



Becoming a Computer Expert at Bonnygate Primary School Progression Map



Becoming a Computer Expert at Bonnygate Primary School	
<u>A Nursery Bonnygate Computer Expert will:</u>	<u>A Reception Bonnygate Computer Expert will:</u>
<ul style="list-style-type: none">• Seeks to acquire basic skills in turning on and operating some digital equipment.• Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car.• Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support.• Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets.• Knows that information can be retrieved from digital devices and the internet.	<ul style="list-style-type: none">• Completes a simple program on electronic devices.• Uses ICT hardware to interact with age appropriate computer software.• Can create content such as a video recording, stories, and/or draw a picture on screen.• Develops digital literacy skills by being able to access, understand and interact with a range of technologies.• Learn to use a trap pad and keyboard when exploring the Chromebooks.• Learn to log in to the Chromebooks using emoji passwords.



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A Year 1 Bonnygate Computer Expert will:

A Year 2 Bonnygate Computer Expert will:

Computer Systems and Networks

- Identify technology.
- Recognise the uses and features of information technology.
- Use a mouse in different ways.
- Use a keyboard to type.
- Use the keyboard to edit text.
- Identify information technology in the home and beyond school.
- Recognise choices are made when using technology.
- Explain how information technology benefits us.
- Show how to use technology safely.
- Create rules for using technology responsibly.
- Recognise how digital devices can change the way we work.

- Identify examples of computers.
- Describe some uses of computers.
- Identify that a computer is a part of information technology.
- Identify information technology in the home by explaining the purpose of information technology in the home; opening a file; moving and resizing images.
- Identify information technology beyond school by; finding examples of information technology; talking about uses of information technology; comparing types of information technology.
- Explain how information technology benefits us by; demonstrating how information technology is used in a shop; recognise that information technology can be connected; explain how information technology helps people.
- Show how to use information technology safely by; listing different uses of information technology; recognise how to use information technology responsibly; explain how rules/guides can help.
- Recognise that choices are made when using information technology.
- Identify the choices that I make when using information technology.
- Explain simple guidance for using information technology in different environments and settings.
- Enjoy a variety of activities.

Creating Media Y1 – digital painting Y2 – digital photography

- Use a computer to paint a picture.
- Recognize that tools can be changed to produce different outcomes.
- Choose options to achieve a desired effect.
- Consider impact choices made.
- Digitally make marks on a computer screen.
- Be able to use basic tools to create an image such as; brush tools; tools to draw shapes; tools to draw lines; undo button to correct a mistake; change a brush colour and size; use the fill tools to change colours; change fill colours in a shape; change line size and colour.

- Use a digital device to capture a photograph.
- Recognise that some digital devices can capture images using a camera.
- Recognise that a photograph is composed by the photographer.
- Recognise that photographs can be improved through processing.
- Consider the results of choices made.
- Take a digital photograph.
- Capture a digital image by; knowing how to hold a device safely and responsibly; choose landscape or portrait; know what to press or tap to take a picture; know how to focus; zoom in and out.
- Improve the quality of the photos taken by; identifying the features of a good photograph; reviews photographs taken; make choices when selecting images; delete poor-quality images.
- Apply processing to improve images by cropping a photo; editing a photo; recolour a photo.
- Identify that some images are not real/fake (EFACW).

Store/retrieve KS1

- Recognise that information on a computer can be stored.
- Explain that information (work) on a computer can be saved, retrieved, edited and re-saved.

Share (KS1)

- Recognise that work can be shared between devices and printed.
- Recognise that people can view my screen to see my work.

<p><u>Creating Media</u> Y1 – digital writing Y2 – digital music</p>	<ul style="list-style-type: none"> • Use a computer to write. • Recognise that text can be changed. • Recognise that tools can be changed to produce different outcomes. • Choose options to achieve s desired effect. • Consider the impact of choices made. • Enter text into a computer. • Identify and locate keys on the keyboard such as; backspace to amend typing errors; more the cursor around text; use letter, number & space key; use shift key to type capital letters; use punctuation & special characters; use delete and undo to edit text; select text; manipulate text on a computer; change text position; use bold, italic and underline; change fonts and text colour. 	<ul style="list-style-type: none"> • Use a computer to create a piece of music. • Listen to music and be able to; say how music can make you think and feel; describe how music an be used in different ways; identify that there are patterns in music. • Recognise that music is made by humans. • Create a music for a purpose. • Consider how different sequences create different effects. • Review and refine computer work.
<p><u>Data & Information</u></p>	<ul style="list-style-type: none"> • Identify some attributes of an object and that objects can be counted. • Collect simple data. • Add data to a table or simple graph using a given format. • Show that collected data can be counted. • Describe the properties of an object. • Choose an attribute to group objects by; answer questions; grouped by similarities. • Recognise that information can be presented in different ways. • Describe a group of objects based on commonality. 	<ul style="list-style-type: none"> • Use a tally chart to collect data. • Use a computer to record counting. • Enter data onto a computer. • Use a computer to view data in different formats. • Use pictograms to answer single-attribute questions. • Recognise that people ca be described as attributes. • Compare objects that have been grouped by attributes. • Suggest appropriate headings for tally charts and pictograms. • Use a computer to answer comparison questions in graphs and tables. • Use a computer program to present information in different ways. • Explain that we can present information using a computer. • Construct and complete a given comparison questions e.g. are there more balls than Balls? • Give simple examples of why information should not be shared.
<p><u>Programming</u></p>	<ul style="list-style-type: none"> • Enact a given word and recall words that can enacted. • Predict the outcome of a command on a device. • List which commands can be used on a given device. • Explain what a given command does. • Match a command to an outcome. • Recognise how to run a command by pressing a button. • Choose a command for a given purpose. • Understand that a program is a set of commands a computer can run. • Choose a series of words that can be enacted as a program. • Choose a series of commands that can be run as a program. • Recall that a series of instructions can be issued before they are enacted. • Build a sequence of commands in steps. • Combine commands in a program. • Run a program on a device. 	<ul style="list-style-type: none"> • Describe that a series of instructions are a sequence. • Choose a series of words that can be enacted as a sequence. • Explain what happens when we change the order of instructions. • Recall that a series of instruction can be issued before they are enacted. • Choose a series of commands that can be run as a program. • Use logical reasoning to predict the outcome of a program. • Trace a sequence to make a prediction. • Test a prediction by running the sequence. • Create and debug a program that I have written. • Runa program on a device.



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Becoming a Computer Expert at Bonnygate Primary School

A Year 3 Bonnygate Computer Expert will:

A Year 4 Bonnygate Computer Expert will:

Computer Systems and Networks

- Explain how digital devices function.
- Identify input and output devices.
- Explain how a computer network can be used to share information.
- Explore how digital devices can be connected.
- Recognise the physical components of a network.

- Describe how networks connect to other networks.
- Outline how information can be shared via the World Wide Web.
- Recognise that the World Wide Web is part of the internet.
- Explain that the global interconnection of network is the internet.
- Recognise the need for security on the internet.
- Know how to access the World Wide Web.
- Describe the types of content/media that can be added, created, and shared on the World Wide Web.
- Explain how the content of the World Wide Web is created, owned, and shared by people.
- Know that the internet enables use to view the World Wide Web.
- Explain that the World Wide Web comprises of websites and web pages.
- Describe the current limitations of World Wide Web media.
- Evaluate the reliability of content and the consequences of unreliable content.
- Explain the benefits of the World Wide Web.

Creating Media Y3 – Animation Y4 - Production

- Recognise that an animation is made up of a sequence of images.
- Recognise that an animation can be drawn images or captured photographs.
- Recognise the relationship between frames and motion.
- Understand the terms 'composition', 'stage', and 'capture area'.
- Decompose a known story (into characters, stages, key events).
- Recognise the need for consistency in working.
- Recognise that a capturing device needs to be in a fixed position.
- Know how to fix mistakes in captured images.
- Recognise the impact of adding other media.
- Use a computer to create an animation (tell a story).
- Set up a device to capture stop frame photos.
- Capture a series of images.
- Use tools (onion skinning) to review subject position.
- Move a subject between captures.
- Play a sequence of images back to review.
- Remove images to improve an animation.
- Add sounds effects; texts (scenes, credits, captions), play back and review a film and export a film.

- Recognise that sound can be digitally recorded.
- Recognise that some digital devices have microphones.
- Recognise that recorded audio is stored as a file.
- Recognise that audio can be edited and altered.
- Recognise that sound can be layered.
- Consider the results of editing choices made.
- Record sounds by; pressing/tapping buttons to start and stop recording; knowing where the microphone is on the device.
- Locate recorded audio by; playing back audio; select a selection of audio; apply effects to a selection of audio; delete a section of audio; save/export an audio file.

<p style="text-align: center;">Creating Media Y3 – Publishing Y4 – Photo Editing</p>	<ul style="list-style-type: none"> • Recognise how text and images can be used together to convey information. • Recognise that a document is structured with place holders. • Recognise that text can be edited. • Consider how different layouts can suit different purpose. • Consider the benefits of using a DTP application. • Combine text and graphics to share a message. • Choose a suitable template for a particular purpose by ; adding placeholders; moving placeholders; removing placeholders; page settings and orientation. • Add text by; using shift to add capital letters; use full stops (and other age-relevant punctuation); use return to create paragraphs; use backspace to correct typing errors. • Add images by; resizing; changing the orientation of images. • Manage content by; arranging text and images; deleting content; reviewing a document. • Manipulate text content by; font size to amplify sections of text; use font colours; change the orientation of text; wrap text. 	<ul style="list-style-type: none"> • Recognise that digital images can be manipulated. • Recognise that images can be changed for different purposes. • Use the most appropriate tool for a particular purpose. • Recognise that not all images are real. • Consider the impact of changes made on the quality of the image. • Use a computer to (further) manipulate images. • Open and retrieve an image, • Change the composition of an image by; arranging (rotate, flip); crop; cut out a part. • Apply a change globally by; adjusting colours; applying filters; adding effects. • Apply changes locally by retouching and reusing. • Make additions by drawing, adding text and adding an element e.g. a border.
<p style="text-align: center;">Data & Information</p>	<ul style="list-style-type: none"> • Investigate questions with yes/no answers. • Identify the object attributes needed to collect relevant data. • Select an attribute to separate objects into two similarly sized groups. • Explain that data can be used to answer questions. • Decide what data need to be collected to answer a specific question. • Retrieve information from different levels of the branching database. • Create questions with yes/no answers. • Relate two levels of a branching database using AND. • Compare the information shown in a pictogram with a branching database. 	<ul style="list-style-type: none"> • Suggest questions that can be answered using a given data set. • Identify the data that we need to answer questions. • Identify that sensors are input devices. • Use a digital device to collect data automatically. • Recognise that a sensor can be used as an input device for data collection. • Choose how often to automatically collect data samples. • Explain that a data logger captures ‘data points’ from sensors over time. • Use a larger data set to find information. • Use a computer program to sort data by one attribute. • Export information in different formats. • Present data in a table and in a graph.

Programming

- Explain that a program has a start.
- Explain what a sequence is.
- Identify that a program includes sequences of commands.
- Build a sequence of commands.
- Combine commands in a program.
- Recognise that sequences can have an order.
- Order commands in a program.
- Explain that the order of commands can affect the outcome (same commands, different order – same or different outcomes).
- Identify that different sequences can achieve the same outcome.
- Create a sequence of commands to produce a given outcome.

- To relate what 'repeat' means.
- Identify everyday tasks that include repetition as part of a sequence e.g. brushing teeth, dance moves.
- List an everyday task as a set of instructions including repetition.
- Explain that we can use a loop command in a program to repeat instructions.
- Identify patterns in a sequence.
- Identify a loop with a program.
- Say that repetition in programming is also called looping.
- Explain that in programming there are indefinite loops and count-controlled loops.
- Explain that an indefinite loop will run until the program is stopped.
- Explain that you can program a loop to stop after a specific number of times.
- identify patterns in a sequence e.g. 'steps 3 times' means the same as 'step, step, step.'
- Predict the outcome of a program containing on indefinite loop.
- Use a given program that includes an indefinite loop to produce a given outcome.
- Modify an indefinite loop to produce a given outcome; create an indefinite loop to produce a given outcome; modify an indefinite loop to produce a given outcome; create an indefinite loop to produce a given outcome.
- Predict the outcome of a program containing a count-controlled loop; use a count-controlled loop to produce a give outcome; modify a count-controlled loop to produce a given outcome; create a count-controlled loop to produce a given outcome.
- Justify when to use a loop and when not to.
- Plan a program that includes appropriate loops to produce a given outcome.
- Explain the importance of instructions order in a loop.
- Recognise tools that enable more than one process to be run at the same time.
- Create two or more sequences that run at the same time (concurrency).
- Recognise that not all tools enable more than one process to be run at once.



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Becoming a Computer Expert at Bonnygate Primary School

A Year 5 Bonnygate Computer Expert will:

A Year 6 Bonnygate Computer Expert will:

Computer Systems and Networks

- Recognise that computers can be part of a system in an electronic device.
- Understand that computers can be connected together to form systems.
- see that computers communicate with other devices (including other computers).
- Recognise input, process, and output in larger computer systems.
- Recognise how information is transferred across the internet.
- Recognise that data is transferred using agreed protocols (methods).
- Recognise the role of computer system in our lives.
- Explain that data is transferred in packets.
- Recognise that connections between computers allow us to access shared stored files.
- Recognise that connections between computers allow us to work together.
- Explain that the internet lets people in different places work together.
- Explain that the internet allows different media to be shared.
- Evaluate different ways of working together.
- Recognise that internet collaborations can be public or private.

- Recall how to use a search engine.
- Recognise that there are a number of search engines.
- Compare the results from different search engines.
- Demonstrate that different search terms produce different results.
- Explain that search terms need to be chosen correctly.
- Explain why search engines exist.
- Define the purpose of an index.
- Explain why search engines create indexes, and that they are different for each search engine.
- Explain how search results are selected.
- Explain the role of web crawlers.
- Explain that ranking narrows down the search results returned from the index, which makes it more useful.
- Explain that search results are ordered, and this is known as ranking.
- Explain how ranking is determined by rules, and that different search engines use different rules.
- Examine the role of the searcher, search engine, and content creator in the searching process.
- Explain why the order of results is important, and to whom.
- Evaluate the results of search terms.
- Identify some of the limitations of search engines.
- Explain how search engines make money by selling advertising spaces.
- Identify that results from search engines can include adverts, and that the adverts can be targeted.
- Recognise that some information is not searchable.
- Define communication by; identifying different ways to communicate without technology; discuss the opportunities that technology offers for communication; list methods of communicating using the internet; choose an appropriate method of internet communication for a given purpose.
- Evaluate different methods of online communication by; explaining which type of media can be shared through the internet; explain that communicating through the internet can be public or private; decide what I should/should not share; classify internet communication by messenger and recipient or audience.

<p style="text-align: center;"><u>Creating Media</u> Y5 – Vector Graphics Y6 – 3D Modelling</p>	<ul style="list-style-type: none"> • Recognise that tools can be changes to produce different outcomes. • Choose options to achieve a desired effect. • Recognise that an image comprises of separate objects. • Recognise that objects are layered. • Combine options to achieve a desired effect. • Consider the impact of choices made. • Recognise that objects can be modified in groups. • Recognise that vector images can be scaled without impact on quality. • Create graphical objects on a computer screen by; adding or removing objects; selecting a shape type to add to a drawing; select a line type to add to a drawing; add text to a drawing; drag out an object on the page; duplicate, select or delete and object. • Modify an object by; repositioning objects; rotating objects; resizing an object; altering object proportions; recolour an object; select multiple objects. • Combine objects by; grouping objects; modifying multiple objects; change the layers of an object. 	<ul style="list-style-type: none"> • Recognise that 3D objects comprise length, width and height (depth). • Recognise the differences when working in 3D compared with 2D. • Recognise that structures can be broken down into a collection of 3D objects. • Recognise the similarities and differences between real-life 3D and virtual 3D. • Recognise that blank objects must be used as placeholders to create holes. • Recognise the role of scale in design. • Create a 3D graphical objects on a computer screen by; altering the view of the 3D space; placing a 3D objects in a 3D space; selecting an object; duplicating an object; deleting an object. • Modify an object by; repositioning, rotating, resizing, recolouring an object; using an object as a placeholder. • Selection multiple objects by grouping or modifying multiple objects.
<p style="text-align: center;"><u>Creating Media</u> Y5 – Video Production Y6 - Web page creation</p>	<ul style="list-style-type: none"> • Recognise video as moving pictures combined with audio. • Review existing video content. • Identify the key concepts of composition. • Plan a video production using a storyboard. • Recognise that some digital devices can capture video using a camera and a microphone. • Recognise that video can be captured by a person operating a camera. • Identify the features of a good video and how a video can be improved. • Recognise that video can be improved through editing. • Consider the results of choices I have made. • Use a computer to make a video. • Capture a video by; locating the function on the device to record video; hold the device safely in landscape orientation; pan left/right and up and down, focus, zoom, and compose; use techniques to create specific effect (e.g. green screens); press the start/stop button to end recording. • Play back video by; locating video captured on a device; play back a video. • Edit a video by; select a selection of video; apply effect to a section of video; delete a section of video. • Save and export a video file. 	<ul style="list-style-type: none"> • Review and existing website (navigation bars, header). • Recognise the relationship between HTML and visual display. • Recognise components of a web page layout. • Consider the ownership and use of images (copyright). • Recognise the need to preview pages (different screens/devices). • Recognise the need for a navigation path. • Recognise the implications of linking to content owned by others. • Create a web page. • Add text to a web page by; changing the appearance and position of the text; add images to a web page; add other content; preview a page (different screen sizes); • Add additional pages. • Insert hyperlinks between pages. • Embed content.

<p style="text-align: center;"><u>Data & Information</u></p>	<ul style="list-style-type: none"> • Design an approach to answer a question using a database. • Navigate a flat-file database. • Explain that a computer program can be used to organise data. • Design a structure for a flat-file database. • Choose different ways to view data. • Explain that tools can be used to select data to answer questions. • Outline how ordering data allows us to answer some questions. • Outline how operands can used to filter data. • Ask questions that need more that one attribute to answer. • Choose which attribute to sort data by to answer a given question. • Choose which attributes and value to search by to answer a given question (operands). • Explain that computer programs can be used to compare data visually. • Choose multiple criteria to search data to answer a given question (AND and OR). • Select an appropriate graph to visually compare a data. • Explain that we present information to communicate a message. • Choose suitable ways to present information to other people. 	<ul style="list-style-type: none"> • Identify questions which can be answered using data. • Outline what makes good questions to answer with data. • Propose simple relevant questions which can be answered using data. • Explain that objects/artifacts can be described using data. • Explain what an item of data is. • Explain that computers deal with different data types in different ways. • Outline that there are different software tools to work with data. • Explain that formula can be used to produce calculated data. • Recognise that data can be calculated using different operations. • Recognise that changing inputs changes outputs. • Apply formulas top data, including duplicating. • Evaluate results in comparisons to the question asked. • Explain why data should be organised. • Choose suitable ways to represent data.
<p style="text-align: center;"><u>Programming</u></p>	<ul style="list-style-type: none"> • Define that conditional statements are using in computer programs. • Relate that a conditional statement connects a condition to an outcome. • Outline that a condition is something that can be either true or false. • Explain that instructions in a program will produce specific outcomes. • Relate that count-controlled loop contains a condition. • Experiment with a 'repeat until' loop. • Explain that program flow can branch according to a condition. • Use a condition in an 'if...then...' statement to produce a given outcome. • Explain the importance of instructions order in 'if...then...' statements. • Show that a condition can switch program flow in one of two ways. • Conclude that a loop can be used to repeatedly check whether a condition has been met. • Use a condition in an 'if...then....also...' statement to produce given outcomes. • Explain the importance of instructions order in 'if...then...else...' statements. • Explain that a loop can stop when a condition is met, e.g. number of times. • Explain that a loop can stop when a condition is met, e.g. event. • Explain a sequence within a count-or event- controlled loop. • Modify a count-or event- controlled loop. • Create a count-or event-controlled loop. 	<ul style="list-style-type: none"> • Define 'variable' as something that is changeable. • Identify examples of information that is variables, e.g. a football score during a match. • Explain that a variable is something that we can use in a program, e.g. 'score'. • Define a program variable as a placeholder in memory for a single value. • Explain that a variable has a name and a value. • Identify a variable in an existing program. • Recognise that the value of a variable can be used by a program. • Recognise that the value of a variable can be updated. • Define the way that a variable is changed. • Recognise that a variable can be set as a consistent (fixed value). • Experiment with the value of an existing variable. • Identify that variables can hold numbers (integers) or letters (strings). • Choose a name that identifies the role of a variable to make it more useable (to humans). • Explain the importance of setting up a variable at the start of a program (initialization). • Decide where in a program to set a variable. • Update a variable with a user input. • Use an event in a program to update a variable. • Use a variable in a conditioned statement to control the flow of a program. • Explain that there is only one value for a variable at any one time. • Explain that if you change the value of a variable, you cannot access the previous value (cannot undo). • Explain that if you read a variable, the value remains. • Use the same variable in more that one location in a program. • Explain that the name of a variable is meaningless to the computer. • Explain that the name of a variable needs to be unique.

