

Camelford Primary School Skills Progression

Computing Pathway

Subject Lead: Aimee Little

The computing pathway shows clearly what the pupils will be learning as they progress on their journey at Camelford Primary School.

At Camelford Primary School we work on a 2-year rolling programme – Year A starting Sept 2020. We follow the scheme ‘Switched on Computing’ from Rising Stars.

Intent

Technology is everywhere and it plays a pivotal part in the lives of children. Therefore, we strive to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators as well as consumers and our broad curriculum encompassing a wide range of skills reflects this. We want our pupils to understand that there is always a choice with using technology and as a school we utilise technology in a positive way to enhance our learning. We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education.

Implementation

Our scheme of work has been adapted from the Rising Stars ‘Switched on Computing’ scheme, which covers all areas of the National Curriculum. We often embed Computing across the wider curriculum and teach a lot of skills discreetly, for example by linking it to our Topic studies.

Expectations are based on the ‘End of Phase Expectations’ which all teachers use to aid their planning. Teachers should scaffold accordingly due to the varying levels of skills and knowledge of the children, particularly in the classes with mixed years groups.

To assist with the teaching of the Computing curriculum, we have a range of technology in school such as Google Chromebooks in each class, iPads, interactive whiteboards, laptops and BeeBots.

Impact

Finding the right balance with technology is key to an effective education and a healthy lifestyle. We feel that we deliver a creative and engaging curriculum which enables children to develop a wide range of skills, as well as the digital literacy knowledge which will help to keep them safe online. The way pupils' showcase, share, celebrate and publish their work best shows the impact of our curriculum. We also look for evidence through reviewing pupil's knowledge and skills and observing learning regularly, using the National Curriculum and our ‘End of Phase Expectations’ to guide us.

We ensure that SEND needs are catered for throughout the Computing curriculum in a number of ways. At Key Stage 1 and 2, coding is primarily taught using block-based programming languages such as Scratch. So, for example, embedding the use of braille if necessary, allowing learners to orient themselves to the classroom space, careful selection of colours within resources, installing a screen reader and magnifier aids can all benefit learners with visual impairment needs, dyslexia and dyspraxia. If a pupil struggles with more complex, problem-solving tasks, then the ‘BBBGB’ (Brain, Board, Buddy, Google, Boss) approach has proven effective. Slowly removing scaffolds as the child's confidence and skills increase will enable them to work more independently. In addition to this, using technology can allow pupils with learning difficulties to work independently. For example, using the dictation setting on a Google Chromebook for children who struggle to write, or the immersive reader programme to read information from a computer to them.

The table below includes the subject coverage which details when in the year the specific topics/areas are taught. These areas have been identified by the school team from the National Curriculum and beyond – ensuring they are relevant for the pupils at Camelford Primary School.

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	Autumn	Christmas	Spring		Summer	
	Autumn (10 weeks) Rebellion and Invasion: <i>Humanities focus</i>	Christmas (3wks) <i>Performance focus</i>	Spring 1 (5 wks) Civilization/British Values <i>Humanities focus</i>	Spring 2 (5 wks) Environmental Warrior <i>Science/school ethos focus</i>	Summer 1 (5 wks) Our community/Our World <i>Humanities focus</i>	Summer 2 (5 wks) Evolution of Man <i>Science focus</i>
EYFS	Spotting different types of technology around school Using the Paint programme Investigating wind- up toys and wind up torches and clocks	Internet safety – getting permission and reporting unusual activity	Giving and following instructions Using a camera Using mechanisms		Using a search engine Programming a BeeBot Making a model with a moving part	
YN	N1: I can tell you who looks after me at Nursery. I can tell you the names of the children in my class Play 'Guess Who?' from a description of adults in the class (this can be played later guessing the children).	N2: I can tell you who looks after me at home. Make a collage ~ My Home ~ in the windows and the garden put pictures of people who are special to the children and their comments on who the people are	N3: I can begin to make wheels turn using the construction set Explore cogs and wheels	N4: I can play a game on the iPad I know that I can only play on the game that I have been shown and when the adult says I can. Show pictures of technology children might see in their homes – generate discussion	N5: I can make a rotary whisk work	N7: I can tell you how to make a Cornish cream tea. I can tell you about a time in my family when we had some special food (celebrations) Share cream teas with family at garden party
YR	I can spot different types of technology in school - I can begin to tell you what technology means I can use the Paint program on the interactive whiteboard I can use the Paint Program to create a light and dark picture (link Computing 1/2A)	I can how and why questions I can begin to have my own ideas I can tell you 3 different types of information technology. I can tell you that to stay safe on the internet I must get permission from my grown up to use it and that I must only play on the game that we have agreed. I know that I must tell my grown up immediately if something unusual appears on my screen Read story of Buddy the Dog helping Ben to make the right decision.	I can follow instructions to get to a goal can 'program' - give instructions to my partner to reach a goal (Link – Computing 1/2 A) I can begin to make adjustments to my instructions I can use the camera to record (Link Computing ½ A)	I know that other mechanisms can make objects move. I can begin to ask and answer how and why questions I can use split pins to make a puppet move I can tell different types of technology in the home I know that I need permission to use that technology for my own safety I know what to do if I press something by accident on a phone or tablet or computer (link computing ½ B) Make a troll or a goat using split pins to make the limbs move	I know that I have to ask permission to use a search engine and that I only use it for the reason agreed. I know that information can be found on the internet I can use a search engine to identify bugs in our garden (Link computing 1/2B)	I can make a model with a moving part. I know that I need to decide on a function for my model I can program Beebot to move from A to B I can use the iPad to record instructions for Beebot. Create a pulley to take tin ore to the surface of the mine or a moving part of a man engine
Years 1/2 A	Using programmable toys		Filming the steps of a recipe		Illustrating an eBook	
Years 1/2 B	Beebot Programme	Finding images using the web	Producing a talking book			Creating a card electronically
Years 3/4 A	Programming an animation			Finding and correcting bugs in programs		Videoing performance
Years 3/4 B	Making and sharing a short screencast presentation		Communicating safely on the internet			Collecting and analysing data

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Years 5/6 A	Develop an interactive game		Sharing experiences and opinions		Fusing geometry and art	
Years 5/6 B	Cracking codes		Creating a web page about cyber safety			Creating a virtual space

The following documents detail the National Curriculum statements and the progression of skills within each of the given topic areas. Each progression of skills document shows expectations for 'Working Towards', 'Working At' and 'Working Beyond' the expected for that subject area.

How should this be used to help plan learning opportunities?

Teachers and subject leads must ensure that they use the progression statement to guide their planning, teaching and assessment. The 3 levels of attainment should be used to pitch the lesson and success criteria accurately; challenging pupils where appropriate with 'Working Beyond' and supporting others with 'Working Towards' criteria. However, due to our mixed age classes at Camelford, teachers must use their professional judgement by using the Working Towards and Working Beyond criteria when planning and setting learning opportunities.

How can this be used by subject leads and SLT?

Subject leads and SLT should use the progression of skills and subject coverage documents to ensure the correct coverage is happening across the school, at the right times, that the areas being taught are relevant (as per the pathway) and that lessons are pitched to the right level ensuring maximum challenge. The journey of a child throughout the school (starting from Year 1 rotation A) should be carefully monitored to ensure their learning is progressive and varied.

National Curriculum Computing Statement 2014

Purpose of Study P178

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Aims P178

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

Assessment P178

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

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National Curriculum 2014 Key Stage 1 Computing	
Subject Content: 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 • 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	
National Curriculum 2014 (p179) Key Stage 1	
Statutory Learning Intentions - pupils should be taught about:	CPS chosen areas of study:
▪ 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 ▪ 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 ▪	▪ Programmable toys ▪ Paint/Movie maker/imovie ▪ Word, Paint, A picture ▪ Powerpoint ▪ 2Create a story ▪ Powerpoint/Word Clicker

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
Year 1/2 (A)	Autumn 1 10 weeks	Using programmable toys	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.	Understand what algorithms are Programs execute by following precise and unambiguous instructions Create simple programs Debug simple programs	Follow instructions to move around a large space Record a set of instructions for a toy Program a toy to move by giving one instruction at a time Program a toy to move by giving a set of instructions	Give one another instructions to move around a large space Understand input, program and output in the context of a robotic toy Create a program to move a toy to a particular location Debug a program	Predict where a set of instructions will take a pupil moving in a large space Predict where a toy will end up from a set of instructions Understand input, program and output in more general contexts Look for ways in which a program could be made more efficient	algorithm debug instructions predict programming robot treasure
Year 1/2 (A)	Spring 1 5 weeks	Filming the steps of a recipe IALT- Investigate recipes and TV cookery programs IALT- Use an algorithm to program a sandwich making robot IALT- develop a recipe. IALT practise using a camera IALT film our recipe IALT edit and review our recipe	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.	Understand that programs execute by following precise and unambiguous instructions Use logical reasoning to predict the behaviour of simple programs Use technology purposefully to create digital content Use technology purposefully to organise and manipulate digital content	Create a recipe with correctly ordered steps Film video Import their video to the computer	Create a recipe with clear steps Predict what will happen when someone follows their recipes Film video, keeping the camera still and steady Join video clips together	Create a recipe with unambiguous steps Correct their algorithms Film a variety of shots Use more advanced video editing techniques (such as transitions or narration)	algorithm clip edit film instructions recipe robot video camera

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
Year 1/2 (A)	Summer 1 5 weeks	Illustrating an eBook	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.	Use technology to retrieve digital content Use technology purposefully to create digital content Use technology purposefully to manipulate digital content Retrieve digital content Use technology respectfully	Use a paint program to create an illustration Edit an image Combine multiple illustrations into a single document Export a document in a portable format Know what to do if they find inappropriate images	Find relevant illustrations on the web Use a paint program to create an illustration that conveys character Make improvements to an image using paint software Be able to retrieve previously saved work Give constructive feedback to other pupils	Think about how digital illustrations may have been created Appreciate how image files are stored on a computer Revise their work on the basis of feedback they receive	character eBook edit illustration traditional tale
Y1/2 (B)	Autumn 1 10 weeks	Beebot Programming	understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions					
Year 1/2 (B)	Autumn 2 3 weeks	Finding images using the web	Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. 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 conta	Recognise common uses of information technology beyond school Manipulate digital content Keeping personal information private Organise digital content Understand what algorithms are	Search for images using online galleries Copy an image from the web and paste it into their presentation Move images in their presentation Know what to do if they discover bad images Organise images into groups	Identify the differences between clip art and digital photographs Resize images in their presentation Know that they should not post personal information or photos to the web Sort images into order of size Use binary (yes/no) questions to identify an image from their collection	Be discerning in choosing images to use Add text labels to their presentation Appreciate that it is only OK to copy images where their creator has given permission Consider how a computer might sort a set into order	algorithm copyright e-safety mammal permission personal private

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
Year 1/2 (B)	Spring 1 5 weeks	Producing a talking book <u>Lesson Sequence:</u> IALT 1: Compare audio books with printed books. IALT 2: Plan and rehearse the dialogue and sound effects needed for an audio book. IALT 3: Record dialogue and sound effects using a digital software. IALT 4: Understand how audio recordings are stored on a computer. IALT 5: Review and improve dialogue and sound effect recordings. IALT 6: Provide constructive feedback to other pupils about their audio book.	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.	Use technology purposefully to organise and retrieve digital content Use technology purposefully to organise and retrieve digital content Use technology purposefully to organise digital content Use technology respectfully Recognise common uses of information technology beyond school	Plan and rehearse the sound effects needed in an audio book Plan and rehearse the dialogue needed in an audio book Record sound effects using a digital audio recorder (or software) Record dialogue directly to a computer Be able to retrieve previously saved work	Review and improve sound effect recordings Review and improve dialogue recordings Organise sound effect recordings Give constructive feedback to other pupils Compare audio books with printed books	Record high quality sound effects using a digital audio recorder or software Record high quality dialogue directly to a computer Combine sound effects with dialogue in their recordings Appreciate how audio recordings are stored on a computer	audio book copyright microphone recording sound effects talking book
Year 1/2 (B)	Summer 2 5 weeks	Creating a card electronically	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.	Create digital content Manipulate digital content Manipulate digital content Use technology purposefully Recognise common uses of information technology beyond school	Enter text for their card Find appropriate images using a search engine Combine text and an image to make a greetings card Be able to save and load files from the computer drive or network	Understand how to use the keyboard to enter non-alphabetic characters Modify the appearance of text on their card Edit images to personalise them Combine text and an image to make a greetings card with a clear sense of purpose Think about the relative merits of printed greetings cards and e-cards	Appreciate the need for efficient and accurate typing Ensure that their text is spelled correctly and is appropriate for their event and recipient Create a pleasing card combining a sourced image and their own work Make well-judged changes or additions to their card Begin to understand how files are stored on a computer drive or the network	celebrate copyright edit greeting keyboard save type

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National Curriculum 2014 Key Stage 2 Computing

Subject Content:

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
- 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

National Curriculum 2014 (p179) Key Stage 2

Statutory Learning Intentions - pupils should be taught about:	CPS chosen areas of study:
• 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 • 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	▪ Scratch ▪ Isle of tune ▪ Firefox ▪ Google ▪ Blogger ▪ Prezi ▪ App inventor ▪ Publisher

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement and Focus	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
Year 3/4 (A)	Autumn 1 10 weeks	Programming an animation	Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts. Use sequence ... in programs; work with variables and various forms of input and output. Use logical reasoning to detect and correct errors in algorithms and programs. Select, use and combine a variety of software ... to design and create ... content that accomplish(es) given goals, including ... presenting ... information.	Debug programs that accomplish specific goals Work with various forms of output Use logical reasoning to explain how some simple algorithms work	Create an algorithm for an animated scene in the form of a storyboard Break the scene down into small sections of action and dialogue Write a program in Scratch to create the animation Put the blocks of their Scratch script into order	Correct mistakes in their animation programs Create their own sound and graphics for the sprites and the backdrop Explain the connection between their storyboard and the scene they're animating	Use a repeat block to switch between costumes to create the illusion of movement Think logically to detect and correct errors in their animation program Publish their animations on the Scratch community website Glean ideas from others' work on the Scratch website	algorithm animation input output program script storyboard
Year 3/4 (A)	Spring 1 5 weeks IALT Spot and correct off-by-one bugs IALT spot and correct performance bugs IALT spot and correct multi-thread bugs IALT spot and correct conceptual bugs IALT spot and correct arithmetical bugs IALT spot and correct resource bugs	Finding and correcting bugs in programs	Debug programs that accomplish specific goals. 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.	Work with variables Use logical reasoning to explain how some simple algorithms work Use logical reasoning to explain how some simple algorithms work Debug programs that accomplish specific goals, including simulating physical systems Work with variables	Correct 'off-by-one' errors in loops Improve the performance of the circledrawing program Get the dialogue in the joke program to work in sequence Experiment with the speed variable and other factors in the racing car simulator	Describe how the times-table program works Describe how the circle-drawing program works Describe how the two joke scripts work together Correct the 'Pong'-style game so the bounce is more realistic Describe how the racing car simulator works	Explain how they debugged the times-table program using logical reasoning Explain the connection between the number of steps, step size and turn in the circledrawing program Explain how they corrected the joke program Describe how the 'Pong'-style program works Suggest explanations for the bug in the racing car simulator	algorithm bugs debug instruction program script

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement and Focus	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
Year 3/4 (A)	Summer 2 5 weeks	Videoing performance	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. Work with various forms of input and output. Use technology safely, respectfully and responsibly.	Analyse and evaluate information Use software on a range of digital devices Work with various forms of input Present information Evaluate information	Operate a simple video camera correctly Record useable footage Import and edit their footage Record an audio commentary for their footage	Analyse existing sports coverage to learn how this is shot Record high quality footage Record a detailed, informative commentary Export the movie in a standard format Critically review their footage	Record creative footage Make use of data in their commentary Use more advanced video editing tools, such as transitions, captions or credits	audio close-up editing footage panning shooting video camera zooming
Year 3/4 (B)	Autumn 1 10 weeks	Making and sharing a short screencast presentation	Understand computer networks including the internet; how they can provide multiple services, such as the world wide web. 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 content that accomplish given goals, including collecting, analysing, evaluating and presenting information. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Identify a range of ways to report concerns about content Use search technologies effectively Use search technologies effectively Appreciate how results are selected Appreciate how results are selected Design and create content	Know what to do if they have concerns over inappropriate content at school Find relevant search results using Google Find relevant images using Google Realise that, when they use the web, they connect via the internet to other computers Know that search results show pages that include the key words from their query Design and deliver their own presentation	Know what to do if they have concerns over inappropriate content at home Be able to research a topic efficiently Be able to find appropriate Creative Commons licensed images using Google Understand that text and information is communicated as numbers across the internet Understand that Google results are based on the key words in its index of a copy of the web Design and record an effective presentation	Use filters to refine search queries on Google Understand the importance of citing the source for images they use Understand that the web is just one application of the internet Understand that Google ranks pages according to the number and quality of inbound links Design a visually attractive, interesting presentation	vlogging search engine internet presentation narration Creative Commons copyright images audio screencast

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
Year 3/4 (B)	Spring 1 5 weeks	Communicating safely on the internet <u>Lesson Sequence:</u> IALT 1: Recognise the potential dangers associated with communicating via the internet. IALT 2: Identify a range of ways to report concerns about inappropriate communication on the internet. IALT 3: Understand the differences between the internet and the web. IALT 4: Use email as a way of communicating with others. IALT 5: Add an attachment to an email and	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.	Understand how computer networks can provide multiple services Understand that computer networks offer opportunities for collaboration Use technology respectfully Know a range of ways to report concerns and inappropriate behaviour	Realise that email and video conferencing work via the internet Use email and video conferencing to communicate Use text and video for communication Ensure their use of email and video conferencing complies with the school's AUP	Realise that the internet is different from the web Use email to work together on a joint project Show consideration and respect for their partners throughout Explain how they would report any concerns or inappropriate use of email	Work collaboratively to plan their projects without much input from you or the partner teacher Provide useful feedback to their partners Show an understanding of the dangers of opening email attachments, and other problems with email, such as spoofing and spam	attachment email e-safety spam spoofed link video conference virus

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
		understand the dangers of opening email attachments.						
Year 3/4 (B)	Summer 25 weeks	Collecting and analysing data	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. 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.	Understand the opportunities computer networks offer for communication Be discerning in evaluating digital content Combine a variety of software (including internet services) to accomplish given goals Analysing data	Collect data via the internet Treat data collected in a way that shows respect for individuals Use Google Forms to collect data Use Google Slides to present their results	Explain how the web has allowed them to work collaboratively on a number of different documents Critique survey forms and presentations Move information between different applications Analyse the data collected	Explain how they and their respondents have used services running on Google data centre servers via the internet Show an awareness of data protection issues raised by the use of online surveys Review the data critically, looking for exceptions and patterns Complete the challenge without much support or guidance from you	chart data graph opinion questions rating scale research survey
Year 5/6 (A)	Autumn 110 weeks	Develop an interactive game	Design, write and debug programs that accomplish Create content Use selection and repetition in programs Use logical reasoning to correct errors in algorithms and programs Write and debug programs that accomplish specific goals Create programs, systems and content 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 ...	Create content Use selection and repetition in programs Use logical reasoning to correct errors in algorithms and programs Write and debug programs that accomplish specific goals Create programs, systems and content	Create an algorithm for a game Create images and sounds for use in their game Use sequences of instructions Detect errors in their game	Create music for use in their game Use selection and repetition in their game Correct errors in their game Improve their game on the basis of the feedback they receive Add instructions to their game	Break their game into its component parts and develop them separately Create multiple images for characters and use them for animation Use variables in their game Explain how their game works Include comments in the code for their game	algorithm debugging code programming sprites storyboard

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
Year 5/6 (A)	Spring 1 5 weeks	Sharing experiences and opinions <u>Lesson Sequence:</u> <u>Lesson 1:</u> IALT: Understand the purpose of a blog. IALT: Identify features of an effective blog. <u>Lesson 2:</u> IALT: Write an effective blog post. <u>Lesson 3:</u> IALT: Add an image, video or audio clip to a blog post. IALT: Understand that blog posts are stored as HTML. <u>Lesson 4:</u> IALT: Understand the importance of commenting appropriately on another blog post. IALT: Report concerns about posts or comments on blogs. <u>Lesson 5:</u> IALT: Comment on another pupil's blog.	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. ... be discerning in evaluating digital content.	Be discerning in evaluating digital content Understand how the internet provides services such as the world wide web Use technology respectfully Identify a range of ways to report concerns about content and contact Recognise acceptable/unacceptable behaviour Create content	Understand how to use blogs safely and responsibly Understand how the internet makes blogging possible Write a blog post Comment on a blog post Add an image, audio or video to a blog post	Identify the criteria for an effective blog post Understand that blog posts are stored as HTML Understand how to comment respectfully Report concerns about posts or comments on blogs Appreciate what constitutes acceptable and unacceptable behaviour when commenting Add their own original image, audio or video to a blog post	Appreciate the difference between database driven sites, such as a WordPress blog, and static HTML pages Appreciate what constitutes acceptable and unacceptable behaviour in relation to using others' original work Keep up with an event in a live blog	audience blog blogroll copyright dashboard hyperlinks podcast

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Year Group Cohort	Term (length)	Topic Name	National Curriculum Statement	Computing Concepts and Progression Statement	Working Towards	Working At	Working Beyond	Vocabulary
Year 5/6 (A)	Summer 1 5 weeks	Fusing geometry and art	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.	Design and create content Use sequence and repetition in programs Design and create content Be discerning in evaluating digital content	Create a tessellating pattern Write a program to draw a simple shape Create a pattern using overlapping shapes Create a pattern using repeating, varied shapes Create a computer-generated landscape	Create a tessellating pattern using more complex shapes Use repetition in a program to draw a more complex geometric figure Create a pattern using repeating, varied shapes using the tile clone tool or similar Create an aesthetically pleasing computer generated landscape	Use blocks of script they have written themselves to create a complex geometric figure in Scratch Explain in simple terms how computers can generate photorealistic landscapes	geometric landscape pop art sprite symmetry tessellations
Year 5/6 (B)	Autumn 1 5 weeks	Cracking codes	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 technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Understand opportunities for communication Understand networks and the opportunities they offer for communication Use technology safely and responsibly Use technology safely and responsibly	Send and receive messages using Morse and semaphore Encrypt and decrypt messages using the Caesar and substitution ciphers Recognise the importance of keeping passwords entirely secret Recognise the need for encryption when using the web	Send and receive messages using Morse and semaphore beyond line-of-sight Decrypt messages using the Caesar cipher with an unknown key Recognise the importance of using complex passwords Understand how to check if a web page is encrypted	Compare and contrast Morse and semaphore with the internet Explain the algorithm for the Caesar cipher Decrypt messages using a general substitution cipher with an unknown key using frequency analysis Understand what constitutes a complex password Understand how to check the security certificates for a web page	binary code cipher decrypt encrypt Morse code password security semaphore
Year 5/6 (B)	Spring 1 10 weeks	Creating a web page about cyber safety	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,	Recognise acceptable/unacceptable behaviour Collecting and presenting information Be discerning in evaluating digital content Understand the opportunities networks offer for collaboration Use search technologies effectively	Review others' content Appreciate how Google selects web pages in search results Show awareness of other search engines Create or curate content to demonstrate knowledge of safe, respectful and responsible use of technology Create or curate content to demonstrate knowledge of how to report concerns	Create or curate content to demonstrate knowledge of acceptable/unacceptable behaviour Correctly attribute third-party content on a shared site Evaluate web sources for quality and bias Correct spelling, punctuation and grammar errors in another's content Use tools to make web searches more efficient or effective	Draw on multiple sources to present a summary Make constructive and substantive changes to others' content Appreciate how Google ranks web pages in search results	bias e-safety Page Rank revision history search engine wiki

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			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.					
Year 5/6 (B)	Summer 2 5 weeks	Creating a virtual space IALT: Use search technologies effectively, appreciating how results are selected and ranked. IALT: Use the web to explore virtual art galleries. https://www.nationalgallery.org.uk/visiting/virtual-tours IALT: Create objects using SketchUp. IALT: Apply appropriate finishes to SketchUp gallery. IALT: Create a walkthrough	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.	Analyse and evaluate information Design and create content Design and create content Present information	Use the web to explore virtual art galleries Create simple objects using SketchUp Create a simple gallery space in SketchUp Add furniture to their gallery in SketchUp Add their artwork to the gallery Create an animated walkthrough of their gallery	Identify common characteristics of art galleries using the web Create complex, compound objects using SketchUp Apply appropriate finishes to surfaces in SketchUp Create a narrated walkthrough of their gallery	Create aesthetically pleasing complex objects using SketchUp Create a complex collection of interlinked rooms in SketchUp Create furniture for their gallery Edit the walkthrough of their gallery in a video editor	3D animation gallery navigation screencast sculpture virtual

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		of their gallery.						