

Year	Algorithms and Programs	Data Retrieving and Organising	Communicating	Online-safety
1	<ul style="list-style-type: none"> <li>• Can they create a simple series of instructions -left and right?</li> <li>• Can they record their routes?</li> <li>• Do they understand forwards, backwards, up and down?</li> <li>• Can they put two instructions together to control a programmable toy?</li> <li>• Can they begin to plan and test a Bee-bot journey?</li> </ul> <p>Can they debug a faulty Bee-bot journey?</p>	<ul style="list-style-type: none"> <li>• Can they capture images with a camera?</li> <li>• Can they print out a photograph from a camera with help?</li> <li>• Can they record a sound and play it back?</li> <li>• Can they enter information into a template to make a graph?</li> <li>• Can they talk about the results shown on a graph?</li> </ul> <p>Can they use the internet safely to find images?</p>	<ul style="list-style-type: none"> <li>• Can they word process ideas using a keyboard?</li> <li>• Can they use the spacebar, back space, enter, shift and arrow keys?</li> <li>• Can they print out a page from the internet?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they follow the school's safer internet rules?</li> <li>• Can they use the search engines agreed by the school?</li> <li>• 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)?</li> </ul> <p>Do they know to keep personal information secret?</p>
<b>Year 1 Challenges</b>				
	<ol style="list-style-type: none"> <li>1. Using programmable toys</li> <li>2. Film the steps of a recipe</li> <li>3. Illustrate an eBook</li> <li>4. Find images using the web</li> <li>5. Produce a talking book</li> <li>6. Create a digital card</li> </ol>			

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2	<ul style="list-style-type: none"> <li>• Can they predict the outcomes of a set of instructions?</li> <li>• Can they use right angle turns?</li> <li>• Can they use the repeat commands?</li> <li>• Can they test and amend a set of instructions?</li> <li>• Can they write a simple program and test it?</li> <li>• Can they predict what the outcome of a simple program will be?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they find information on a website?</li> <li>• Can they click links in a website?</li> <li>• Can they print a web page to use as a resource?</li> <li>• Can they experiment with text, pictures and animation to make a simple slide show?</li> <li>• Can they use the shape tools to draw?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they word process a piece of text?</li> <li>• Can they insert/delete a word using the mouse and arrow keys?</li> <li>• Can they highlight text to change its format (B, U, I)?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use the internet for learning and communicating with others, making choices when navigating through sites?</li> <li>• Can they send and receive email as a class?</li> <li>• Can they recognise advertising on websites and learn to ignore it?</li> <li>• Can they use a password to access the secure network?</li> </ul>
<b>Year 2 Challenges</b>				
	<ol style="list-style-type: none"> <li>1. Programming on screen</li> <li>2. Explore how computer games work</li> <li>3. Take better photos</li> <li>4. Research a topic</li> <li>5. Collect clues</li> <li>6. Collect data about bugs</li> </ol>			

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3	<ul style="list-style-type: none"> <li>• Can they experiment with variables to control models?</li> <li>• Can they write more complex programs?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they review images on a camera and delete unwanted images?</li> <li>• Have they experienced downloading images from a camera into files on the computer?</li> <li>• Can they use photo editing software to crop photos and add effects?</li> <li>• Can they manipulate sound when using simple recording story boarding?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they communicate safely on the internet?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they find relevant information by browsing a menu.</li> <li>• Can they search for an image, then copy and paste it into a document?</li> <li>• Can they use 'Save picture as' to save an image to the computer?</li> <li>• Can they copy and paste text into a document?</li> <li>• Do they begin to use note making skills to decide what text to copy?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they input data into a prepared database?</li> <li>• Can they sort and search a database to answer simple questions?</li> <li>• Can they use a branching database?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they create a presentation that moves from slide to slide and is aimed at a specific audience?</li> <li>• Can they combine text, images and sounds and show awareness of audience?</li> <li>• Do they know how to manipulate text, underline text, centre text, change font and size and save text to a folder?</li> </ul>	<ul style="list-style-type: none"> <li>• Do they follow the school's safer internet rules?</li> <li>• 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?</li> </ul>

### Year 3 Challenges

1. Programming an animation
2. Finding and correcting bugs in programs
3. Videoing performance
4. Communicate safely on the internet
5. Collect and analyse data

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4	<ul style="list-style-type: none"> <li>• Can they use repeat instructions to draw regular shapes on screen, using commands?</li> <li>• Can they experiment with variables to control models?</li> <li>• Can they give an on-screen robot specific directional instructions that takes them from x to y?</li> <li>• Can they make accurate predictions about the outcome of a program they have written?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they capture images using webcams, screen capture, scanning, visualiser and internet?</li> <li>• Can they choose images and download into a file?</li> <li>• Can they download images from the camera into files on the computer?</li> <li>• Can they copy graphics from a range of sources and paste into a desktop publishing program?</li> </ul>	<ul style="list-style-type: none"> <li>• Do they appreciate the benefits of ICT to send messages and to communicate?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use a search engine to find a specific website?</li> <li>• Can they use note-taking skills to decide which text to copy and paste into a document?</li> <li>• Can they use tabbed browsing to open two or more web pages at the same time?</li> <li>• Can they open a link to a new window?</li> <li>• Can they open a document (PDF) and view it?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they input data into a prepared database?</li> <li>• Can they sort and search a database to answer simple questions?</li> <li>• Do they recognise what a spread sheet is?</li> <li>• Can they use the terms 'cells', 'rows' and 'columns'?</li> <li>• Can they enter data, highlight it and make bar charts?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they create a lengthy presentation that moves from slide to slide and is aimed at a specific audience?</li> <li>• Can they insert sound recordings into a multimedia presentation?</li> <li>• Do they know how to manipulate text, underline text, centre text, change font and size and save text to a folder?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they begin to identify when emails should not be opened and when an attachment may not be safe?</li> <li>• Can they explain how to use email safely?</li> <li>• Can they use different search engines?</li> </ul>
<b>Year 4 Challenges</b>							
	<ol style="list-style-type: none"> <li>1. Develop a simple educational game</li> <li>2. Prototype an interactive toy</li> <li>3. Producing digital music</li> <li>4. Edit and write HTML</li> <li>5. Produce a Wiki</li> <li>6. Present the weather</li> </ol>						

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5	<ul style="list-style-type: none"> <li>• Do they understand input and output?</li> <li>• Can they explore 'What is' questions by playing adventure or quest games?</li> <li>• Can they write programs that have sequences and repetitions?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they listen to streaming audio such as online radio?</li> <li>• Can they download and listen to podcasts?</li> <li>• Can they produce and upload a podcast?</li> <li>• Can they manipulate sounds using Audacity?</li> <li>• Can they select music from open sources and incorporate it into multimedia presentations?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they conduct a video chat with someone elsewhere in the school or in another school?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use a search engine using keyword searches?</li> <li>• Can they compare the results of different searches?</li> <li>• Can they decide which sections are appropriate to copy and paste from at least two web pages?</li> <li>• Can they save stored information following simple lines of enquiry?</li> <li>• Can they download a document and save it to the computer?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they search databases for information using symbols such as = &gt; or &lt;?</li> <li>• Can they create databases planning the fields, rows and columns?</li> <li>• Can they create graphs and tables to be copied and pasted into other documents?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use a range of presentation applications?</li> <li>• Do they consider audience when editing a simple film?</li> <li>• Do they know how to prepare and then present a simple film?</li> <li>• Can they use ICT to record sounds and capture both still and video images?</li> <li>• Can they make a home page for a website that contains links to other pages?</li> <li>• Can they capture sounds, images and video?</li> <li>• Can they use the word count tool to check the length of a document?</li> <li>• Can they use bullets and numbering tools?</li> </ul>	<ul style="list-style-type: none"> <li>• Do they follow the school's safer internet rules?</li> <li>• Can they make safe choices about use of technology?</li> <li>• Do they use technology in ways which minimises risk, e.g. responsible use of online discussions, etc?</li> <li>• Can they create strong passwords and manage them so that they remain strong?</li> <li>• 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?</li> </ul>

### Year 5 Challenges

1. Develop an interactive game
2. Crack codes
3. Fuse geometry and art
4. Create a website about cyber safety
5. Share experiences and opinions

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6	<ul style="list-style-type: none"> <li>• Can they explain how an algorithm works?</li> <li>• Can they detect errors in a program and correct them?</li> <li>• Can they use an ICT program to control a number of events for an external device?</li> <li>• Can they use ICT to measure sound, light or temperature using sensors and interpret the data?</li> <li>• Can they explore 'what if' questions by planning different scenarios for controlled devices?</li> <li>• Can they use input from sensors to trigger events?</li> <li>• Can they check and refine a series of instructions?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they explore the menu options and experiment with images (colour effects, options, snap to grid, grid settings etc.)?</li> <li>• Can they add special effects to alter the appearance of a graphic?</li> <li>• Can they 'save as' gif or jpeg, wherever possible to make the file size smaller (for emailing or downloading)?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they create a television advert to persuade?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they use a search engine using keyword searches?</li> <li>• Can they use complex searches using such as '+' 'OR' "Find the phrase in inverted commas"?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they identify data error, patterns and sequences?</li> <li>• Can they use the formulae bar to explore mathematical scenarios?</li> <li>• Can they create their own database and present information from it?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they present a film for a specific audience and then adapt same film for a different audience?</li> <li>• Can they create a sophisticated multimedia presentation?</li> <li>• Can they confidently choose the correct page set up option when creating a document?</li> <li>• Can they confidently use text formatting tools, including heading and body text?</li> <li>• Can they use the 'hanging indent' tool to help format work where appropriate (e.g. a play script)?</li> </ul>	<ul style="list-style-type: none"> <li>• Can they competently use the internet as a search tool?</li> <li>• Can they reference information sources?</li> <li>• 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?</li> <li>• 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?</li> </ul>

**Year 6 Challenges**

1. Create a text-based adventure game
2. Master algorithms for searching, sorting and maths
3. Create a short television advert
4. Explore computer networks including the internet
5. Create a yearbook or magazine