacy		Technology in our lives	
1	I know what a password is.	3	• I can give a sequence of instructions to my friend to undertake a task and identify that this is an algorithm. • I can create a storyboard detailing a sequence of instructions. • I can program a Bee-Bot. • I can press the buttons in the correct order to make my Bee-Bot move. • I can predict what will happen for a short sequence of instructions • I can begin to use software/apps to create patterns on a screen.	5	• I can log on to a Chromebook with help from an adult. • I can use a drawing application such as SketchPad to present my ideas creatively. • I can use the keyboard to enter text.	7	I can recognise the ways we use technology in our classroom and at home.
2	I can tell an adult when I see something unexpected or worrying online.	4	• I can use the word debug when I correct mistakes when I program. • I can watch a program execute and spot where it goes wrong so that I can debug it.	6	• I can locate a document on Google Classroom. • I can click a link to a useful website.	8	I can begin to identify some of the benefits of using technology.

Key Knowledge in Computing:

Year 2

e-Safety		Programming		Digital Literacy		Technology in our lives	
1	• I can explain why I need to keep my password and personal information private. • I can talk about why it is important to be kind and polite online and in real life.	3	I can use programming software to make objects move.	4	• I can log into a Chromebook independently. • I can locate a document on Google Classroom. • I can use the keyboard on my device to add, delete and space text for others to read. • I can use a Chromebook to organise and present my ideas in different ways.	6	• I can identify the benefits of using technology: finding information, creating and communicating. • I can talk about the differences between the internet and things in the physical world.
2	I know that not everyone is who they say they are on the Internet.			5	I can use a number of provided links to research a question.	7	I can use websites such as Spelling Shed and TTRockstars to enhance my wider learning.

Key Knowledge in Computing:

Year 3

e-Safety		Programming		Digital Literacy		Technology in our lives	
1	• I can talk about what makes a secure password and why they are important. • I can recognise websites and games appropriate for my age.	3	• I can create an animation. • I can put programming commands into a sequence to achieve a specific outcome. • I can use repeat commands. • I can describe the algorithm I will need for a simple task.	5	• I can locate and edit work on Google Classroom. • I can use simple keyboard commands to perform functions such as lower and upper case letters. • I can copy and paste a picture onto a document. • I can change text (font, size, colour). • I take a photo of myself and insert it into a document.	7	• I understand how work is saved and shared on Google Classroom. • I can talk about the parts of a computer. • I can tell you ways to communicate with others online. • I can describe the World Wide Web as part of the internet that contains websites.
2	I can talk about making appropriate comments online.	4	• I recognise that an algorithm will help me to sequence more complex programs. • I keep testing a program and can recognise when I need to debug it.	6	With guidance, I can use search tools to research a question.	8	I can log in to a range of school approved applications to enhance my wider learning experience. I can use search tools to find appropriate websites.

Key Knowledge in Computing:

Year 4

e-Safety		Programming		Digital Literacy		Technology in our lives	
1	• I can talk about the ways I can protect myself and my friends from harm online. • I know that anything I post online can be seen by others. • I can identify key words to use when searching safely on the internet.	3	I can use algorithms to help me solve a problem in another Big Idea Subject.	4	• I can create, modify and present documents for a particular purpose using a Chromebook. • I can confidently use the Google applications GoogleDoc, Google Slides and Google Drawings across the curriculum. • I can use a keyboard confidently to make use of a spellchecker to write and review my work. • I can film and edit using an application such as FlipGrid on a Chromebook.	6	• I can tell you whether a resource I am using is on the internet, the school network or my own device. • I understand the benefits of using a cloud system - such as Google Classroom - for my education. • I can differentiate between true and false information on the internet.
2	I can talk about why I need to ask a trusted adult before downloading files and games from the internet.			5	I can independently use search tools to research a question.	7	I can explain what the key components of different technologies we use are, such as VR headsets.

Key Knowledge in Computing:

Year 5

e-Safety		Programming		Digital Literacy		Technology in our lives	
1	• I can communicate how to protect my password and other personal information. • I can explain what cyberbullying is. • I know that anything I post online can be seen, used and may affect others. • I can explain the importance of communicating respectively online.	3	I can use logical thinking, imagination and creativity to use algorithms in a coding project.	5	• I can make full use of Google Suite across the curriculum. • I can film and produce a short video using a Chromebook. • I can use text, photos, sound and video editing tools to refine my work on a Chromebook. • I can review and improve my own work and support others to improve their work on applications such as FlipGrid and SeeSaw.	7	• I can describe different parts of the internet. • I can evaluate the quality and reliability of information I find online. • I can describe the different parts of a webpage. • I can find out who the information on a webpage belongs to.
2	I know which resources on the internet I can download and use safely.	4	I can change an input to a program to achieve a different output.	6	I can explain what QR codes are and use them.	8	I can explain what copyright is.

Key Knowledge in Computing:

Year 6

e-Safety		Programming		Digital Literacy		Technology in our lives	
1	• I can explain the consequences of sharing too much online. • I can clearly talk about the dangers of spending too much time online on physical and mental health. • I support my friends to protect themselves and make good choices online, including reporting concerns to an adult.	3	• I can design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems. • I can explain and program each of the steps in my algorithm. • I can evaluate the effectiveness and efficiency of my algorithm. • I can use a variable and operators to stop a program.	5	• I can compile, conduct and evaluate a research project using my knowledge of Chromebook tools and applications. • I can confidently use technology to collaborate with my peers.	6	• I can describe how information is transported on the internet. • I can talk about the way search results are selected and ranked. • I can check the reliability of a website before I use it for research. • I can tell you about copyright and acknowledge the sources of information I find online.
2	I can talk about how to protect my computer or device from harm on the internet.	4	• I can recognise when I need to use a variable to achieve the required output. • I can use different inputs (including sensors) to control a device.	6	• I can explain what a database is. • I can create a simple database using Google Sheets. • I can present data I have collected using functions of GoogleSheets.	7	I can embed the use of technology in my wider learning experience.