Pudsey Bolton Royd Primary School Computing Long-Term Plan
Year 4

	Autumn 1	Autumn 2	Spring 1
Enquiry Questions			
	How can different variables affect what is output?	How can I make still images move?	How are spreadsheets used to effectively store data?
Outcomes			
	I can use repeat instructions. I can create a visual output on a screen (a shape). I can find different variables to change the output. I can make predictions about an outcome. I can use turns involving degrees.	I can plan how a series of images from a video. I can take frames (still images). I can put these frames together to create a motion picture. I can edit as required to create a final piece of work.	I can input data into a spreadsheet I can spot mistakes in a spreadsheet I can correct mistakes in a spreadsheet I can use language specific to spreadsheets I can produce a graph from a spreadsheet
Linked Texts			
	N/A	N/A	N/A
Linked Experiences			
	N/A	N/A	N/A
Overview			
	Children begin to understand about some of the key instructions set out in the national curriculum - namely repeat instructions and how inputs, variables and outputs are effected. Children make predictions before testing their outcomes and link to maths knowledge. Children are more precise than in KS1, where turns are acceptable, and use degrees for more measured movements. Purple Mash 4.1 can be used - covers all except degrees which must be planned for separately.	Children develop on their introduction to animation from the previous year. Media is developing from still images to showing how multiple still images together can create movement. Children can edit as required to create a final piece of work as they are reminded that what they produce must be presentable. Purple Mash 4.6 - Year 3 will be used, but can be a valuable recap. Year 4 mainly goes off their own ideas they have developed an understanding of animation already.	Children will learn how to input data into a spreadsheet and manipulate that data to be used for a purpose - such as budgeting or creating a graph to better visualise the data. Children will be able to spot mistakes in their data input and correct them. Children will discuss their spreadsheet using the language specific to spreadsheets, such as Cells, columns and rows.
Knowledge and/or Skills Covered			
	Use selection (if... then) and repetition (repeat... until) commands. Start to design programs for a specific goal. Identify and fix bugs in their own programming, e.g. for a goal that's specified to them.	Select between software and explain their reasoning why one is more appropriate than others. Deliver a short presentation with digital content to a wider audience of more than one child and/or adult.	Use more than one finger to type letters, and both thumbs for the spacebar. Use a mouse to manipulate items on a screen with growing confidence and independence.
National Curriculum Attainment Targets			
	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.	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.	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

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Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.		
Important Vocabulary		
Repetition, selection, simulation, pattern, logical, reasoning, structure, cause, characteristic, phase, transition, angle.	Sensor, physical, system, browser, gigabyte* (including knowledge of common file sizes e.g. photo, document), back up, Jpeg, pixel, resolution, quality, pdf, USB, video call.	cell column row graph data

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Spring 2	*Summer 1*	*Summer 2*
Enquiry Questions		
How can I research safely and effectively?	How can I interrogate data effectively?	
Outcomes		
I can research safely I can research effectively I can collaborate and present work as part of a team	I can understand the link between spreadsheets and databases I can create simple databases I can sort/filter - not limited to a database I can answer simple questions from a database	I can design an environment I can code a character to complete directed actions I can understand cause and effect (of inputs and outputs)
Linked Texts		
N/A	N/A	N/A
Linked Experiences		
N/A	N/A	N/A
Overview		
Children will spend significant time focusing on research. They will need to look at safer searching, reliability of sites, how to take information from sites, how to quote their source and they will then put this together in a presentation which utilises and consolidates their presentation skills previously developed. They will also integrate their own images, another skill previously developed. Uploading, saving and locating images should be a skill they can independently achieve at this point. Children should screenshot some research and show an understanding of inserting that proof into their work. A key focus at the end will be an actual delivery of a short presentation, to be done as a group to build the skill of collaboration which is important in computing. Children can have Google Classroom assignments open in small groups to converse adn collaborate effectively to see how this works virtually as well as in real life.	Children should develop their skills on utilising data from the spreadsheets unit and begin to look at databases. Children need to be able to use databases to sort and filter information. They may go back to their spreadsheet work and apply sorting to this, but should look at a database thereafter - though there is no year 4 Purple Mash unit, the 2investigate tool itself is useful to input data into and interrogate it.Children should ultimately be able to answer a simple question through interrogating a database, ready for a more detailed developed in later years. Note this is an introduction to the skill.	Children in Year 4 will take the opportunity to use the KODU programme to create a game world. This will allow them to see the application of their coding in the past few years and open them to another coding environment. Children can follow the tutorial to design the old world and then programme the character to carry out certain actions. There should be a strong link to cause and effect here. Children have the possibility to further the unit by creating their own world and designing a level which obeys a pre-set criteria as they develop the ability to code for a purpose. 2DIY3D is available as an alternative.
Knowledge and/or Skills Covered		
Understand and use a range of online safety procedures, e.g. saving a screengrab so it can be retrieved. Select and sort by relevance, start to analyse reliability and explain their reasons. Use a search engine and make decisions about which site to visit. Search and find files on a computer Take a screenshot and insert it into another program.	Start to design programs for a specific goal, e.g. planning animation before filming Select between software and explain their reasoning why one is more appropriate than others. Select and sort by relevance, start to analyse reliability and explain their reasons.	Start to design programs for a specific goal. Identify and fix bugs in their own programming, e.g. for a goal that's specified to them.
National Curriculum Attainment Targets		

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use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content 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	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.

Important Vocabulary		
inappropriate contribution manipulate reliability consequence	interrogate data share publish rank sort database	sensor physical system repetition selection simulation pattern logical reasoning structure cause characteristic phase transition angle control pane animation pane pop up publish share