SUBJECT: Computing

Starting each year with E-safety will refresh and build on children's knowledge and understanding of how to use technology safely. This knowledge can then be referred to throughout the year so they can confidently explain at any point, how to stay safe online/when using technology.

Every year group will cover the same topic in each half term so progression can clearly be seen across the school. These topics have been underlined in each term. Skills are written as 'I can' statements so they are easily relatable to the children. Looking at the expected skills in the year group either side of the one being taught will give a good understanding of what the children should be able to do and where they need to progress to.

This document can be used alongside 'Curriculum progression in computing' and 'Coding vocabulary for each year group' (both in computing folder).

	Autumn 1 *E-safety*	Autumn 2 *Computing systems and networks*	Spring 1 *Creating Media*	Spring 2 *Data Information*	Summer 1 Summer 2 *Programming*
Year R	Children talk about ways to keep healthy and safe. Children talk about how they and others show feelings, talk about their own and others' behaviour, and its consequences, and know that some behaviour is unacceptable. I know I need to be supervised by an adult when accessing online content. I know I must talk to a trusted adult if I see something unexpected online.	Children recognise that a range of technology is used in places such as homes and schools. I can talk about technology I see at home and at school. I can explain when this technology is used. I can think about the technology used outside of school and home.	Children show good control and co-ordination small movements. They handle equipment and tools effectively. Children use their phonic knowledge to write words in ways which match their spoken sounds. I can use a mousepad to move a mouse. I can press the keys I intended to on a keyboard. I can type single words on a keyboard. I can use drawing programmes on a laptop.	They select and use technology for particular purposes. I can role play using technology. I can talk about the purpose of this technology e.g. mobiles used for making calls/sending messages/accessing apps/internet. I can choose an appropriate app or programme to use on the laptop or IWB for a particular task or purpose.	Children follow instructions involving several ideas or actions. I can respond to instructions. I know that instructions tell someone or something to do a certain task or action. I know that pressing a button or clicking the mouse is giving an instruction to the computer.
Year 1	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. E-safety *Lesson 1:* I can tell you what personal information is. *Lesson 2:* I can keep my password private. *Lesson 3:* I can tell an adult when I see something	Pupils should be taught to use technology purposefully to store and retrieve digital content and to recognise common uses of information technology beyond school. Computing systems and networks – Technology around us *Lesson 1: Technology around us.* I can identify technology *Lesson 2: Using technology.* I can identify a computer and its main parts.	Pupils should be taught to use technology purposefully to create digital content. Creating Media – Digital writing *Lesson 1: Exploring the keyboard.* I can use a computer to write. *Lesson 2: Adding and removing text.* I can add and remove text on a computer. *Lesson 3: Exploring the toolbar.* I can identify that the look of the text can be changed on the computer.	Pupils should be taught to use technology purposefully to organise and manipulate digital content. Data information – Grouping data *Lesson 1: Label and match.* I can label objects. *Lesson 2: Group and count.* I can identify objects that can be counted. *Lesson 3: Describe an object.* I can describe objects in different ways.	Pupils should be taught to 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. Programming – On the move *Lesson 1:* I understand that when a computer does something, it is following instructions called 'code'. *Lesson 2:* I can give instructions to make objects on the screen move when the program starts *Lesson 3:* I can use code to make objects move when they are clicked on. *Lesson 4:* I can use code to write a computer program where objects in a space scene move when they are clicked on.

	unexpected or worrying online. *Lesson 4:* I can recognise an age appropriate website. *Lesson 5:* I can talk about why it's important to be kind and polite. *Lesson 6:* I can agree and follow sensible e-safety rules.	*Lesson 3: Developing mouse skills.* I can use a mouse in different ways. *Lesson 4: Using a computer keyboard.* I can use a keyboard to type. *Lesson 5: Developing keyboard skills.* I can use the keyboard to edit text. *Lesson 6: Using a computer responsibly.* I can create rules for using technology responsibly.	*Lesson 4: Making changes to text.* I can make careful choices when changing text *Lesson 5: Explaining my choices.* I can explain why I used the tools that I chose. *Lesson 6: Pencil or keyboard?* I can compare writing on a computer with writing on paper.	*Lesson 4: Making different groups.* I can count objects with the same properties. *Lesson 5: Comparing groups.* I can compare groups of object. *Lesson 6: Answering questions.* I can answer questions about groups of objects.	Programming – Simple inputs *Lesson 1:* I can combine start events and click events to make a simple game. *Lesson 2:* I can combine start events and click events to make a simple game. *Lesson 3:* I can combine start events and click events in code to make a magic castle scene. *Lesson 4:* I can combine start events and click events to program cars and emergency vehicles in an animated traffic scene. *Lesson 5:* I can use my coding knowledge to fix the mistakes in a variety of programs.
Year 2	**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.** E-safety *Lesson 1:* I can explain why I need to keep my password and personal information private. *Lesson 2:* I can talk about why I should go online for a short amount of time. *Lesson 3:* I know that not everyone is who they say they are on the internet. *Lesson 4:* I can describe the things that happen online that I must tell an adult about. *Lesson 5:* I can talk about why it is important to be kind and polite online and in real life. *Lesson 6:* I can follow and make my own e-safety rules to keep me safe on the internet.	**Pupils should be taught to use technology purposefully to store and retrieve digital content and to recognise common uses of information technology beyond school.** Computing systems and networks – IT all around us *Lesson 1: What is information technology?* I can recognise the uses and features of information technology. *Lesson 2: Where have we seen information technology in the home?* I can identify technology in the home. *Lesson 3: Where have we seen information technology in the world?* I can identify technology beyond school. *Lesson 4: How does IT improve our world?* I can explain how information technology benefits us. *Lesson 5: Demonstrate safe use of information technology.* I can show how to use information technology safely. *Lesson 6: Using information technology responsibly.* I can recognise that choices are made when using information technology.	**Pupils should be taught to use technology purposefully to create digital content.** Creating Media – Digital photography *Lesson 1: Taking photographs.* I can use a digital devise to take a photograph. *Lesson 2: Landscape or portrait?* I can make choices when taking a photograph. *Lesson 3: What makes a good photograph?* I can describe what makes a good photograph. *Lesson 4: Lighting.* I can decide how photographs can be used. *Lesson 5: Effects.* I can use tools to change an image. *Lesson 6: Is it real?* I can recognise that photos can be changed.	**Pupils should be taught to use technology purposefully to organise and manipulate digital content.** Data information - Pictograms *Lesson 1: Counting and comparing.* I can recognise that we can count and compare objects using tally charts. *Lesson 2: Enter the data.* I can recognise that objects can be represented as pictures. *Lesson 3: Creating pictograms.* I can create a pictogram. *Lesson 4: What is an attribute?* I can select objects by attribute and make comparisons. *Lesson 5: Comparing people.* I can recognise that people can be described by attributes. *Lesson 6: Presenting information.* I can explain that we can present information using a computer.	**Pupils should be taught to 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.** Programming – Different sorts of inputs *Lesson 1:* I can write code that makes an object move around the screen when keys are pressed. *Lesson 2:* I can make objects perform different actions when keys are pressed on the keyboard *Lesson 3:* I can write code that makes an object change direction when different keys on the keyboard are pressed *Lesson 4:* I can write code that makes an object change direction when the pointer is pressed and released. *Lesson 5:* I can write code where different inputs can be used to make objects move and disappear Programming – Buttons and instructions *Lesson 1:* I can write code where buttons can be used to make an object move around the screen *Lesson 2:* I can write the code for a simple game where buttons are used to move an object around. *Lesson 3:* I can write the code for a simple game where buttons are used to move an object around and cast a magic 'disappearing spell'. *Lesson 4:* I can write code where buttons are used to move a monster around and eat (hide) fruit *Lesson 5:* I can use my coding knowledge to fix the mistakes in a variety of programs.
Year 3	**Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of**	**Pupils should be taught to understand computer networks including the internet; how they can provide multiple services,**	**Pupils should be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to design**	**Pupils should be taught to select, use and combine a variety of software (including internet services) on a range of digital devices to design**	**Pupils should be taught to 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**

	ways to report concerns about content and contact. E-safety *Lesson 1:* I can talk about what makes a secure password and why they are important. *Lesson 2:* I can protect my personal information when I do different things online. *Lesson 3:* I can recognise websites and games appropriate for my age. *Lesson 4:* I can make good choices about how long I spend online. *Lesson 5:* I can use the safety features of websites as well as reporting concerns to an adult. I can post positive comments online. *Lesson 6*: I ask an adult before downloading files and games from the internet.	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. <u>Computing systems and networks – Connecting computers</u> *Lesson 1: How does a digital device work?* I can explain how digital devices function. *Lesson 2: What parts make up a digital device?* I can identify input and output devices. *Lesson 3: How do digital devices help us?* I can recognise how digital devices can change the way we work. *Lesson 4: How am I connected?* I can explain how a computer network can be used to share information. *Lesson 5: How are computers connected?* I can explore how digital devices can be connected. *Lesson 6: What does our school network look like?* I can recognise the physical components of a network.	and create a range of programs, systems and content that accomplish given goals. <u>Creating Media – Desktop publishing</u> *Lesson 1: Words and pictures.* I can recognise how text and images convey information *Lesson 2: Can you edit it?* I can recognise that text and layout can be edited. *Lesson 3: Great template!* I can choose appropriate page settings. *Lesson 4: Can you add content?* I can add content to a desktop publishing publication. *Lesson 5: Lay it out.* I can consider how different layouts can suit different purposes. *Lesson 6: Why desktop publishing?* I can consider the benefits of desktop publishing.	and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. <u>Data information – Branching databases</u> *Lesson 1: Yes or no questions.* I can create questions with yes/no answers. *Lesson 2: Making groups.* I can identify the object attributes needed to collect relevant data. *Lesson 3: Creating a branching database.* I can create a branching database. *Lesson 4: Structuring a branching database.* I can explain why it is helpful for a database to be well structured. *Lesson 5: Using a branching database.* I can identify objects using a branching database. *Lesson 6: Presenting information.* I can compare the information shown in a pictogram with a branching database.	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. <u>Programming – Sequence and animation</u> *Lesson 1:* I can write a computer program where different pieces of code execute in a particular sequence. *Lesson 2:* I can create a program that uses sequences for two different objects moving on the screen. *Lesson 3:* I can write code that uses a timer to create a sequence of events. *Lesson 4:* I can write code that uses a timer to create a sequence of traffic lights turning on and off <u>Programming – Conditional events (selection)</u> *Lesson 1:* I can use 'hit events' to program a space maze game in which an object reacts to particular conditions. *Lesson 2:* I can use conditional hit events to control the movement of a car on the screen *Lesson 3:* I can make a simple game that uses conditional hit events to check if one object has hit another. *Lesson 4:* I can program a simple game where conditional events are used to check whether objects have collided. *Lesson 5:* I can use my coding knowledge to fix the mistakes in a variety of programs.
Year 4	**Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.** E-safety *Lesson 1:* I can choose a secure password when I am using a website. *Lesson 2:* I choose websites and games that are appropriate for my age. *Lesson 3:* I know that anything I post online can be seen by others. I can help my friends	**Pupils should be taught to 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.** <u>Computing systems and networks – The Internet</u> *Lesson 1: Connecting networks.* I can describe how	**Pupils should be taught to 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.** <u>Creating Media – Photo editing</u> *Lesson 1: Changing digital images.* I can explain that digital images can be changed. *Lesson 2: Changing the composition of images.* I can change the composition of an image.	**Pupils should be taught to 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.** <u>Data information – Data logging</u> *Lesson 1: Answering questions.* I can explain that data gathered over time can be used to answer questions.	**Pupils should be taught to 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.** <u>Programming – Introduction to variables</u> *Lesson 1:* I can understand how a variable can be used to keep track of the score in a game. *Lesson 2:* I can use variables to keep track of the score in a game that uses conditional events *Lesson 3:* I can use a variable to keep track of the score in a game that uses conditional events.

	make good choices about the time they spend online. *Lesson 4:* I can talk about the ways I can protect myself and my friends from harm online. *Lesson 5:* I can use the safety features of websites as well as reporting concerns to an adult. *Lesson 6:* I can talk about why I need to ask a trusted adult before downloading files and games from the internet. I comment positively and respectfully online.	networks physically connect to other networks *Lesson 2: What is the internet made of?* I can recognise how networked devices make up the internet. *Lesson 3: Sharing information.* I can outline how websites can be shared via the World Wide Web. *Lesson 4: What is a website?* I can describe how content can be added and accessed on the World Wide Web. *Lesson 5: Who owns the web?* I can recognise how the content of the WWW is created by people. *Lesson 6: Can I believe what I read?* I can evaluate the consequences of unreliable content.	*Lesson 3: Changing images for different uses.* I can describe how images can be changed for different uses. *Lesson 4: Retouching images.* I can make good choices when selecting different tools. *Lesson 5: Fake images.* I can recognise that not all images are real. *Lesson 6: Making and evaluating a publication.* I can evaluate how changes can improve an image.	*Lesson 2: Data collection.* I can use a digital device to collect data automatically. *Lesson 3: Logging.* I can explain that a data logger collects 'data points' from sensors over time. *Lesson 4: Analysing data.* I can use data collected over a long duration to find information. *Lesson 5: Data for answers.* I can identify the data needed to answer questions. *Lesson 6: Answering my question.* I can use collected data to answer questions.	*Lesson 4:* I can learn how to use multiple different variables and to set the value of a variable *Lesson 5:* I can use a variable to keep track of the score in a game where the score increases, decreases or resets when different conditions are met. *Lesson 6:* I can use my coding knowledge to fix the mistakes in a variety of programs. Programming – Repetition and loops *Lesson 1:* I can use a loop to do something repeatedly in a program. *Lesson 2:* I can write code that uses nested loops to create a car-driving program and design simple algorithms using loops and selection, i.e. if statements. *Lesson 3:* I can write the code to program a rocket to orbit round the spinning Moon, using the concepts of loops, regular or infinite repetition, and 'if statement' blocks. *Lesson 4:* I can use loops, a variable and if statements to create an animated scene of hot air balloons performing a repeating pattern in the sky.
Year 5	Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. E-safety *Lesson 1:* I protect my password and other personal information. *Lesson 2:* I can explain why I need to protect myself and my friends and the best ways to do this, including reporting concerns to an adult. *Lesson 3:* I know that anything I post online can be seen, used and may affect others. I can talk about the dangers of spending too long online or playing a game. *Lesson 4:* I can discuss the importance of choosing an age- appropriate website or game *Lesson 5:* I can explain why I need to protect my computer or device from harm. I know which resources on the	**Pupils should be taught to 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.** Computing systems and networks – Sharing information *Lesson 1: Systems.* I can explain that computers can be connected together to form systems. *Lesson 2: Computer systems and us.* I can recognise the role of computer systems in our lives. *Lesson 3: Transferring information.* I can recognise how information is transferred over the internet.	**Pupils should be taught to 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.** Creating Media – Vector drawing *Lesson 1: The drawing tools.* I can identify that drawing tools can be used to produce different outcomes. *Lesson 2: Create a vector drawing.* I can create a vector drawing by combining shapes. *Lesson 3: Being effective.* I can use tools to achieve a desired effect. *Lesson 4: Layers and objects.* I can recognise that vector drawings consist of layers. *Lesson 5: Manipulating objects.* I can group objects to make them easier to work with. *Lesson 6: Get designing.* I can evaluate my vector drawing.	**Pupils should be taught to 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.** Data information – Flat-file databases *Lesson 1: Creating a paper-based database.* I can use a form to record information. *Lesson 2: Computer databases.* I can compare paper and computer-based databases. *Lesson 3: Using a database.* I can outline how grouping and then sorting data allows us to answer questions. *Lesson 4: Using search tools.* I can explain that tools can be used to select specific data. *Lesson 5: Comparing data visually.* I can explain that	**Pupils should be taught to 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.** Programming – Speed, directions and coordinates *Lesson 1:* I can set values in code to control the speed of an object. *Lesson 2:* I can use object properties (speed, heading and angle) to create a driving simulation. *Lesson 3:* I can create a sailing game where a boat's position on the screen is controlled by making changes to its co-ordinates *Lesson 4:* I can write code including if statements to make an object rotate, and combine this with conditional events to make a game. *Lesson 5:* I can set friction to affect the speed and movement of a car in a driving simulation. *Lesson 6:* I can use my coding knowledge to fix the mistakes in a variety of programs. Programming – Random numbers and simulations *Lesson 1:* I can generate and display random numbers, and use these within the program for a car racing game.

internet I can download and use. *Lesson 6:* I can explain the importance of communicating kindly and respectfully.	*Lesson 4: Working together.* I can explain how sharing information online lets people in different places work together. *Lesson 5: Better working together.* I can contribute to a shared project online. *Lesson 6: Shared working.* I can evaluate different ways of working together online.		computer programs can be used to compare data visually. *Lesson 6: Databases in real life.* I can apply my knowledge of a database to ask and answer real-world questions.	*Lesson 2:* I can write code for a game that uses random numbers to move objects in different directions. *Lesson 3:* I can write code that uses random numbers to move objects at random speeds and headings, and use this to create a game. *Lesson 4:* I can create a ping-pong game, using random headings in specific ranges. *Lesson 5:* I can use random numbers in combination with variables and conditional hit events to create a realistic pinball game.
Year 6	**Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.** <u>E-safety</u> *Lesson 1:* I can protect my password and other personal information. *Lesson 2:* I can explain the consequences of sharing too much information about myself online. *Lesson 3:* I support my friends to protect themselves and make good choices online, including reporting concerns to an adult. *Lesson 4:* I can explain the consequences of spending too much time online or on a game. *Lesson 5:* I protect my computer or device from harm on the internet. *Lesson 6:* I can explain the consequences to myself and others of not communicating kindly and respectfully.	**Pupils should be taught to 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.** <u>Computing systems and networks - Communication</u> *Lesson 1: Searching the web.* I can identify how to use a search engine. *Lesson 2: Selecting search results.* I can describe how search engines select results. *Lesson 3: How search results are ranked.* I can explain how search results are ranked. *Lesson 4: How are searches influenced?* I can recognise why the order of results is important, and to whom. *Lesson 5: How we communicate.* I can recognise how we communicate using technology. *Lesson 6: Communicating responsibly.* I can evaluate different methods of online communication.	**Pupils should be taught to 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.** <u>Creating Media – Web page creation</u> *Lesson 1What makes a good website?* I can review an existing website and consider its structure. *Lesson 2: How would you lay out your web page?* I can plan the features of a web page. *Lesson 3: Copyright or copyWRONG?* I can consider the ownership and use of images (copyright). *Lesson 4: How does it look?* I can recognise the need to preview pages. *Lesson 5: Follow the breadcrumbs.* I can outline the need for a navigation path. *Lesson 6: Think before you link!* I can recognise the implications of linking to content owned by other people.	**Pupils should be taught to 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.** <u>Data information - Spreadsheets</u> *Lesson 1: What is a spreadsheet?* I can identify questions which can be answered using data. *Lesson 2: Modifying spreadsheets.* I can explain that objects can be described using data. *Lesson 3: What's the formula?* I can explain that formulas can be used to produce calculated data. *Lesson 4: Calculate and duplicate.* I can apply formulas to data, including duplicating. *Lesson 5: Event planning.* I can create a spreadsheet to plan an event. *Lesson 6: Presenting data.* I can choose suitable ways to present data.	**Pupils should be taught to 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.** <u>Programming – More complex variables</u> *Lesson 1:* I can write code that prompts the user to input the value of a variable, and use this to create an interactive block chart. *Lesson 2:* I can use my knowledge of variables to make a balloon pop game that gets harder as users score more points. *Lesson 3:* I can write the code for a shopping till using variables to store and calculate values. *Lesson 4:* I can create a stopwatch with stop, start, and reset buttons, and both digital and analogue displays. *Lesson 5:* I can use my coding knowledge to fix the mistakes in a variety of programs. <u>Programming – Object properties</u> *Lesson 1:* I can create a game where players stop objects moving by changing their properties. *Lesson 2:* I can write code that detects the properties of an object and passes the value of these properties (or a set of parameters) to other objects, and to use this to create a space game *Lesson 3:* I can make a football game that passes the speed and heading of the pointer's movement to a ball on the screen *Lesson 4:* I can make a game that moves objects around by getting information from events and passing object properties and pass properties from one object to a second in order to make the second object move relative to the first. *Lesson 5:* I can create a golf game by writing code that accesses and uses object properties, including passing the value of these properties to other objects (passing a set of parameters).

Ashton St. Peter's   Creative curriculum