Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 1

Key Theme : Let's Create (Create & eWorlds)

National Curriculum:

- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Learning Theme:

Children begin to explore digital texts, using varied devices and software to create digital content. They investigate differences between input and output and hardware and software. They explore the idea of a network related to computers at home and school, logging on to their area with support. They use unplugged computing approaches to explore the devices they use. They consider eSafe practice.

Information Technology	Digital Literacy	Digital Literacy – E-safety – Possible link to PSHE	Computer Science
Hardware and software Storing digital content – networks Using computer software to create digital content for different audiences and purposes. Different software to create digital paintings or drawings.	Digital texts Inputting into a computer Still images Moving images Audio devices help capture and/or playback sound to help communication	Seeking permission before taking photos. Images can be accessed from many sources. Not all images are safe	

Previous Learning To be reinforced	Core Learning Intentions Age Related	Extension Opportunities Next steps	Key Vocabulary
INFORMATION TECHNOLOGY • **To understand that computer systems enable us to store digital content.** • **To know how we input into a computer.**			• Hardware • Software • Outcomes

• **To understand the difference between computer hardware and software.** • **To know that computer software can help us with our reading and writing.**			• Optional: • Names of hardware, e.g. computer, visualiser, webcam, microphone, microscope, smartphone etc.
	• With increasing confidence log on to a school space or network.	• Log on to a school space/network independently.	
• Knows that information can be retrieved from computers.	• Begin to be aware that work is stored on the school network. • With support access work on network; save in a prepared folder.	• Know work is stored on school network, not individual machines. • Be aware of some areas on the network. • Save and retrieve in prepared folders on network; generally use suitable file names.	
• Knows how to operate simple equipment, e.g. turns on CD player, uses remote control etc. • Shows an interest in technological toys with knobs or pulleys or real objects such as cameras or mobile phones. • Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.	• Develop use of different input devices; begin to name them.	• Know we use input devices to enter data. • Use different input devices with confidence.	
	• Begin to relate terms hardware and software to some resources.	• Accurately identifies resources as hardware or software.	
DIGITAL LITERACY • **To understand that digital texts can include words, numbers, graphics, film and sound.** • **To understand that we use computer software to create digital content, for different purposes and for different audiences.** • **To understand that we can choose from different software to create digital drawing or painting.** • **To identify and use a range of technology to capture still and moving images. Begin to talk about how such devices operate.** • **To understand that audio devices can capture and/or playback sound and that they help us to communicate with others.** • **To know that sounds add meaning to digital texts.**			• Digital texts • Graphics
	• Purposefully use suggested digital tools for their work	• Selects the appropriate tool from a limited range to create and amend their work	
	• Make choices to produce different outcomes	• Explain the choices and/or decisions they made in creating or amending their work	

	• Share work with others	• Share their work with others; use feedback and self-review to begin to improve their work	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To recognise the need to ask permission before taking anyone's photograph.** • **To understand that images can be accessed from many sources.** • **Recognise that not all images found might be appropriate.**			• Images • Sources
•	• Be aware that there are rules about taking or using images of other people.	• Demonstrate they understand the need to seek consent before capturing and/or using an image or sound recording of another person	
• Aware that some actions can hurt or harm others – not necessarily computing based. • Aware of own feelings, and knows that some actions and words can hurt others' feelings – not necessarily computing based.	• Use technology safely and sensibly	• Understand the need to use technology safely and respectfully	
•	• Discuss how they use technology in and beyond school	• Talk about their use of technology for their work at home and school	

Year 1

Key Theme : Visual Information (Information)

National Curriculum:

- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Learning Theme:

Children investigate how we derive information from different sources. They create graphs and charts and make general statements. They use data-loggers to explore environmental conditions. They organise objects using branching databases. They explore how computers might sort objects, noting the process of Repeat. They build eSafe practice.

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Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Using tools within graphing programs. Use data loggers	Graphs – pictograms, bar charts Branching charts Sensors	Personal data private Talk about their use of technology	

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY			• Data logger
	• With increasing confidence log on to a school space or network	• Log on to a school space/network independently	
• Knows that information can be retrieved from computers.	• Begin to be aware that work is stored on the school network • With support access work on network; save in a prepared folder	• Know work is stored on school network, not individual machines • Be aware of some areas on the network • Save and retrieve in prepared folders on network; generally use suitable file names	
DIGITAL LITERACY – POSSIBLE LINK TO MATHS OR SCIENCE **Graphs – pictograms, bar charts** • **To understand that information exists in many different forms.** • **To understand that information in graphs (e.g. pictograms, bar charts etc) can be simpler to understand than written text.** • **To understand that the tools within graphing software can be used to present detailed information clearly.** • **To understand that mistakes are easy to make when gathering and recording information.** **Sensors – data loggers** • **To understand that technology can sense conditions around us.** • **To understand that some technology can record changes in conditions around us.** **Branching databases** • **To understand how objects can be sorted according to a property.** • **To understand that yes/no questions can provide useful information and can help us make decisions.**			• Pictogram • Bar chart • Line graph • Sensor • Branching database

• **To understand that branching databases can be used to organise objects and to identify them using yes/no questions.**			
	• Know that information exists in different forms		
	• Use simple sensors to investigate conditions around them	• Compare the data produced by sensors and begin to make general statements.	
• Knows how to operate simple equipment, e.g. turns on CD player, uses remote control etc • Shows an interest in technological toys with knobs or pulleys or real objects such as cameras or mobile phones. • Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.	• Explore a range of technology tools to generate pictograms and bar charts, and to identify objects • Use yes/no questions to sort a limited set of objects • Use graphs and charts to answer simple questions. • Make general statements about their data	• Use pictograms, bar charts and branching databases to organise and classify information for a purpose • Use graphs and charts to answer simple questions accurately and phrase their own simple questions for others • Make generally accurate statements about their data • Understand that there are different types of questions. • Use and refine yes/no questions to identify objects • Uses tools from a limited range, to organise their information	
	• Share work with others	• Share their work with others, beginning to use feedback and self-review to improve their work	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To recognise the need to ask permission before taking anyone's photograph.** • **To understand that images can be accessed from many sources.** • **Recognise that not all images found might be appropriate.**			
• Aware that some actions can hurt or harm others – not necessarily computing based.	• Keep personal details private • Use technology safely and sensibly	• Keep personal information safe; do not share such details online • Understand the need to use technology safely and respectfully	
• Aware of own feelings, and knows that some actions and words can hurt others' feelings – not necessarily computing based.	• Be able to talk about their use of technology	• Talk about their use of technology at home and school	

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COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 1

Key Theme : Discovering Programming (eWorlds)

National Curriculum:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Learning Theme:

Children name the main external parts of a computer and explore how they work together. They explore programmable devices relating their understanding of inputs and outputs to digital systems. They use unplugged approaches and simple onscreen and physical devices to develop understanding of algorithms and programming. They develop their own skills in open programming time.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Name parts of a computer Input/output		Personal data private Talk about their use of technology Use technology safely	Algorithms/coding/programming

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY • **To begin to understand what a computer is and how it operates.** • **Identify the main 'parts' of a computer.**			• Keyboard • Monitor/screen • Base unit • Speakers • Web cam
	• With increasing confidence log on to a school space or network	• Log on to a school space/network independently	

• Knows that information can be retrieved from computers.	• With support access work on network; save in a prepared folder	• Save and retrieve in prepared folders on network; generally use suitable file names	• Microphone • Printer
• Knows how to operate simple equipment, e.g. turns on CD player, uses remote control etc • Shows an interest in technological toys with knobs or pulleys or real objects such as cameras or mobile phones. • Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.	• Begin to identify the main parts of a computer	• Correctly identify the main parts of computers	
	• Talk about input and output	• Use the terms input and output in relation to computers and digital systems	
COMPUTER SCIENCE • **To know that we can use logical reasoning to predict the behaviour of simple programs.** • **To understand that we use many programmable and automated devices in school, home and in the wider world.** • **To understand that an algorithm is a set of precise instructions or rules to carry out a specific task or solve a problem.** • **To understand that we use logical reasoning to break tasks down into smaller steps (decompose) to help us create algorithms.** • **To understand digital devices are controlled using programs written in specific programming languages.** • **To understand precision and sequence are key to programming.** • **To know the repeat command can make programs move efficient.** • **To know collaborative exploration can support efficient programming.**			• Algorithm • Coding • Programming • Unplugged • Program • Debug • Refine • Predict • Repeat/repetition • Precision • Sequence • Decompose • Input • Output •
	• Use the term algorithm, understanding it to be a set of instructions	• Know an algorithm is a precise set of instructions in which sequence is important	
	• Create and debug simple algorithms for short tasks	• Create and debug simple algorithms to achieve specific goals	
	• Begin to use an algorithm to create a simple program	• Understand algorithms can be implemented as programs; use algorithms when creating programs	
	• Create simple programs for human robots, onscreen and physical turtles or devices	• Break a task into smaller steps; write algorithms for the steps • Create and debug programs for human robots, onscreen and physical turtles or devices	

	• Understand the need to be precise and follow the correct sequence when programming	• Use sequence in algorithms and programs, recognising order is important; begin to use simple repeated sequences • Understand programs execute by following precise, unambiguous instructions	
	• Use logical reasoning to help them investigate what will happen in simple programs	• Use logical reasoning to predict what will happen in simple programs • Describe effects of modifications to programs	
	• Make choices to produce different outcomes	• Explain how their decisions help them solve problems	
	• Identify devices at home and school which might be programmed	• Can identify some of the ways that everyday devices are programmed	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE			
• Aware that some actions can hurt or harm others – not necessarily computing based. • Aware of own feelings, and knows that some actions and words can hurt others' feelings – not necessarily computing based.	• Use technology safely and sensibly	• Understand the need to use technology safely and respectfully	

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COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 2

Key Theme : Getting Creative (Create & eWorlds)

National Curriculum:

- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Learning Theme:

Children build understanding of digital texts. They use varied devices and software with increased precision to create digital content. They revisit differences between input and output and hardware and software. They develop understanding of networks related to computers at home and school, logging on to their areas. They build understanding of algorithms using unplugged approaches. They develop eSafe practice.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Computer input/output Hardware/software Store data Formatting tools - writing	Digital texts with sound/animations Framing photos Animation using images	Consent for images	

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY • **Review what a computer input and output device is.** • **Review the differences between hardware and software.** • **To understand that computer systems enable us to store digital content in precise locations.**			• Input • Output • Hardware • Software •
• With increasing confidence log on to a school space or network	• Log on to a school space/network independently or using a written aid	• Confidently log on to a school space/network independently	

• Begin to be aware that work is stored on the school network • With support access work on the network; save in a prepared folder	• Know work is stored on school network, not individual machines • Be aware of some areas on the network • Save and retrieve in prepared folders on network; generally use suitable file names	• Know the areas on the network they need to use. • Create folders to save and retrieve work in on network; • Use suitable file names	
• Develop use of different input devices; begin to name them	• Name different input devices. • Know we use input devices to enter data • Use different input devices with confidence		
• Begin to relate terms hardware and software to some resources	• Accurately identifies resources as hardware or software	• Confidently names resources as hardware or software.	
DIGITAL LITERACY • **To investigate ways in which software supports writing.** • **To understand that elements in digital content contribute meaning or create atmosphere.** • **To recognise how digital imaging is used in and beyond school.** • **To explore the differences between digital and non-digital images.** • **To select appropriate devices to capture images clearly and in frame.** • **To understand that images can be sequenced to tell a story or describe an event or process.** • **To understand objects can be animated in digital content.**			• Digital texts • Non-digital • Animation • Word processing terms: font, bold, italic, highlight, style
• Purposefully use suggested digital tools for their work.	• Purposefully use suggested digital tools for their work, including simple word processing and graphics	• Selects the appropriate tool from a limited range to create and amend their work, including simple word processing and graphics	
	• With limited support create a simple animation using given images • Discuss how they use technology for still image and animation in and beyond school	• Create a simple animation selecting their images • Talk about how they use technology for their still image and animation work at home and school	
• Share work with others	• Share their work with others, beginning to use feedback and self-review to improve their work	• Share their work with others, use feedback and elf-review to improve their work.	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **Seek consent before taking/using someone's image.** • **To understand digital images can be stored in electronic collections and searched using key words and menus or categories.**			

• Be aware that there are rules about taking or using images of other people • Use technology safely and sensibly	• Demonstrate they understand the need to seek consent before capturing and/or using an image of another person • Understand the need to use technology safely and respectfully		

Year 2

Key Theme : Starting Research (Information & Digital Research)

National Curriculum:

- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Learning Theme:

Children develop understanding of researching using non-digital and digital sources, including the World Wide Web. They understand the need to check their research results. They present their research. They use charts, graphs and mind maps. They begin to respect copyright and ownership and know who to talk to if they are worried.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Website addresses	WWW Key word searches	Copyright Ownership	

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY • **To understand that each website has a unique name and address.**			• Website

• With increasing confidence log on to a school space or network.	• Log on to a school space/network independently or using a written aid.	• Confidently log on to a school space/network independently	
• Begin to be aware that work is stored on the school network • With support access work on the network; save in a prepared folder	• Know work is stored on school network, not individual machines • Be aware of some areas on the network • Save and retrieve in prepared folders on network; generally use suitable file names	• Know the areas on the network they need to use. • Create folders to save and retrieve work in on network; • Use suitable file names	
	• Know that website addresses are unique to the page	• Know the meaning of the different parts of the website address e.g. sch – school, gov - government	
DIGITAL LITERACY – POSSIBLE LINKS TO TOPIC AND MATHS • **To know that information can come from many different sources, including digital and non-digital.** • **To understand that the WWW holds huge amounts of information.** • **To understand that websites and other digital resources provide tools that we can use to locate information.** • **To understand that selecting appropriate keywords is essential in finding specific information.** • **To understand that we can use digital resources to help us share the results of information research.** • **To understand that we can organise ideas and information using mind maps.** • **To understand that we can organise objects according to their properties.**			• Digital • Non-digital • WWW • Hyperlink • Hotspot • Address bar • Buttons • Icons • Search boxes • Menus • Bar chart • Pictogram • Keyword • Mind map
	• Explore finding information from different sources (digital and non-digital) • Know that we can find information on the World Wide Web • Suggest ways to find information on a specific site, including using keywords	• Use a range of information sources (digital and non-digital) for research • Know there are many different sites on the World Wide Web which we can use to find information • Use appropriate questions or approaches to find information on specific sites • Check information they find	
	• Use simple software to share ideas and organise information	• Use software to organise and group information and to share ideas	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To know that anyone can put information on the WWW and that it may not be true.** • **To understand that they own the materials they create and that others should ask permission before using them.**			Copyright Credit
• Be careful when using technology	• Be aware that they own materials they create • Be aware that anyone can put information on the internet and that it may not be true	• Understand that everyone owns the materials they create; begin to ask permission before use	

		• Know that anyone can put information on the internet and that it may not be true.	
• Talk to a trusted adult if any they have any worries related to technology	• Know who to talk to if any technology or online system makes them feel worried or uncomfortable	• Know what to do if something makes them feel worried or uncomfortable	
• Use technology safely and sensibly	• Understand the need to use technology safely and respectfully	• Use technology safely and respectfully.	
• Discuss how they use technology in and beyond school	• Talk about using technology for their work at home and school		

Year 2

Key Theme : Messages & Virtual Worlds (eWorlds & Digital Communication)

National Curriculum:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies

Learning Theme:

Children explore ways of sending messages using digital and non-digital systems. They investigate the history of messages. As a class, they send and receive emails and read and comment on blogs. They explore simple virtual worlds. They create algorithms linked to their simulations. They program onscreen characters. They develop eSafe practice understanding the need to keep personal information private.

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Information Technology	Digital Literacy	Digital Literacy – E-safety – Possible link to PSHE	Computer Science
	Emails Online spaces e.g. cloud Virtual worlds – games Outcomes in games	Staying safe online Personal information private	Algorithms - simulations

Previous Learning To be reinforced	Core Learning Intentions Age Related	Extension Opportunities Next steps	Key Vocabulary
INFORMATION TECHNOLOGY •			•
• With increasing confidence log on to a school space or network.	• Log on to a school space/network independently or using a written aid.	• Confidently log on to a school space/network independently	
• Begin to be aware that work is stored on the school network • With support access work on the network; save in a prepared folder	• Know work is stored on school network, not individual machines • Be aware of some areas on the network • Save and retrieve in prepared folders on network; generally use suitable file names	• Know the areas on the network they need to use. • Create folders to save and retrieve work in on network; • Use suitable file names	
DIGITAL LITERACY – POSSIBLE LINKS TO TOPIC AND MATHS • **To investigate how methods for sending messages have developed over time.** • **To understand some of the ways we send messages today.** • **To understand email is a digital tool to send messages.** • **To understand that messages can be left in online spaces for others to pick up when they are ready.** • **To know that virtual worlds include activities or games designed by computer programmers to help us play and learn.** • **To understand that we can control outcomes in a game or simulation.** • **To understand that algorithms are used to plan and test computer simulations and games before they are programmed.** • **To understand that onscreen characters can be programmed to move or respond in a specific way.**			• Email • Blog • Online space e.g. cloud • Algorithm • Coding • Simulation
	• Compare different ways of sending messages • Contribute to using technology such as email to send and receive messages	• Compare the efficiency of different ways of sending messages • Use technology such as email, to send and receive messages and attachments	

	• Explore a blog; begin to understand it is different from email • Share in leaving a comment on a blog	• Discuss differences between blogs and email • Suggest content for a comment on a blog	
	• Explore controls in simple simulations; begin to predict the effect of choices	• Investigate controls and rules in simple simulations • Use logical reasoning to predict what will happen in simple simulations	
• Use the term algorithm, understanding it to be a set of instructions • Create and debug simple algorithms for short tasks • Begin to use an algorithm to create a simple program • Create simple programs for human robots, onscreen and physical turtles or devices • Understand the need to be precise and follow the correct sequence when programming • Use logical reasoning to help them investigate what will happen in simple programs • Make choices to produce different outcomes • Identify devices at home and school which might be programmed	• Understand an algorithm to be a precise set of instructions • Create and debug simple algorithms; recognise sequence is important • Create programs which cause onscreen objects move and respond	• Begin to understand algorithms could support the programming of simulations and games • Create, test and debug algorithms; consider sequence and simple repetition • Create and debug programs f which cause onscreen objects move and respond	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To understand the wording and the language we use to send formal and informal messages.** • **To understand the importance of staying safe online and keeping personal information private.** • **To discuss how they use technology in school and at home to communicate safely.**			Copyright Credit
• Be careful when using technology • Be aware we should not share details about ourselves	• Be aware there are rules to keep us safe online • Keep personal details private	• Keep personal information safe; do not share such details online	•
• Begin to talk some technology use in everyday life	• Discuss their technology use in and beyond school	• Talk about using technology for their work at home and school	•

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Year 3

Key Theme : Keeping Informed (Information & eWorlds)

National Curriculum:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children understand the difference between data and information. The use sensors, data-loggers and other tools as part of their investigations. They use branching and flat-file databases to enter, organise and search data, deriving information that they resent in different forms.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Data loggers/sensors & software – link to science/maths	Branching databases Flat file database	Accuracy when entering data	Selection

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY			
• Save and retrieve in prepared folders on network; generally use suitable file names.	• Save and organise their work in folders on the network; use appropriate file names	• Save/organise work in correct network areas; use appropriate file names/folder structure	
DIGITAL LITERACY – POSSIBLE LINKS TO SCIENCE AND MATHS			• Data

• **To know the difference between data and information.** **Sensors – data loggers** • **To understand that data-loggers and sensors show and record changes in environmental data.** • **To understand that digital tools such as microscopes and cameras can support investigational work.** **Databases** • **To develop high-level questioning based on the key characteristics of objects.** • **To understand flat-file databases are structured into files, records and fields and that this supports organisation and searching.** • **To understand that using electronic databases can improve efficiency in organising information.** • **To know database records can be sorted to answer questions.** • **To understand that using electronic databases can improve efficiency in searching for information.** • **To understand database fields can be defined as different types, which can support accurate data entry and effective querying.**			• Information • Sensor • Branching diagram • Flat-file database • Database terms: • File • Record • Field • Field content
• Know that information exists in different forms	• Understand the difference between data and information	• Begin to understand how we can derive information from data	
• Use simple sensors to investigate conditions around them	• Use data-loggers in investigations; make general statements about their findings	• Use data-loggers appropriately in investigations, using results to support hypotheses	
	• Construct questions for a database	• Construct and evaluate questions for different purposes	
• Explore a range of technology tools to generate pictograms and bar charts, and to identify objects	• Use various tools within the software to organise and present their information	• Select and use specific tools from a broad range to organise and present their information	
	• Contribute to the design of a class database to answer their questions	• In small groups create a database to populate	
	• Use a database to store, organise and retrieve data	• Use databases to organise, refine and analyse data for a purpose	
• Use yes/no questions to sort a limited set of objects • Use graphs and charts to answer simple questions. • Make general statements about their data	• Use sort and/or search appropriately to answer simple questions	• Use sort and search appropriately to answer questions with more than one search criteria	
	• Create appropriate graphs charts	• Create graphs to help present their findings	
	• Check data for accuracy	• Check and question data and its interpretation •	
• Talk about using technology for their work at home and school	• Discuss how databases are used in and beyond school	• Compare digital and non-digital databases and how they are used in the wider world	

COMPUTER SCIENCE • **To understand that selection is used in branching databases to sort and classify objects based on their characteristics.**			• Selection
	• Understand selection is used in a branching database to identify objects	• Refine questions to improve the selection process in a branching database	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To understand the need for accuracy when creating databases.**			
• Share their work with others, beginning to use feedback and self-review to improve their work	• Review, check and evaluate their work, modifying in light of comments from others	• Use peer and self-review to evaluate and improve their work	
• Understand the need to use technology safely and respectfully	• Regularly use technology safely and responsibly	• Consistently use technology safely and responsibly; encourage safe use by others	

Year 3

Key Theme : Bringing Images to Life (Create & eWorlds)

National Curriculum:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children develop understanding of digital images. They transform and edit images, respecting copyright and ownership. They explore stop animation creating their own versions. They produce programmed animations, using sequences, repeat and selection.

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Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Digital images – pixels Internal components - CPU	Digital images (photos) – editing Animation – stop motion	Seeking consent Inappropriate images	Algorithm – sequence, repetition, selection

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY • **To understand that most digital images are made up of dots called pixels and that the denser the pixels, the higher quality the image.** • **To understand computers have internal components to support different processing tasks.**			• Pixels • CPU (central processing unit) • Graphic card • Sound card • Hard disk
• Know work is stored on school network, not individual machines • Be aware of some areas on the network	• Be familiar with pupil areas on school network; know there are many computer networks in the world	• Understand the school network can connect via the internet to other computer networks	
• Save and retrieve in prepared folders on network; generally use suitable file names	• Save and organise their work in folders on the network; use appropriate file names	• Save/organise work in correct network areas; use appropriate file names/folder structure	
	• Understand computers have internal components to support processing tasks	• Describe the role of the key internal components of a computer and how they interact	
DIGITAL LITERACY – POSSIBLE LINKS TO ART & SCIENCE **Digital images – editing** • **To understand that digital images can be changed and edited and that this can have an impact on how we think and feel.** • **To understand digital image editing software is made up of programs that instruct a computer to carry out specific tasks related to adapting images.** **Animation – Stop-motion** • **To understand that the appearance of movement can be created in inanimate objects using stop-motion animation.** • **To understand animation can be used to convey a message/idea.** • **To know animation software includes a range of different features and tools.** • **To understand the importance of planning an animation project.**			• Cropping • Rotating • Resizing • Brightness • Contrast • Saturation • Red-eye • Stop-motion animation • Storyboard

• Know digital images are made up of dots, called pixels • Use provided digital tools to create and edit images for a purpose	• Understand digital images are made up of pixels • Use varied digital tools to create and edit images for specific audiences/purposes	• Demonstrate understanding of relationship between pixel density and quality of image • Select digital tools to create and manipulate images for specific audiences and purposes	
• Create programs which cause onscreen objects move and respond	• Understand copying an image with a slight change can give appearance of movement	• Continually refine their animation to ensure the animation action is smooth	
COMPUTER SCIENCE • **To know we can animate objects using a precise sequence of steps.** • **To know that an algorithm can be used to support us in writing a related computer program.** • **To know that a program can be used to control the behaviour and appearance of different onscreen objects.**			• Algorithm • Sequence • Repetition • Tinker • Test • Debug • Refine
• Understand an algorithm to be a precise set of instructions • Create and debug simple algorithms; recognise sequence is important • Create programs which cause onscreen objects to move and respond	• Use repetition for efficiency in correctly-sequenced algorithms and programs • Design, test and debug algorithms to create animations • Know algorithms support program design	• Use sequence, repetition and selection in algorithms and programs • Design, test, debug and refine algorithms for animations; discuss how algorithms helped • Understand well-designed algorithms lead to improved program design and efficiency	
• Share their work with others, beginning to use feedback and self-review to improve their work	• Review, check and evaluate work, modify it in light of comments from others	• Use peer- and self-review to check, evaluate and improve their work	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To understand the need to seek consent before capturing and/or using the images of others.** • **To understand that some digital images may not be appropriate and know what to do if such materials are accessed.**			Copyright
	• Explain how their choices or decisions help them solve problems in their work	• Begin to plan their work understanding how this helps improve it and to solve problems	
• Demonstrate they understand the need to seek consent before capturing and/or using an image of another person	• Demonstrate understanding of the rules for the safe use of images in their work	• Apply school's Online Safety rules in their work, especially those for the safe use of images	
• Understand the need to use technology safely and respectfully	• Discuss their use of technology to create / adapt images in and beyond school; be aware of digital image in the wider world	• Link their use of technology with image to applications in the world	

Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 3

Key Theme : Developing Communication (Create & Digital Communication)

National Curriculum:

- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children use online communication tools such as email and blogs to support collaborative learning, safely and respectfully. They begin to investigate the technology used in digital communication networks. They use simple sound editing software to record and manipulate sound clips.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Digital communication devices connect on networks Internet - network	Emails sound	Use electronic communication technologies safely Online environment safely	

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY • **To understand digital communications devices connect using a network, enabling us to send messages and share materials.** • **To understand the internet is a network providing communication tools, which we must use safely, responsibly and respectfully.**			• Server • Common file types • Extensions
	• Understand that a network is needed for us to send messages and share materials	• Describe the role of different types of networks in sending messages and sharing materials	
DIGITAL LITERACY – POSSIBLE LINK TO MUSIC			• Email

<table>
<tr><td colspan="3">Emails
• To understand that the system we use when we send emails has similarities to the one used for physical letters.
Blogs
• To use an online environment safely and appropriately to collaborate.
Sound
• To understand that sound can be recorded and manipulated to communicate meaning and/or atmosphere.
• To understand we can use sound-editing software to capture, import and manipulate sounds.
• To understand how we can use software to organise/modify sounds.</td><td rowspan="6">• Blog
• Sound
• Editing
•</td></tr>
<tr><td>• Compare different ways of sending messages
• Contribute to using technology such as email to send and receive messages</td><td>• Understand, in simple terms, the similarities between the systems of sending an email and a physical letter</td><td>• Explain how an email system works</td></tr>
<tr><td>• Explore a blog; begin to understand it is different from email
• Share in leaving a comment on a blog</td><td>• Use email and blogging tools appropriately, including maintaining their own blog and commenting on others' blogs</td><td></td></tr>
<tr><td>• Explore a blog; begin to understand it is different from email</td><td>• Explain differences between email and blogging; begin to compare with other tools</td><td>• Choose technology, such as email and blogs to exchange information and ideas with others
• Justify their choice of digital communication tool based on their understanding of the technology</td></tr>
<tr><td></td><td>• Capture digital sound and use sound editing tools to produce sound clips for a purpose
• Use a range of approaches to engage the audience</td><td>• Select and use sound capture and editing tools to produce sound clips for specific audiences/purposes
• Review approaches they use to engage the audience; consider how these could be improved</td></tr>
<tr><td></td><td>• Review, check and evaluate their work, modifying it in light of comments from others
• Explain how their choices or decisions help them solve problems in their work</td><td>• Use peer- and self-review to check, evaluate and improve their work
• Begin to plan their work, independently understanding how this helps to improve it and to solve problems</td></tr>
<tr><td colspan="3">DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE
• To understand that we need to use electronic communication technologies appropriately to keep ourselves and others safe.
• To use an online environment safely and appropriately to collaborate.</td><td>Copyright
Online environment</td></tr>
</table>

• Understand the need to use technology safely and respectfully	• Discuss how we can safely use technology for digital communication	• Demonstrate a broad understanding of how we can safely and respectfully use technology for digital communication	
	• Demonstrate understanding of the school's Online Safety rules; respect copyright ensuring they do not share personal data online	• Show a good understanding of school's Online Safety rules especially for copyright ownership and protecting personal data; apply to their work	
• Demonstrate they understand the need to seek consent before capturing and/or using an image of another person	• Demonstrate understanding of copyright and ownership by appropriate use in their work		
• Understand the need to use technology safely and respectfully	• Regularly use technology safely and responsibly	• Consistently use technology safely and responsibly; sometimes encourage others to do the same	
• Know who to talk to if any technology or online system makes them feel worried or uncomfortable	• Know who to talk to if they have an Online Safety problem	• Recognise unacceptable behaviour and know what to do if they have an Online Safety problem	

Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 4

Key Theme : Accuracy Counts (Information & Digital Research)

National Curriculum:

- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children discuss computer networks including the internet and the services it offers. They explore how search engines work and what influences results, evaluating search engines and using sources. They learn about the threat from computer viruses, develop understanding of intellectual property ad relate this to their own content. They use spreadsheet software to create graphs and to explore number patterns.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Internet Networks WWW – structure Search engines Malware & computer viruses	Inaccuracy of digital searches Spreadsheets – graphs, tables, number patterns (introduction)	Work is own property Electronic data held about us	

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY • **To understand the internet is a global network of linked computer networks hosting many different services.** • **To know the World Wide Web is an internet service accessed by web browsers and searched using search engines.**			• Internet • World wide web • URL

• **To understand that search engines locate information on the World Wide Web rapidly, but rank it when providing results.** • **To understand the malware and computer viruses are programs which can harm your device or steal your information.**			• Virus • malware • Hyperlink • Hotspot • Browser • Search engine
• Save and organise their work in folders on the network; use appropriate file names	• Save and organise their work using appropriate file names and folder structure		
• Be familiar with pupil areas on school network; know there are many computer networks in the world • Understand that a network is needed for us to send messages and share materials	• Begin to understand computer networks can be linked by the internet	• Understand the internet links global computer networks; relate to the school network	
• Explore finding information from different sources (digital and non-digital) • Know that we can find information on the World Wide Web	• Talk about services on the internet including the World Wide Web	• Explain how selected services on the internet help us communicate and share information	
	• Know the web uses hyperlinks to connect millions of websites	• Describe how the WWW works	
	• Understand how a search engine locates and displays information	• Explain in simple terms how a search engine finds information from different websites	
	• Understand what a computer virus is and the damage it can do	• Understand what a computer virus / malware is and take steps to prevent the spread of computer viruses	
DIGITAL LITERACY – POSSIBLE LINK TO MUSIC **WWW** • **To know identifying key words is central to research.** **Spreadsheets** • **To understand that spreadsheets have a specific structure which enables us to locate and enter data and create tables and graphs.** • **To understand spreadsheets allow us to explore number and number patterns.**			• Spreadsheet • Cell • Formula • Key word
• Suggest ways to find information on a specific site, including using keywords	• Know a search engine uses key words to locate information from websites • Use key words to find relevant information	• Turn questions into search criteria	
	• Enter and format data in a spreadsheet	• Create a spreadsheet to collect and analyse their findings; draw conclusions	
	• Create appropriate graphs/charts	• Create different graphs; explore options/formats	
	• Use arithmetic operators in formulae	• Develop simple formulae using arithmetic operators to carry out calculations for a purpose	

DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To understand that digital searches results can be inaccurate, biased, unsafe, irrelevant and may differ from one search engine to another.** • **To understand works are the creator's own intellectual property.** • **To understand that electronic data is held about us on the internet.**			• Copyright • Intellectual property • Creative commons
• Discuss their use of technology to create / adapt images in and beyond school; be aware of digital image in the wider world	• Discuss how they use internet in and beyond school for their learning	• Show growing understanding of how the internet is used in the wider world	
	• Understand data is held about us on internet; keep our own data secure	• Regularly check their online profile in order to keep their data secure	
• Demonstrate understanding of the rules for the safe use of images in their work	• Show understanding of school Online Safety rules for copyright and personal data	• Apply school's Online Safety rules in their work; respect copyright and keep personal data safe	
	• Know search results may not be relevant or appropriate and should be checked	• Always check research results using different sources • Compare results in different search engine	
	• Check data for reliability and accuracy	• Check their data for accuracy and reliability	

Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 4

Key Theme : Programming and Games (eWorlds)

National Curriculum:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children explore simulations, investigating the structure and exploring how they might be programmed. They begin to note that abstraction can simplify them. They decompose tasks, creating and debugging algorithms and understanding how algorithms support the programming process. They write, test, debug and refine programs to achieve specific objectives, using sequence, repetition and procedures. They explore selection in digital systems.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Simulations		Online chat facilities	Abstraction Sequences Decomposition Repetition/Procedures Selection

Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Previous Learning To be reinforced	Core Learning Intentions Age Related	Extension Opportunities Next steps	Key Vocabulary
COMPUTER SCIENCE • **To understand a simulation is a digital system with specific rules, providing an environment often mimicking real world situations.** • **To understand abstraction leaves out unnecessary detail and is helpful when designing a process.** • **To understand simulations are programmed to allow choices by the user to change the outcomes.** • **To understand we can use algorithms to design the steps of a process before writing computer programs.** • **To understand a program is a sequence written in a programming language and designed to perform a specific task.** • **To know problems can be solved efficiently using decomposition and that this is central to good programming practice.** • **To understand program commands can be saved as a procedure and procedures can be called by programs and procedures.** • **To develop independent programming capability.** • **To understand selection is a programming process, which uses a yes/no question to provide alternative routes through a program. (YR1 & 3 yes/no branching diagrams)**			• Algorithm • Sequence • Repetition • Tinker • Test • Debug • Refine • Abstraction • Simulation • Procedure
	• Understand that a simulation is a digital system with specific rules • Investigate and explain the structure and rules of simple simulations	• Analyse simulations beginning to demonstrate understanding of the rules and structures	
	• Know abstraction omits detail which is not needed and this supports program design	• Begin to see how abstraction can help us identify similarities between processes	
• Design, test and debug algorithms to create animations	• Design, create, test and debug algorithms and programs to achieve specific goals	• Design, test, debug and refine algorithms and programs to solve problems	
• Know algorithms support program design	• Understand that we can use algorithms to support program design • Know a program is a sequence written in a programming language for a specific task	• Build precision and clarity in algorithms, knowing this supports program design • Program using various languages/devices • Include sequence, repetition and selection in their algorithms and programs	
	• Understand sets of program commands can be saved in named procedures		
• Understand an algorithm to be a precise set of instructions	• Understand algorithms/programs must be precise and unambiguous; check for this	• Check algorithms and program for precision and unambiguity	

	• Use decomposition in algorithms/programs	• Always decompose a task before planning an algorithm or program	
• Use repetition for efficiency in correctly-sequenced algorithms and programs	• Use repetition to improve efficiency	• Use procedures and functions in their programs to improve efficiency	
• Create and debug simple algorithms; recognise sequence is important	• Create test and debug programs to control human robots, onscreen/physical devices	• Design, test, debug and refine programs for human robots, onscreen/physical devices	
	• Use logical reasoning to predict program outcomes	• Use logical reasoning to predict outcomes in programs and detect errors	
• Understand selection is used in a branching database to identify objects	• Know sensors can be inputs to programs	• Begin to understand selection in relation to sensor inputs in an algorithms or programs	
	• Link their understanding of programming to automated devices in the wider world	• Begin to consider how automated systems at home and school; might be programmed	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To be aware that online simulations may include chat facilities and to know how to stay safe around these.**			• Chat rooms
• Regularly use technology safely and responsibly	• Consistently use technology safely and responsibly.	• Consistently use technology safely and responsibly; encourage safe use by others	

Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 4

Key Theme : Authoring (Create)

National Curriculum:

- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children investigate computing storage capacities and ways of saving data. They develop understanding of the school network and operating systems. They use varied resources to create digital content, creating and manipulating images and words. They select and use software to create non-linear content for specific audiences and objectives.

Information Technology	**Digital Literacy – THESE AREAS INTRODUCED IN YEAR 2 EXCEPT POWERPOINTS**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Data storage – link to maths Networks have structure Cloud Operating systems Document sizes	Word processing software – inserting Powerpoint Hyperlinks – mentioned in yr 2	Copyright when producing multimedia and using hyperlinks	

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY – POSSIBLE LINK TO MATHS • **To understand that computer systems store data as bytes and we use this unit to specify size.** • **To understand that computer networks have a structure, which we can use to save and share digital resources.**			• Digital • Operating systems • Cloud

• **To understand that we can store data on computers in remote locations, which we can refer to as the cloud.** • **To understand that there are different operating systems used by our computing devices.**			• Bytes • Megabytes • Kilobytes • Gigabytes • Pixel (taught in yr3)
• Be familiar with pupil areas on school network; know there are many computer networks in the world	• Understand the areas accessible to them on the school network; know that there are many computer networks in the world	• Understand the school network connects through the internet to other computer networks • Understand that it is possible to store files on other computers in the world, and we can call this the 'cloud'	
• Save and organise their work in folders on the network; use appropriate file names	• Save and organise their work in correct network areas; use appropriate file names	• Save and organise their work in correct network areas; use appropriate file names/folder structure	
	• Know that computer systems store data as bytes, and these show file size	• Understand the relationship between the different units used to specify file size	
	• Understand that it can be difficult to share documents between different operating systems	• Can explain the issues with sharing documents between different operating systems and suggest ways round this	
DIGITAL LITERACY **Word processing** • **To understand word processing software often includes digital tools to improve clarity, accuracy and efficiency.** • **To understand that digital objects can be inserted and controlled in word-based texts.** • **To explore how images can rapidly increase document size.** **Multimedia** • **To understand that multimedia texts are effective in communicating ideas to specific audiences.** • **To know that non-linear multimedia texts can be organised to include audience control over how the content is accessed.**			• Hotspots • Hyperlinks • multimedia
• Purposefully use suggested digital tools for their work, including simple word processing and graphics (Word processing terms: font, bold, italic, highlight, style)	• Uses tools within software applications to control, format and organise digital objects	• Select/use specific tools in chosen applications to improve design, clarity, accuracy, efficiency	
	• Uses digital tools within the software to improve appearance and aid accuracy and efficiency	• Use varied approaches in their multimedia texts to support specific audiences and purposes	
	• Combine various media to create multimedia texts for specific audiences and purposes		
	• Use a range of approaches to engage the audience	• Review approaches used to engage audiences and consider how these could be improved	

DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE			
	• Review, check and evaluate their work, modifying it in light of comments from others	• Use peer- and self-review to check, evaluate and improve their work	
	• Explain how their choices or decisions help them solve problems in their work	• Begin to plan their work understanding how this helps to improve it and to solve problems	
• Demonstrate understanding of the rules for the safe use of images in their work	• Show understanding of school Online Safety rules for copyright and personal data	• Apply school's Online Safety rules in their work; respect copyright and keep personal data safe	
• Regularly use technology safely and responsibly	• Consistently use technology safely and responsibly.	• Consistently use technology safely and responsibly; encourage safe use by others	
	• Know who to talk to if they have an Online Safety problem	• Recognise unacceptable behaviour and know what to do if they have an Online Safety problem	
• Discuss their use of technology to create / adapt images in and beyond school; be aware of digital image in the wider world	• Discuss how to use technology for texts in and beyond school; be aware of digital texts in the wider world	• Relate the technology used for digital texts in the wider world to their work in/beyond school	

Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 5

Key Theme : Data Matters (Information & Digital Research)

National Curriculum:

- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children investigate the concept of "big data" and its use in the world. They review file types and protection. They explore binary form and develop understanding of computer networks. They search more efficiently and investigate their digital footprints (or 'digital tattoos'), building safe and responsible use of online spaces. They create and search flat-file databases, developing accuracy and efficiency.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
File extensions Binary form Network – servers IP addresses	Digital searching Databases	'Big' data/statistics – who uses it? Internet searching leaves a trail	

Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Previous Learning To be reinforced	Core Learning Intentions Age Related	Extension Opportunities Next steps	Key Vocabulary
INFORMATION TECHNOLOGY • **To understand file extensions can identify software used to create a file, but files may be accessed/edited using other software.** • **To understand computers store/process data as 0s and 1s, known as binary form.** • **To have a broad understanding of the school's computer network and the role of the server/master computer.** • **To understand that network devices can be identified by IP address.**			• Common file types • Encryption • Server • Client • Web crawler •
• Understand that it can be difficult to share documents between different operating systems File extensions is taught in year 4, as part of the OS and saving structure.	• Understand how file extensions are used	• Describe some different type file types, understanding importance of file protection	
	• Show understanding that computers store and process data as 0s and 1s	• Explain how computers store and process data	
• Be familiar with pupil areas on school network; know there are many computer networks in the world (Year 3) • Know work is stored on school network, not individual machines (Year 2)	• Understand in simple terms the school's network structure	• Understand the structure of the school network and the role of the server/s	
	• Understand that devices on a network have an IP address, locate examples	• Discuss advantages and disadvantages of devices having IP addresses	
• Understand how a search engine locates and displays information	• Explain in simple terms how a search engine retrieves data	• Explain how search engines retrieve data	
DIGITAL LITERACY **WWW Searching** • **To understand that we can use tools to improve the accuracy and efficiency of our digital searching.** **Databases** • **To understand that databases provide a way to store, organise, retrieve and analyse sets of data.** • **To understand database structure determines the queries it can answer.** • **To understand the stages in database development.**			
• Know a search engine uses key words to locate information from websites • Use key words to find relevant information	• Use search operators and linked searches effectively to locate required information	• Choose the most appropriate search operators and tools to locate information	

• Understand data is held about us on internet; keep our own data secure	• Know how their digital footprint is created	• Understand ways of reducing digital footprints	
• Construct questions for a database	• Construct different types of question; use to structure a database	• Construct, improve and refine high level questions, using two or more search operators	
• Use various tools within the software to organise and present their information • Contribute to the design of a class database to answer their questions • Use a database to store, organise and retrieve data • Use sort and/or search appropriately to answer simple questions	• Use databases to organise, refine analyse data	• Design, create and populate a database for a specific need; review its effectiveness and fitness for purpose	
• Create appropriate graphs charts	• Present answers/conclusions in suitable formats, support by appropriate graphs	• Always organise and present data in appropriate formats with appropriate graphs	
• Check data for accuracy	• Understand how to identify and correct inaccurate/implausible data in a database	• Interpret, check and question data; recognising poor quality data leads to unreliable results	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To investigate how 'big' data is used in our world.** • **To understand that internet activity can leave a permanent trail.**			
• Discuss how databases are used in and beyond school	• Understand how big data is used in the real world	• Explain the positive and negative aspects of the collection of data by organisations	
• Discuss how databases are used in and beyond school	• Know data is analysed to provide information and this can be positive or negative	• Know data analysis can explore change and trends and this can be positive or negative • Use data from varied sources to produce their own information	
• Show understanding of school Online Safety rules for copyright and personal data	• Understand and apply the school's Online Safety rules, consistently especially those for copyright and personal data	• Apply the school's rules on data protection • Always promote and demonstrate good behaviour on- and off-line • Proactively promote good eSafe practice in others and through the school community	
• Know who to talk to if they have an Online Safety problem	• Recognise acceptable and unacceptable behaviour on- and off-line		
	• Identify a range of ways to report concerns about content and contact on the internet		

Yorke Mead Primary School

COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 5

Key Theme : Robotics and Systems (eWorlds)

National Curriculum:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children investigate automated systems in the wider world and the use of sensors within them. They create, test, debug and refine algorithms, pseudocode and the related programs using sequence, selection, repetition ad variables. They program physical devices, controlling inputs and outputs, relating to their study of automated systems.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science** Sensors Automated systems Algorithms – sequence, repetition, selection Variables Comments Abstraction

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COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Previous Learning To be reinforced	Core Learning Intentions Age Related	Extension Opportunities Next steps	Key Vocabulary
COMPUTER SCIENCE • **To identify automatic control systems, understanding that many have sensors and can respond to changes in conditions around them.** • **To understand that we use abstraction to help us understand digital systems.** • **To review the need for efficient program design.** • **To understand that a variable is used in computer programming to store and retrieve data when the program is run.** • **To understand programs can control computer screen displays.** • **To use sequence, selection, repetition and variables in programming an onscreen game or activity.** • **To understand adding comments to programs aids understanding and supports future development.** • **To know that programs can be written to make physical automated systems respond to inputs from sensors.** • **To know we can review and refine programs to improve them.**			• Algorithm • Sequence • Repetition • Tinker • Test • Debug • Refine • Abstraction • Simulation • Procedure • Sensors • Automated control system • Variables • comments
• Know abstraction omits detail which is not needed and this supports program design • Know sensors can be inputs to programs • Link their understanding of programming to automated devices in the wider world	• Identify the sensors within varied automatic control systems and explain how they work • Know automated systems respond to inputs from sensors	• Describe the role of sensors in a range of automatic control systems • Use abstraction to explain similarities in digital systems and identify rules for behaviours	
• Design, create, test and debug algorithms and programs to achieve specific goals	• Design, debug and refine algorithms to solve problems; review effectiveness	• Create effective and appropriate algorithms and programs; adapt for new/changed situations • Critically review their algorithms and programs	
• Understand that we can use algorithms to support program design • Know a program is a sequence written in a programming language for a specific task • Understand sets of program commands can be saved in named procedures • Understand algorithms/programs must be precise and unambiguous; check for this	• Know well-designed algorithms support improved design and efficiency in programs	• Understand precise, clear, well-designed algorithms support efficient programs	
• Use decomposition in algorithms/programs • Use repetition to improve efficiency	• Use decomposition in algorithms and programs, knowing it is key to precise design • Use sequence, repetition and selection appropriately in algorithms and programs	• Write, test, debug and refine efficient programs using decomposition, repetition and selection	

	• Explore the use of variables in their programs	• Use variables in programs to create a simple scoring system or timer	
• Create test and debug programs to control human robots, onscreen/physical devices	• Design, test, debug and refine programs for physical and onscreen devices and systems in several programming environments	• Use different programming environments to design, test, debug and refine programs for physical and onscreen devices and systems	
• Use logical reasoning to predict program outcomes	• Use logical reasoning to predict outcomes in programs and detect errors	• Use logical reasoning accurately and consistently to detect and correct errors	
	• Build and program a device with at least one input and one output	• Build and program a device with inputs and outputs	
	• Demonstrate understanding of selection in various contexts, including sensor inputs to simple automated devices they have built	• Use selection effectively including sensor input data in programs for their automated device	
	• Critically evaluate their work using peer and self-review to modify and improve it	• Critically evaluate their work; identifying and implement improvements and refinements	

Year 5

Key Theme : Morphing Image (Create & eWorlds)

National Curriculum:

- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children use 3D graphical modelling to create and explore objects. They review operating systems. They evaluate films and animations, going on to create live film or animations for specific audiences. They demonstrate their understanding of copyright and ownership.

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Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Operating systems.	Animations 3D graphical modelling		

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY • **To understand that every computer needs an operating system to manage a wide range of processes.**			• Operating system
• Understand that it can be difficult to share documents between different operating systems.	• Explain some functions of a computer operating system	• Know key functions of an operating system	
	• Save and organise their work on and offline using appropriate names and structures	• Save and organise their work appropriately and efficiently, both on and offline	
DIGITAL LITERACY - POSSIBLE LINK TO MATHS OR SCIENCE **3D Graphical modelling** • **To understand 3D graphical modelling enables us to explore objects that may not exist, or could be difficult to observe in other ways.** • **To understand that digital graphical tools can support the creation of models, enabling them to be explored and developed in 3D.** **Animation** • **To analyse/evaluate digital films and animations, considering how they are used to inform, persuade and entertain audiences.** • **To understand film/animation can be stored, shared and published locally and online, but that this sharing may not be appropriate.** • **To understand the stages in producing a live film and/or animation.** • **To understand the need to test and review their work with an audience.** • **To develop ways to use animation to meet specific audience needs.**			• Storyboard • Transition • Trimming • Graphical user interface (GUI) • Common file type • Copyright • plagiarism
	• Create 3D models adding appropriate detail and texture; review and adapt in 3D	• Plan and create 3D models; refine and develop. Check from all aspects in 3D	

	• Highlight features of specific animations and films considering their impact on audiences	• Analyse audience impact of specific animations and films	
	• Know varied ways we can store and share digital film; be aware of key considerations	• Understand considerations required when choosing how to store/share digital resources	
	• Create a detailed plan for a film/animation for specific purposes and audiences • Create a film/animation from their plan, detailing adaptations	• Use appropriate tools to plan, structure, refine and present a film or animation for specific audiences	
	• Justify their choice of tools and techniques used to edit and enhance their work	• Discuss tools and techniques used; explain why particular ones are suitable for specific pieces of work	
	• Revisit and modify their work in the light of audience reaction	• Evaluate the effectiveness of their work; explain how they could develop it further to meet audience need	
	• Keep and review drafts; revisit previous drafts considering effectiveness of their changes	• Describe how keeping and reviewing drafts is key to building their critical awareness	
	• Critically evaluate their work using peer and self-review to modify and improve it	• Critically evaluate their work, identifying improvements and refinements	
	• Demonstrate clear understanding of the school's Online Safety rules including copyright and personal data and data protection; apply these in their work	• Apply the school's Online Safety rules consistently including those for copyright and personal data and data protection; encourage safe practice in others • Always promote and demonstrate good behaviour when using technology on- and off-line	
	• Compare their use of technology to work with digital image in and beyond school	• Discuss their knowledge and experience of using technology to work with film and animation in and beyond school	

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Year 6

Key Theme : Sound Works (Create & eWorlds)

National Curriculum:

- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children review how digital sound is used in the world and how it has developed over time. They create multi-track sound recordings for specific audiences, incorporating different content and demonstrating their understanding of the rules for copyright. They use programming languages to create their own sound clips.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
History of sound recording Sound files	Digital sound Sound editing/music creation	Copyright, ownership, plagiarism Sharing sound files	Programming sound/music compositions

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
INFORMATION TECHNOLOGY • **To investigate the history of sound recording and understand how technology has developed.** • **To understand that there are different types of sound files which computers and digital services can handle.** • **To understand that sound recordings can be exported and used in other applications.**			• Common file types
	• Export sound recording/s in a suitable format and use in another application	• Know a range of sound file types and how each may be used • Confidently import/export sound recordings between applications using suitable format	

• Save and organise their work in correct network areas; use appropriate file names	• Save/organise their work on and offline using appropriate names and structures	• Save/organise their work appropriately and efficiently, both on and offline	
DIGITAL LITERACY **Sound** • **To understand digital sound has an important role to play in building atmosphere, presenting ideas and influencing audience mood.** • **To understand that sound-editing and music creation software enables us to create, record and adapt sounds.** • **To understand that sound recordings or broadcasts should be planned to improve their impact.**			• Dynamics • Pitch • Temp • Timbre • Looping • Multi-track • podcast
• Capture digital sound and use sound editing tools to produce sound clips for a purpose • Use a range of approaches to engage the audience	• Create layered sound recordings, using sounds from varied sources and editing for specific audiences and purposes	• Use a range of digital tools and techniques to plan, structure, refine and present sound recordings for specific audiences	
• Review, check and evaluate their work, modifying it in light of comments from others • Explain how their choices or decisions help them solve problems in their work	• Revisit and modify their sound work; adapting pieces for different audiences	• Evaluate the effectiveness of their sound work; explain how they could adapt pieces for several different audiences	
	• Plan their work, justifying the choice of tools and techniques used to edit and enhance their work	• Plan their work in detail; explain why they used specific tools and techniques	
• Review, check and evaluate their work, modifying it in light of comments from others • Explain how their choices or decisions help them solve problems in their work	• Understand the need to keep and review drafts; revisit previous drafts considering the effectiveness of changes	• Describe how keeping/reviewing drafts is key in building their critical awareness	
	• Understand how sound files can be organised as podcasts	• Create a podcast using their sound files	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To understand that there are complex rules around copyright, ownership and plagiarism which we should observe.** • **To understand how sound files can be shared over the internet, and to consider the online safety and copyright implications of doing this.**			• Plagiarism • copyright
	• Critically evaluate their work using peer and self-review to modify and improve it	• Critically evaluate effectiveness of their work; identify improvements/refinements	
• Show understanding of school Online Safety rules for copyright and personal data	• Demonstrate clear understanding of school Online Safety rules including for copyright and data protection; apply in their work	• Apply the school's Online Safety rules consistently including copyright, personal data and data protection; encourage safe practice in others	

• Know who to talk to if they have an Online Safety problem	• Promote eSafe practice in others	• Be proactive in promoting good eSafe practice through the school community	
	• Apply consistently high standards when using technology on- and off-line	• Always promote and demonstrate good behaviour on- and off-line	
	• Recognise acceptable/unacceptable behaviour on- and off-line; encourage eSafe practice in others		
COMPUTER SCIENCE • **To understand simple sound and music compositions can be programmed.**			
• Know abstraction omits detail which is not needed and this supports program design • Know sensors can be inputs to programs • Link their understanding of programming to automated devices in the wider world • Design, create, test and debug algorithms and programs to achieve specific goals • Understand that we can use algorithms to support program design • Know a program is a sequence written in a programming language for a specific task • Understand sets of program commands can be saved in named procedures • Understand algorithms/programs must be precise and unambiguous; check for this • Use decomposition in algorithms/programs • Use repetition to improve efficiency • Create test and debug programs to control human robots, onscreen/physical devices • Use logical reasoning to predict program outcomes	• Create a simple music composition in a selected programming language	• Use programming language/s to create music composition/s	

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Year 6

Key Theme : Staying Connected (Digital Research & Digital Communication)

National Curriculum:

- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children develop safe and appropriate use of online technologies, considering what they can use and what information is shared about them. They create blogs for school projects, checking and uploading digital content. They understand how a wiki works and the benefits of collaborative working. They know the school's Online Safety rules and are proactive in encouraging other children to keep safe online.

Information Technology	**Digital Literacy**	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**
Blog – online space Micro-blog – limited number of characters Wiki	Blog support learning & sharing Micro-blog Wiki	Safe, respectful online Personal information Modern communication details location Copyright Accuracy of information	

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Previous Learning To be reinforced	Core Learning Intentions Age Related	Extension Opportunities Next steps	Key Vocabulary
INFORMATION TECHNOLOGY			
• Save and organise their work on and offline using appropriate names and structures	• Save and organise work appropriately and efficiently, on and offline		
DIGITAL LITERACY **Blog** • **To understand a blog is an online space, with regular personal entries, on which readers may be able to comment.** • **To understand blogs can support learning and sharing; they may include a range of different media.** **Micro-Blog** • **To understand a micro-blog is designed to enable users to share short status updates with a limited number of characters.** **Wiki** • **To understand a wiki is a tool for organising and sharing collaborative information.**			• Blog • Micro-blog • Wiki
• Use email and blogging tools appropriately, including maintaining their own blog and commenting on others' blogs • Explain differences between email and blogging; begin to compare with other tools	• Understand blogs are online spaces with sets of personal entries, usually allowing comments	• Explain how we can use blogs and wikis to communicate/collaborate with others	
	• Understand micro blogs allow users to make short posts online		
	• Understand that a wiki is a tool for organising and validating collaborative information		
	• Adjust language/style for context/audience	• Organise/adjust language and style for context, audience and technology used	
• Use search operators and linked searches effectively to locate required information	• Use efficient/reliable methods to search online	• Select/use appropriate tools for online research	
DIGITAL LITERACY – E-SAFETY – POSSIBLE LINK TO PSHE • **To understand the need to develop safe, respectful, responsible use of online technologies.** • **To consider what 'personal information' is and why we should be protective of this information when online.** • **To know that most modern communication devices can provide details of our location.** • **To understand there are complex copyright rules for resources.** • **To know information can vary in accuracy, bias and viewpoint and may be unhelpful, irrelevant or misleading.**			• Data protection • Copyright • Creative commons

	• Review how online technologies promote safe, respectful, responsible use	• Critically evaluate how online tools promote safe, respectful responsible use	
	• Understand with whom we should share particular personal details	• Demonstrate their understanding of what information they share and with whom	
	• Understand why sites have age restrictions	• Explain the reasons for age restrictions and the result if we do not obey	
	• Know devices provide location details, identify advantages and disadvantages	• Explore how some location services collect and use data about our location	
	• Ensure the quality of information/ideas shared in blogs/wikis; check bias/accuracy/relevance	• Ensure their contributions online are high quality accurate unbiased, relevant	
• Demonstrate clear understanding of school Online Safety rules including for copyright and data protection; apply in their work	• Know/apply school Online Safety rules, including personal data and appropriate online use	• Apply school Online Safety rules consistently, including appropriate use/data protection	
• Recognise acceptable/unacceptable behaviour on- and off-line; encourage eSafe practice in others • Apply consistently high standards when using technology on- and off-line	• Always demonstrate good behaviour on and off-line; promote eSafe practice		
• Identify a range of ways to report concerns about content and contact on the internet	• Identify a range of ways to report concerns about content and contact on the internet		
• Critically evaluate their work using peer and self-review to modify and improve it	• Critically evaluate effectiveness of their work; identify and implement refinements		
	• Compare their use of communication and collaboration tools in and beyond school	• Discuss advantages/disadvantages of digital communication/collaboration in and out of school	

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COMPUTING CURRICULUM – Herts for Learning Primary Computing Scheme 2019/20

Year 6

Key Theme : Information Models (Information & eWorlds)

National Curriculum:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Learning Theme:

Children develop expertise in spreadsheets, using both formulae and functions. They import and analyse data collected on data-loggers. They use conditional formatting to vary the format of cells and create tools for specific user needs. They create models, identifying variables and using *what-if* modelling.

Information Technology	**Digital Literacy** Spreadsheets	**Digital Literacy – E-safety – Possible link to PSHE**	**Computer Science**

Previous Learning To be reinforced	**Core Learning Intentions** Age Related	**Extension Opportunities** Next steps	**Key Vocabulary**
DIGITAL LITERACY - POSSIBLE LINK TO MATHS OR SCIENCE **Spreadsheets** • **To understand that the spreadsheet structure enables us to locate and change specific cells or ranges.** • **To understand that spreadsheets have a range of editing tools to support appearance and clarity.** • **To understand that spreadsheet calculation tools allow numbers and cell references to be used within formulae.** • **To understand that spreadsheet functions enable calculations to be carried out on ranges of numbers.**			• Spreadsheet • Formulae • IF • Cells • Columns • rows • Cell references

• **To identify opportunities for investigations involving data-loggers/sensors, and understand spreadsheet functions help us analyse data sets.** • **To understand that the cells in a spreadsheet can be set up to change depending on the value being input.** • **To understand that tools can be designed using spreadsheet software to support different users' needs.** • **To understand that spreadsheet models allow us to explore different situations in the wider world.** • **To understand that using graphs within spreadsheets can support prediction and 'what if' questions.**			• Function • variables
• Enter and format data in a spreadsheet	• Format spreadsheets appropriately to improve design and correct format of numbers	• Format spreadsheets for visual appeal, clarity of data and understanding	
• Use arithmetic operators in formulae	• Develop formulae using a range of arithmetic operators to solve problems	• Use formulae and functions correctly in spreadsheets/spreadsheet models	
	• Create and adapt spreadsheets, using appropriate formulae and functions		
	• Create a spreadsheet model to solve a real-life problem, link to real world situations	• Design a spreadsheet to record and analyse findings from various sources • Create efficient spreadsheet models to investigate problems/test hypotheses	
	• Identify and change variables within spreadsheet models; describe the effect	• Accurately identify variables in a model; explain impact of changing	
	• Use conditional formatting for a given condition	• Identify applications for conditional formatting (and possibly If statements)	
• Create appropriate graphs/charts	• Use graphs appropriately to present findings		
	• Identify opportunities for investigations using sensors/ data-loggers; analyse results using spreadsheet tools	• Use spreadsheet tools in investigations, analysing data and drawing conclusions	
	• Justify choices; explain why their model is effective		
	• Compare their use of spreadsheets and spreadsheet models with other calculating and modelling methods	• Investigate how spreadsheets are used in the wider world	
	• Understand how to identify and correct inaccurate/implausible data in a spreadsheet. Check their model for accuracy	• Routinely check data accuracy/reliability; explain processes they use for this	
• Critically evaluate their work using peer and self-review to modify and improve it	• Critically review/evaluate their work; improve the work	• Critically evaluate their models; identify improvements/refinements	

	• Keep and review drafts; revisit previous drafts considering effectiveness of their changes	• Describe how keeping and reviewing drafts helps build their critical awareness	
• Demonstrate clear understanding of school Online Safety rules including for copyright and data protection; apply in their work	• Demonstrate understanding of the school's Online Safety rules; keep their own and others' personal data safe	• Be proactive in promoting eSafe practice in others through the school community • Apply school's rules on data protection	