

# WBIS Computing Knowledge and Skills Progression

## Progression of Knowledge

	Year R	Year 1	Year 2
Online Safety	<p>Ensure a trusted adult is with me when I am using a device</p> <p>Be careful with technology devices</p> <p>Use apps, games and that trusted adults show me</p> <p>TABS rules for keeping safe</p>	<p>Tell a trusted adult about ANY problems, worries or messages online and ask for their help with online activities</p> <p>Importance of being kind online</p> <p>Understanding of what personal information is and how to keep it private</p>	<p>Understand that people you meet online might not be who they say they are</p> <p>Know that not all information online is true</p> <p>Know to take a break when using a device for a long time</p>
<p>Creative Computing</p> <p>Creating Pictures</p>	<p>Computer programmes to create a picture</p> <p>You can use a variety of different colours</p>	<p>Digital tools can be used for a purpose to create and make content</p> <p>The size of an onscreen painting tool brush stroke can be manipulated</p> <p>Introduce a range of freehand, line and shape tools for digital painting</p> <p>Compare creating pictures digitally and on paper</p>	<p>Painting effects can be combined to make pictures</p> <p>Colours can be manipulated digitally</p> <p>Outline features, (templates) can help compose a digital image</p> <p>You can share work for others to see and use on a digital display board</p>
Data and Spread sheets	<p>Some items can be sorted into groups due to a simple criteria, such as colour or shape</p>	<p>Items can be grouped by criteria</p> <p>Sorting is a way to organise items</p> <p>Sorting and grouping have different meanings</p> <p>Data is information that can be collected and used</p> <p>Data can be represented digitally using pictures</p> <p>Understand what data needs to be collected</p>	<p>A spreadsheet is a program that organises data in rows and columns</p> <p>Each box in a spreadsheet is called a cell, and every cell has a unique name</p> <p>Rows run horizontally and columns runs vertically</p> <p>Spreadsheets should give clear information</p> <p>Block diagrams are a way of presenting data to make it easier to understand</p>

			<p>Two sets of data are needed to create a block diagram- one for the category and one for the amount</p> <p>Data is information that can be collected, recorded and presented in different ways</p>
<p>Creating and following Instructions</p> <p>Route Explorers</p>	<p>Some toys can be programmed to make them move</p>	<p>Instructions need to be followed accurately</p> <p>Algorithms are a set of instructions needed for computer programs</p> <p>Instructions need to be input/followed in a specific order</p> <p>Correcting errors in an algorithm is called debugging</p> <p>To input a direction and distance is known as a command</p> <p>To plan a route is to input a set of commands</p>	<p>Commands control movements of a digital image on a screen</p> <p>Routes can be programmed to perform more than one command in a sequence</p> <p>A list of instructions for a route is the algorithm</p> <p>Errors (bugs) occur because commands may have been input incorrectly</p> <p>Fixing bugs is called debugging</p>
<p>Animated Stories</p> <p>Making Music</p>		<p>There are differences and similarities between traditional and digital books</p> <p>Images can be created within digital book software</p> <p>Digital books can have animations</p> <p>Copying and pasting is a term used in computing when things are copied from one place to another</p> <p>Audio – sound effects, voice recordings and music can be included within digital books</p> <p>Backgrounds are static images in contrast to animated foreground</p> <p>The style of digital text is called the font</p>	<p>Live, instrumental music is created by real instruments and digital music is created by using a computer</p> <p>Music can be made digitally using programs</p> <p>Sounds can be incorporated into music programs to make a tune</p> <p>The volume of instruments/sounds on a track can be changed when using music programs</p> <p>Looping a track means that it continues to play on repeat</p>
<p>Technology around us</p>	<p>Recognise that a range of technology is used in places such as homes and schools</p>	<p>Technology is used within many environments</p>	<p>The internet is a global network of connected computers around the world</p>

<p>The internet</p>	<p>Explore toys that have inputs and outputs and develop skills in operating technological toys</p> <p>Know that information can be retrieved from computers</p> <p>Know what different parts of a computer are called</p>	<p>Identify different uses of technology and how it helps us in everyday life</p> <p>Know the parts of a computer</p> <p>Not all technology is digital technology</p> <p>It is important to use technology safely and there are some risks with the use of technology</p>	<p>An internet connection allows people to communicate with others over the internet</p> <p>A browser is used to access websites and webpages on the World Wide Web</p> <p>The World Wide Web refers to documents and pages someone sees when using a browser</p> <p>Smart devices are those that can connect to the internet</p> <p>The front page of a website is known as the homepage</p> <p>Websites can be found using a browser that contains a search engine</p>
<p>Coding</p>	<p>Understand simple, sequenced processes in a range of contexts</p> <p>Group and sort objects</p> <p>Recognise and create patterns</p> <p>Follow simple instructions for various outcomes (programmable toys, construction activities, model projects)</p>	<p>Computer programs work by following instructions called algorithms</p> <p>Use programming blocks to create and modify a simple program (2Code)</p> <p>Each step of the instruction is called a command</p> <p>To make an algorithm happen, you must execute or run the code</p>	<p>Steps in an algorithm must be followed to achieve the intended outcome.</p> <p>Understand algorithms as a set of precise instructions using sequence and repetition in physical contexts (create a crazy character, control a robot teacher and program floor robot)</p> <p>Use of logical reasoning to predict outcomes</p> <p>Debugging is the process of testing that a program works as intended, looking for any bugs and fixing the problems when found</p>

## Progression of Skills

	Reception	Year 1	Year 2
<p>Creative Computing</p> <p>Creating Pictures</p>	<p>Navigate programmes to explore creative tools (Mini Mash)</p>	<p>Select colours and effects in 2Paint (Purple Mash)</p> <p>Control a pad and click to select</p> <p>Use drag and drop</p> <p>'Save' and 'Hand In' 2Do's (Purple Mash)</p>	<p>Explore a range of painting effects and modify creations through observation and editing</p> <p>Use the brush tool slider to change the size of brush strokes</p> <p>Use the dilute tool to manipulate the intensity of a selected colour</p>

			Use outline features- e.g. selecting, resizing, editing outlines to enhance their digital art
Data and spread sheets	Collect data practically for example- fruit sorting, votes	Sort items into groups and use a set of criteria to support process  Use data grouping and sorting to answer questions  Create a pictogram using data collected  Answer questions about a pictogram and interpret results	Identify a cell by its name  Enter data into a cell and move between cells with ease  Explain the difference between a row and a column  Insert images and assign them numerical values  Apply calculation tools to carry out various operations in a spreadsheet  Collect simple data by asking questions  Use tally charts to organise collected data  Create block diagrams to present data visually  Create pictograms and bar charts using recorded data
Creating and following instructions  Route Explorers	Explore following oral instructions to support direction and distance  Explore the use of programmable toys – Beebot and Botley	Give clear, precise and concise instructions for someone to follow  Use a computing device to follow simple instructions – programmable toy  Input purposeful commands to move a digital image in a specific direction  Identify when a sequence of instructions is incorrect and why  Find errors in a simple algorithm  Can explain what is wrong with their own algorithm	Input several commands into a sequential algorithm  Reset a programmable toy and re-enter a code  Plan a route by writing the algorithm and then inputting the commands  Reset, debug and re-run a code to test routes
Animated Stories (Year 1)  Creating Music (Year 2)	I can listen to a digital story  Record music using a digital device	Identify differences and similarities between traditional books and digital books  Use painting tools to create a story  Apply animations effects to images in a story	Identify if sounds are made by real instruments or made by a computer.  Listen to a premade composition by pressing the play button.

(2sequence)		<p>Choose effects that make characters appear to interact</p> <p>Insert sound effects and music into a story book</p> <p>Add backgrounds to a story pages</p>	<p>Drag sounds and instruments into the playable area</p> <p>Play and experiment with the organisation of sounds on each track</p> <p>Adjust the volume on individual rows of music (tracks)</p> <p>Use a looping feature – comment on any changes</p> <p>Test a recording back by pressing play</p>
<p>Technology Around us</p> <p>The Internet</p>		<p>Describe the purpose of common types of technology</p> <p>Identify technology in school, at home and in the wider world</p> <p>Identify examples of smart devices</p>	<p>Explain the difference between the Internet and the World Wide Web</p> <p>Explain that Wi-Fi describes a wireless internet connection</p> <p>Recognise a web browser</p> <p>Find information on a school’s website by viewing different webpages</p> <p>Use keywords to search for information using a search engine</p>
Coding		<p>Create instructions in the form of simple algorithms with 2Code</p> <p>Drag code blocks into the coding area to create commands</p> <p>Understand how code blocks fit together to create a command</p> <p>Make a simple command in 2Code by using an object and action together</p> <p>Execute the code to see the effect by clicking Run</p> <p>Begin to use logical reasoning to find where bugs in the code are</p>	<p>Follow a written algorithm</p> <p>Identify required events, objects and actions from a program algorithm</p> <p>Assign two objects within the collision detection command</p> <p>Assign an event for when the two objects collide</p> <p>Use specific event commands for specific objects, such as a click event for a button object</p> <p>Use logical reasoning to identify the source of bugs and attempt to fix them</p> <p>Test and debug code in a systematic way</p>