Computing Progression Map

The progression grid outlines the skills and specific knowledge which pupils are expected to learn in each phase, along with the specific vocabulary that supports this understanding.

EYFS- 1 year cycle Y1/2 -2 year cycle Y3- 1 year cycle Y4/5- 2 year cycle Y6 – 1 year cycle

We are using Kapow for our scheme of work

Algorithms and Programs

Skills

At EYFS: There are no early learning goals that directly relate to computing objectives, though children will be introduced to appropriate technology and use it within their provision.	**At Year 1:** Can they create a simple series of instructions - left and right? Can they record their routes? Do they understand forwards, backwards, up and down? Can they put two instructions together to control a programmable toy? Can they begin to plan and test a Bee-bot journey?	**At Year 2:** Can they predict the outcomes of a set of instructions? Can they use right angle turns? Can they use the repeat commands? Can they test and amend a set of instructions? Can they write a simple program and test it? Can they predict what the outcome of a simple program will be?	
At Year 3: Can they experiment with variables to control models? Can they use 90 degree and 45 degree turns? Can they give an on-screen robot directional instructions? Can they draw a square, rectangle and other regular shapes on screen, using commands? Can they write more complex programs?	**At Year 4:** Can they use repeat instructions to draw regular shapes on screen, using commands? Can they experiment with variables to control models? Can they make turns specifying the degrees? Can they give an on-screen robot specific directional instructions that takes them from x to y? Can they make accurate predictions about the outcome of a program they have written?	**At Year 5:** Can they combine sequences of instructions and procedures to turn devices on or off? Do they understand input and output? Can they use an ICT program to control an external device that is electrical and/or mechanical? Can they use ICT to measure sound or light or temperate using sensors? Can they explore 'What is' questions by playing adventure or quest games? Can they write programs that have sequences and repetitions?	**At Year 6:** Can they explain how an algorithm works? Can they detect errors in a program and correct them? Can they use an ICT program to control a number of events for an external device? Can they use ICT to measure sound, light or temperature using sensors and interpret the data? Can they explore 'what if' questions by planning different scenarios for controlled devices? Can they use input from sensors to trigger events? Can they check and refine a series of instructions?

Data Retrieving and Organising

Skills

At EYFS: There are no early learning goals that directly relate to computing objectives, though children will be introduced to appropriate technology and use it within their provision.	**At Year 1:** Can they capture images with a camera? Can they print out a photograph from a camera with help? Can they record a sound and play it back? Can they enter information into a template to make a graph? Can they talk about the results shown on a graph?	**At Year 2:** Can they find information on a website? Can they click links in a website? Can they print a web page to use as a resource? Can they experiment with text, pictures and animation to make a simple slide show? Can they use the shape tools to draw?	
At Year 3: Can they review images on a camera and delete unwanted images? Have they experienced downloading images from a camera into files on the computer? Can they use photo editing software to crop photos and add effects? Can they manipulate sound when using simple recording story boarding?	**At Year 4:** Can they capture images using webcams, screen capture, scanning, visualiser and internet? Can they choose images and download into a file? Can they download images from the camera into files on the computer? Can they copy graphics from a range of sources and paste into a desktop publishing program?	**At Year 5:** Can they listen to streaming audio such as online radio? Can they download and listen to podcasts? Can they produce and upload a podcast? Can they manipulate sounds using Audacity? Can they select music from open sources and incorporate it into multimedia presentations? Can they work on simple film editing?	**At Year 6:** Can they explore the menu options and experiment with images (colour effects, options, snap to grid, grid settings etc.)? Can they add special effects to alter the appearance of a graphic? Can they 'save as' gif or i peg. wherever possible to make the file size smaller (for emailing or downloading)? Can they make an information poster using their graphics skills to good effect?

Communicating				
Skills	**At EYFS:** There are no early learning goals that directly relate to computing objectives, though children will be introduced to appropriate technology and use it within their provision.	**At Year 1:** Do they recognise what an email address looks like? Have they joined in sending a class email? Can they use the @ key and type an email address? Can they word process ideas using a keyboard? Can they use the spacebar, back space, enter, shift and arrow keys? Can they print out a page from the internet?	**At Year 2:** Can they send and reply to messages sent by a safe email partner (within school)? Can they word process a piece of text? Can they insert/delete a word using the mouse and arrow keys? Can they highlight text to change its format (B, U, I)?	
	At Year 3: Can they use the email address book? Can they open and send an attachment?	**At Year 4:** Do they appreciate the benefits of ICT to send messages and to communicate? Can they use the automatic spell checker to edit spellings?	**At Year 5:** Can they use instant messaging to communicate with class members? Can they conduct a video chat with someone elsewhere in the school or in another school?	**At Year 6:** Can they conduct a video chat with people in another country or organisation?

The following areas of learning are only taught in Key Stage 2

Using the Internet				
Skills	**At Year 3:** Can they find relevant information by browsing a menu? Can they search for an image, copy and paste it into a document? Can they use 'Save picture as' to save an image to the computer? Can they copy and paste text into a document? Do they begin to use note making skills to decide what text to copy?	**At Year 4:** Can they use a search engine to find a specific website? Can they use note-taking skills to decide which text to copy and paste into a document? Can they use tabbed browsing to open two or more web pages at the same time? Can they open a link to a new window? Can they open a document (PDF) and view it?	**At Year 5:** Can they use a search engine using keyword searches? Can they compare the results of different searches? Can they decide which sections are appropriate to copy and paste from at least two web pages? Can they save stored information following simple lines of enquiry? Can they download a document and save it to the computer?	**At Year 6:** Can they contribute to discussions online? Can they use a search engine using keyword searches? Can they use complex searches using such as '+' 'OR' "Find the phrase in inverted commas"?
Databases				
Skills	**At Year 3:** Can they input data into a prepared database? Can they sort and search a database to answer simple questions? Can they use a branching database?	**At Year 4:** Can they input data into a prepared database? Can they sort and search a database to answer simple questions? Do they recognise what a spread sheet is? Can they use the terms 'cells', 'rows' and 'columns'? Can they enter data, highlight it and make bar charts?	**At Year 5:** Can they create a formula in a spreadsheet and then check for accuracy and plausibility? Can they search databases for information using symbols such as = > or <? Can they create databases planning the fields, rows and columns? Can they create graphs and tables to be copied and pasted into other documents?	**At Year 6:** Can they collect live data using data logging equipment? Can they identify data error, patterns and sequences? Can they use the formulae bar to explore mathematical scenarios? Can they create their own database and present information from it?
Presentation				
Skills	**At Year 3:** Can they create a presentation that moves from slide to slide and is aimed at a specific audience? Can they combine text, images and sounds and show awareness of audience? Do they know how to manipulate text, underline text, centre text, change font and size and save text to a folder?	**At Year 4:** Can they create a lengthy presentation that moves from slide to slide and is aimed at a specific audience? Can they insert sound recordings into a multimedia presentation? Do they know how to manipulate text, underline text, centre text, change font and size and save text to a folder?	**At Year 5:** Can they use a range of presentation applications? Do they consider audience when editing a simple film? Do they know how to prepare and then present a simple film? Can they use ICT to record sounds and capture both still and video images? Can they make a home page for a website that contains links to other pages? Can they capture sounds, images and video? Can they use the word count tool to check the length of a document? Can they use bullets and numbering tools?	**At Year 6:** Can they present a film for a specific audience and then adapt same film for a different audience? Can they create a sophisticated multimedia presentation? Can they confidently choose the correct page set up option when creating a document? Can they confidently use text formatting tools, including heading and body text? Can they use the 'hanging indent' tool to help format work where appropriate (e.g. a play script)?

E-safety – Knowledge & understanding			
Skills	**Key Stage 1:** Can they understand the different methods of communication (e.g. email, online forums etc)? Do they know you should only open email from a known source? Do they know the difference between email and communication systems such as blogs and wikis? Do they know that websites sometimes include pop-ups that take them away from the main site? Do they know that bookmarking is a way to find safe sites again quickly? Can they begin to evaluate websites and know that everything on the internet is not true? Do they know that it is not always possible to copy some text and pictures from the internet? Do they know that personal information should not be shared online? Do they know they must tell a trusted adult immediately if anyone tries to meet them via the internet?	**Lower Key Stage 2:** Do they understand the need for rules to keep them safe when exchanging learning and ideas online? Can they recognise that information on the internet may not be accurate or reliable and may be used for bias, manipulation or persuasion? Do they understand that the internet contains fact, fiction and opinion and begin to distinguish between them? Can they use strategies to verify information, e.g. cross-checking? Do they understand the need for caution when using an internet search for images and what to do if they find an unsuitable image? Do they understand that copyright exists on most digital images, video and recorded music? Do they understand the need to keep personal information and passwords private? Do they understand that if they make personal information available online it may be seen and used by others? Do they know how to respond if asked for personal information or feel unsafe about content of a message? Can they recognise that cyber bullying is unacceptable and will be sanctioned in line with the school's policy? Do they know how to report an incident of cyber bullying? Do they know the difference between online communication tools used in school and those used at home? Do they understand the need to develop an alias for some public online use? Do they understand that the outcome of internet searches at home may be different than at school?	**Upper Key Stage 2:** Can they discuss the positive and negative impact of the use of ICT in their own lives and those of their peers and family? Do they understand the potential risk of providing personal information online? Do they recognise why people may publish content that is not accurate and understand the need to be critical evaluators of content? Do they understand that some websites and/or pop-ups have commercial interests that may affect the way the information is presented? Do they recognise the potential risks of using internet communication tools and understand how to minimise those risks (including scams and phishing)? Do they understand that some material on the internet is copyrighted and may not be copied or downloaded? Do they understand that some messages may be malicious and know how to deal with this? Do they understand that online environments have security settings, which can be altered, to protect the user? Do they understand the benefits of developing a 'nickname' for online use? Do they understand that some malicious adults may use various techniques to make contact and elicit personal information? Do they know that it is unsafe to arrange to meet unknown people online? Do they know how to report any suspicions? Do they understand they should not publish other people's pictures or tag them on the internet without permission? Do they know that content put online is extremely difficult to remove? Do they know what to do if they discover something malicious or inappropriate?

E-safety – Skills			
Skills	**Key Stage 1:** Can they follow the school's safer internet rules? Can they use the search engines agreed by the school? Can they act if they find something inappropriate online or something they are unsure of (including identifying people who can help; minimising screen; online reporting using school system etc)? Can they use the internet for learning and communicating with others, making choices when navigating through sites? Can they send and receive email as a class? Can they recognise advertising on websites and learn to ignore it? Can they use a password to access the secure network?	**Lower Key Stage 2:** Do they follow the school's safer internet rules? Do they recognise the difference between the work of others which has been copied (plagiarism) and re-structuring and re-presenting materials in ways which are unique and new? Can they begin to identify when emails should not be opened and when an attachment may not be safe? Can they explain how to use email safely? Can they use different search engines?	**Upper Key Stage 2:** Do they follow the school's safer internet rules? Can they make safe choices about use of technology? Do they use technology in ways which minimises risk, e.g. responsible use of online discussions, etc? Can they create strong passwords and manage them so that they remain strong? Can they independently, and with regard for e-safety, select and use appropriate communication tools to solve problems by collaborating and communicating with others within and beyond school? Can they competently use the internet as a search tool? Can they reference information sources? Can they use appropriate strategies for finding, critically evaluating, validating and verifying information, e.g. using different keywords, skim reading to check relevance of information, cross checking with different websites or other non ICT resources? Can they use knowledge of the meaning of different domain names and common website extensions (e.g. .co.uk; .com; .ac; .sch; .org; .gov; .net) to support validation of information?

Overarching Computing Vocabulary

Vocabulary

At EYFS:

Choices
Internet
Website
Equipment
Buttons
Movement
Screen
Mouse
Images
Keyboard
Paint
Technology
Share
Create
Internet
Collect
Set of photos
Count
Organise

At Key Stage One:

Rules
Online
Private information
Email
Appropriate/inappropriate sites
Cyber-bullying
Digital footprint
Keyword searching
Instructions
Buttons
Robots
Patterns
Program
Forward
Backward
Right-angle turn
Algorithm
Sequence
Debug
Predict
Videos
Camera stills
Sounds
Image bank
Word bank
Space bar
Paint effects
Templates
Animation
Documents
Index finger typing
Enter/return
Caps lock
Backspace
Purpose
Online tools
Communicate
Information sources
Communication
Purposes
Website content
Photographs
Video
Sound
Data
Pictogram
Digitally
Capturing moments
Magnified images
Questions
Data collection
Graphs
Charts
Save
Retrieve

At Lower Key Stage Two:

E-safety rules
Secure passwords
Report abuse button
Gaming
Blogs
Sequence instructions
Sequence debugging
Test + improve
Logo commands
Sequence programming
Type + edit logo commands
Sensors
Open-ended problems
Bugs in programs
Complex programming
Multimedia
Presentations
Alignment
Brush size
Repeats
Reflections
Green screening
Amend
Copy
Paste
Creating + modifying
Specific purpose
Photo modifying
Keyboard shortcuts
Bullet points
Spell check
Constructive feedback
School network
Devices
Computer parts
Collaborate
Appropriate online communication
Search tools
Appropriate websites
Owner
Different networks
Information collection
Reliability
Owners
Questioning
Database
Construct
Contribute
Recording data
Data logger
Present data
Database creation
Database searches
Inaccurate data

At Upper Key Stage Two:

Responsible online communication
Informed choices
Virus threats
Blogs
Messaging
Explore procedures
Refine procedures
Variable
Hardware + software control
Change inputs
Different outputs
Articulate solutions
Commands
Predicting outputs
Plan, program, test & review a program
Program writing
Control mimics + devices
Sensors
Measure input
Create variables
Link errors
Online sharing
Multimedia effects
Multimedia modification
Transitions
Hyperlinks
Editing tools
Refining
Online sharing
Appropriate online tools
Audience
Atmosphere
Structure
Copyright
Information collection
HTML code
Storing
Computing devices
Internet parts
Collaboration
Responsibility
Searching strategies
Webpages
Information movement
Connecting devices
Different audiences
Research strategies
Search result rankings
Acknowledge resources
Spreadsheets
Complex searches (and/or: </>)
Problem solving
Present answers
Analyse information
Question data
Interpret
Generate
Process
Interpret
Store
Present information
Plausibility
Appropriate data tool
Interrogate
Investigations

Computing - Sticky Knowledge Key Stage 1						
	Algorithms	**Create programs**	**Reasoning**	**Using technology**	**Uses of IT beyond school**	**Safe use**
Year 1	• create a series of instructions and plan a journey for a programmable toy	• create, store and retrieve digital content		• use a website and a camera • record sound and play back	• talk about some of the IT uses in their own home	• use technology safely • keep personal information private
Year 2	• understand that algorithms are used on digital devices	• write a simple program and test it	• predict what the outcome of a simple program will be (logical reasoning).	• understand that programs require precise instructions • organise, retrieve and manipulate digital content	• know how technology is used in school and outside of school	• know where to go for help if concerned.

Computing - Sticky Knowledge Key Stage 2							
	Create programs	**Develop programs**	**Reasoning**	**Networks**	**Search engines**	**Using programs**	**Safe use**
Year 3	• write programs that accomplish specific goals	• design a sequence of instructions, including directional instructions	• discern when it is best to use technology and where it adds little or no value	• navigate the web to complete simple searches	• use a range of software for similar purposes • collect and present information	• understand what computer networks do and how they provide multiple services	• use technology respectfully and responsibly • Know different ways they can get help if concerned
Year 4	• give an 'on-screen' robot specific instructions that takes them from A to B	• experiment with variables to control models •	• make an accurate prediction and explain why they believe something will happen (linked to programming)	• know how to search for specific information and know which information is useful and which is not	• select and use software to accomplish given goals	• produce and upload a podcast	• recognise acceptable and unacceptable behaviour using technology
Year 5	• use technology to control an external device	• develop a program that has specific variables identified •	• analyse and evaluate information reaching a conclusion that helps with future developments		• understand how search results are selected and ranked	• combine sequences of instructions and procedures to turn devices on and off	• understand that they have to make choices when using technology and that not everything is true and/or safe
Year 6	• write a program that combines more than one attribute	• develop a sequenced program that has repetition and variables identified •	• design algorithms that use repetition and 2-way selection		• be aware that some search engines may provide misleading information	• present the data collected in a way that makes it easy for others to understand	• Be increasingly aware of the potential dangers in using aspects of IT and know when to alert someone if feeling uncomfortable