

EAST BOLDON INFANT SCHOOL

COMPUTING CURRICULUM

Breakdown of weekly challenge questions YEARS 1 AND 2

COMPUTING	Autumn one	Autumn two	Spring one	Spring two	Summer one	Summer two
Year 1	What technology is around us?	Can you paint using a computer?	Can you program a robot?	How can you use technology to group data?	How can you use a computer to create and format text?	Can you create an animation?
COMPUTING	Autumn one	Autumn two	Spring one	Spring two	Summer one	Summer two
Year 2	Does technology improve our world?	Can you take a picture?	Can you create a robot algorithm?	How can you organise data?	Can you create music using technology?	How can you make a computer game?
E-SAFETY	Autumn one	Autumn two	Spring one	Spring two	Summer one	Summer two
	E-safety Self-image and identity	E-safety Online relationships and reputations	E-safety Online bullying	E-safety Managing information online	E-safety Health, well-being and lifestyle	E-safety Privacy, security, copyright and ownership

			YEAR 1 CO	OMPUTING			
		Wh	<u>nat technolog</u>	<u>y is around u</u>	<u>s?</u>		-
Autumn 1 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to recall/achieve?)
 * Recognise common uses of information technology beyond school. * Use technology purposefully to create, organise, store, manipulate, and retrieve digital content. * Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. 	Technology in our classroom. Become familiar with the term 'technology'. Classify what is and what is not technology. Demonstrate understanding of how technology helps us in different ways.	Using computer technology. Know the main parts of a desktop or laptop computer. Practise turning on and logging in to a computer. Apply their knowledge of the different parts of a computer, to complete a mouse-based task.	Developing mouse skills. Build on the mouse skills. Review images of a computer to explain what each part does. Develop an understanding that different computers use different mice, but they perform the same function. Use the mouse to open a program and create a simple picture.	Using a computer keyboard. Begin to use the computer keyboard for a purpose. Understand that writing on a keyboard is called typing and begin to type their name. Save their work using the save icon and understand that this icon is used in lots of different programs.	Developing keyboard skills. Opening a file they have previously created. Demonstrate their ability to use a keyboard to edit text, by writing a sentence and then deleting letters. Use the keyboard arrow keys to move the text cursor in their textbox.	Using a computer responsibly. Be introduced to the concept of using computers safely, within the context of a school setting. Explore why we have rules in school and how those rules help us, and then apply this understanding to rules needed for using computer technology safely.	*Explain that technology is something that helps us *Name the main parts of a computer *Switch on and log into a computer *Use a mouse to click and drag *Save my work to a file *Open work from a file *Use the arrow keys to move the cursor *Delete letters *Identify rules to keep us safe and healthy when we are using technology in and beyond the home

	YEAR 1 COMPUTING Can you paint using a computer?										
Autumn 2 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to recall/achieve?)				
*Use technology purposefully to create, organise, store, manipulate, and retrieve digital content Links to Art *To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form, and space *About the work of a range of artists, craft makers, and designers, describing the differences and similarities between different practices and disciplines and making links to their own work	Painting using computers. Introduce the freehand tools available for digital painting.	Using shape and lines. Introduces children to the line and shape tools. Revisit the fill and undo tools used for digital painting. Create their own digital painting in the style of an artist.	Making careful choices. Introduce children to a range of shape tools, allowing them to create a painting in the style of an artist.	Why did I choose that? This lesson increases understanding of the available paint tools and encourages them to select the best tools to create a digital painting in the style of Wassily Kandinsky.	Creating a masterpiece Select appropriate colours, brush sizes, and brush tools to independently create their own image in the style of an artist.	Comparing computer art and painting Learners compare their preferences when creating paintings on computers and on paper.	*Know how to use shape, line, and fill tools. *Know that different paint tools do different jobs. *Save my work to a file *Open work from a file * Change brush size.				

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		YEAR 1 CO	OMPUTING									
	Can you program a robot?											
						Substantive						
Spring 1 Unit Wee	ek 1 🕴 Week 2	2 Week 3	Week 4	Week 5	Week 6	Knowledge (What						
						facts and						
g						knowledge will the						
						children be able to						
						recall/achieve?)						
*Understand what Underst	tandin Looking at	t Moving	Using four	How can you	Creating	Know that floor						
algorithms are; how g button	ns directions	forwards and	directions	get there?	different	robots follow						
they are		backwards			routes	command that we						
implemented as Introduc	es floor Children will	/ill	Use left and	In this lesson,		input.						
programs on digital robots.	Talk think about the	t the Focus on	right turn	children will	Plan their	Understand four						
devices; and that about w	hat the language use	used programming	commands	decide what	routes before	directions –						
programs execute by buttons	might to give	the floor robot	along with	their program	they start to	forwards,						
following precise and do and t	then try directions an	and to move	forwards and	will do. They	write their	backwards, left turn						
unambiguous the butto	ons out. how precise	se it forwards and	backwards	will then create	programs. The	and right turn.						
instructions Time will	ll be needs to be.	e. backwards.	commands.	their program	activities also	Know what						
*Create and debug spent lin	iking an Work with a	a See that the	Develop	and test it on	introduce the	programming						
simple programs outcome	e to a partner, givin	ving robot moves	slightly more	the robot.	concept of	means.						
*Use logical button p	ress. and following	ing forwards and	complex	Where needed,	there being	Understand the term						
the helperiour of	er the instructions.	s. Dackwards a	programs.		more than one	aeaug.						
the benaviour of direction	1 I NIS real-Wor	vorid fixed distance.	Children Will	also debug	way to solve a							
*December 2007	activity shoul	buid, This highlights		their programs.	problem. This							
Recognise continuit buttons,	as well at suitable				to a lot of							
technology beyond	amony this lesson b	be clear (fixed)	through trial									
school and run	related to the	the command in a	and error		activities: the							
	floor robot th	that nrecise and	before moving		same outcome							
program	was introduc	uced repeatable	onto planning		can be							

		in the last lesson.	way. Using the same start position with fixed commands will allow learners to predict what a program will do.	out their programs in the next lesson. Predict where given programs will move the robot.		achieved through a number of different approaches. Plan what they want their program to achieve before they start programming.						
YEAR 1 COMPUTING												
	1	How can	you use tech	nology to gro	oup data?	1						
Spring 2 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to recall/achieve?)					
*Use technology purposefully to create, organise, store, manipulate, and retrieve digital content *Use technology safely and respectfully	Label and match. Begin to understand that objects have many different labels that can be used to put them into groups. They will name different objects and begin to experiment with placing them into	Group and count. Learners will begin to think about grouping objects based on what the objects are. They will demonstrate the ability to count a small number of objects before they group them, and will then begin to	Describe an object. Begin to understand that objects can be described in many different ways. Identify the properties of objects and begin to understand that properties can be used to group objects; for example, objects can be	Making different groups. Children classify objects based on their properties. They will group objects that have similar properties, and will be able to explain how they have grouped these. Children will begin to group	Comparing different groups. Children will choose how they want to group different objects by properties. They will begin to compare and describe groups of objects, then they will record the number of	Answering questions. Children will decide how to group objects to answer questions. They will compare their groups by thinking about how they are similar or different, and they will record what they find	Know that labels can describe a group of objects. Know that work children create belongs to them.					

	different groups. Children will also label a group of objects, and begin to understand that an object can fit into more than one group depending on the context.	show that they can count groups of objects with the same label. Learners will also begin to learn that computers are not intelligent, and require input from humans to perform tasks.	grouped by colour or size. Demonstrate their ability to find objects with similar properties and begin to understand the reason that we need to give labels to images on a computer. YEAR 1 CC an you make	a number of the same objects in different ways, and will demonstrate their ability to count these different groups.	objects in each group.	They will then share what they have found with their peers.	
Cummer 4 Unit	Mook 1	Week 2	Mook 2	Wook 4	Week 5	Week 6	Substantive
Learning	VVEEK I	VVEEK Z	VVEEK S	VVEEK 4	VVEEK 5	vveek o	facts and
g							knowledge will the
							recall/achieve?)
*Understand what	Comparing	Joining	Make a	Adding	Project design	Following my	*Understand the
algorithms are, how	tools	Blocks	change	sprites	During this	design	terms task, design,
they are	During this	During this	During this	During this	lesson learners		debug and code.
implemented as	lesson learners	lesson learners	lesson learners	lesson learners	will choose	During this	Know that
programs on digital	will become	Will discover	Will discover	will be taught	appropriate	lesson learners	programmes work
negrame execute by	the Scratch Ir	ha joined	blocks in	delete sprites	and enrited for	nroioct dosigns	instructions that we
following precise and	nrogramming	together in	Scratch Ir have	in Scratch Ir	a 'Snace race'	from the	innut
	environment	Scratch.Jr They	numbers	They will	project They	previous lesson	
instructions	They will	will use a Start	underneath	discover that	will decide how	to create their	
*Create and debug	discover that	block to run	them. They will	each sprite has	each sprite will	projects	
simple programs	they can move	their programs.	learn how to	its own	move, and	on-screen in	
*Use logical	characters	They will also	change these	programming	create an	ScratchJr. They	
reasoning to predict	on-screen	learn additional	values and	area, and learn	algorithm	will use their	
	using	skills such as	identify the	how to add	based on the	project design,	

the behaviour of simple programs	commands, and compare ScratchJr to the Bee-Bots used in the previous unit.	adding backgrounds and deleting sprites. Learners will follow given algorithms to create simple programs.	effect on a block of changing a value.	programming blocks to give instructions to each of the sprites.	blocks available in ScratchJr that reflects this.	including algorithms created in the previous lesson, to make programs for each of their rocket sprites. They will test whether their	
						algorithms are effective when their programs	
						are run.	
	Н	ow can you u	se a compute	er to create ar	nd format text	?	
Summer 2 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to recall/achieve?)
	Exploring the keyboard. Children will familiarise themselves with a word processor and think about how they might use this application in the future. The children will also identify and find keys,	Adding and removing text. Children will continue to familiarise themselves with word processors and how they can interact with the computer using a keyboard. They will focus on adding text and	Exploring the toolbar. Begin to explore the different tools that can be used in word processors to change the look of the text. Children will use the Caps Lock key to add capital letters to their	Making changes to text. Children begin to understand when it is best to change the look of their text and which tool will achieve the most appropriate outcome. Begin to use their	Explaining my choices. Children will begin to justify their use of certain tools when changing text. They will decide whether the changes that they have made have improved their writing and will begin to use	Pencil or keyboard. Children make comparisons between using a computer for writing and writing on paper. Discuss how the two methods are the same and different and think of examples to	*Know what a word processor is. *Know how to change the size and colour of text. *Use a keyboard to add capital letters and full stops. *Use the arrow keys to move around text. *Know how to delete text.

before adding text to their page by pressing keys on a keyboard. Finally, they will begin to use the Backspace key to remove text from the computer.	writing. Children match simple descriptions to the related keys. Finally, learners will begin exploring the different buttons available on the toolbar in more detail, and use these to change their own text.	mouse cursor to select text to enable them to make more efficient changes. They will explore the different fonts available to them and change the font for their lost toy poster.	'Undo' to remove changes. They will begin to consolidate their ability to select text using the cursor, through double-clicking and clicking and dragging. Explain what told have been used.	explain this. Begin to explain which they like best and think about which method would be the best method to use in different situations.	
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YEAR 2 COMPUTING Does technology improve our world?										
Autumn 1 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to recall/achieve?)			
*Use technology	What is IT?	IT in school.	IT in the world	The benefits	Using IT safely	Using IT in different	*Know what IT			
create, organise,	Children will	Children will	in on run			ways.	* Give examples of			
store, manipulate,	develop their	consider	Children will	Children will	Children will		IT.			
and retrieve digital	understanding	common uses	begin to	explore the	consider how	Children will	*Know the			
content	of what	of information	explore IT in	benefits of	they use	think about the	importance of using			
*Recognise common	information	technology in a	environments	using IT in the	different forms	choices that	IT responsibly.			
uses of information	technology (IT)	context that	beyond school,	wider world.	of information	are made when				
technology beyond	is. They will	they are	including home	They will focus	technology	using				
school	identify devices	familiar with.	and familiar	on the use of IT	safely, in a	information				
	that are	They will	places such as	in a shop and	range of	technology,				

*Use technology	computers and	identify	shops. They	how devices	different	and the	
safely and	consider how	examples of IT	will talk about	can work	environments.	responsibility	
respectfully, keeping	IT can help	and be able to	the uses of IT	together.	They will list	associated with	
personal information	them both at	explain the	in these	Children will	different uses	those choices.	
private; identify	school and	purpose of	environments	sort activities	of IT and talk	They will use IT	
where to go for help	beyond.	different	and be able to	based on	about the	in different	
and support when		examples of IT	explain that IT	whether they	different rules	types of	
they have concerns		in the school	is used in many	use IT or not	that might be	activities and	
about content or		setting.	workplaces.	and will be able	associated with	explain that	
contact on the				to say why we	using them.	sometimes	
internet or other				use IT.	Children will	they will need	
online technologies					then say how	to use IT in	
					rules can help	different ways.	
					keep them safe		
					when using IT.		

YEAR 2 COMPUTING Can you take a picture?												
Autumn 2 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to recall/achieve?)					
*Use technology	Taking	Landscape or	What makes a	Lighting	Effects	Is it real?	*To recognise that					
purposefully to	photographs	portrait.	good				different devices can					
create, organise,			photograph?	This lesson	This lesson	This lesson	be used to capture					
store, manipulate,	This lesson	Children		introduces the	introduces the	introduces the	photographs.					
and retrieve digital	introduces the	explore taking	Children	concepts of	concept of	concept that	*Know how to					
content	concept that	photographs in	discover what	light and focus	simple image	images can be	capture, edit, and					
*Recognise common	many devices	both portrait	constitutes	as further	editing.	changed for a	improve photos.					
uses of information	can be used to	and landscape	good	important	Children are	purpose.	*Recognise that					
technology beyond	take	formats and	photography	aspects of	introduced to	Children are	images they see					
school	photographs. In	explore the	composition	good	the Pixlr image	introduced to a	may not be real.					
*Use technology	the lesson,	reasons why a	and put this	photography	editing	range of						
safely and	children begin	photographer	into practice by	composition.	software and	images that						

respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	to capture their own photographs.	may favour one over the other.	composing and capturing photos of their own.	Children investigate the effect that good lighting has on the quality of the photos they take. Explore what effect using the camera flash and adding an artificial light has on their photos. Learn how the	use the 'Adjust' tool to change the colour effect of an image.	have been changed in different ways and through this, develop an awareness that not all images they see are real	
				photos. Learn how the			
				camera autofocus tool.			

YEAR 2 COMPUTING Can you create a robot algorithm?												
Spring 1 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to recall/achieve?)					
*Understand what algorithms are, how they are	Giving instructions.	Same but different.	Making predictions.	Mats and routes.	Algorithm design.	Debugging. Children take	*Understand that an algorithm is a set of instructions.					
implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions	Children follow instructions given to them and give instructions to others. Consider the	This lesson focuses on sequences, and guides children to consider the importance of	In this lesson, children will use logical reasoning to make predictions. They will follow	Children will design, create, and test a mat for a floor robot. This will introduce the idea that	In this lesson, children will design algorithms to move their robot around the mats that	on a larger programming task. They will break the task into chunks and create algorithms for	*Know that computers can only follow clear and unambiguous instructions. *To how to debug.					

simple programs *Use logical reasoning to predict the behaviour of simple programs *Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.	and how that language needs to be clear and precise. Combine instructions into a sequence then consider this clear and precise set of instructions in relation to an algorithm, and they will think about how computers can only follow clear and unambiguous instructions.	instructions within a sequence. Children will create several short sequences using the same commands in different orders. They will then test these sequences to see how the different orders affect the outcome.	by step and identify what the outcome will be.	programming not only includes code and algorithms, but also artefacts related to the project, such as artwork and audio.	in Lesson 4. As part of the design process, pupils will outline what their task is by identifying the starting and finishing points of a route. This outlining will ensure that pupils clearly understand what they want their program to achieve.	This process is known as 'decomposition' and is covered further in key stage 2. Pupils will also find and fix errors in their algorithms and programs. This is known as 'debugging'.	
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YEAR 2 COMPUTING How can you organise data?												
Spring 2 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the					
							children be able to recall/achieve?)					
*Use technology purposefully to create, organise,	Counting and comparing.	Enter the data. Children will	Creating pictograms.	What is an attribute?	Comparing people.	Presenting information.	*Understand the term data. *Know what a					
store, manipulate and retrieve digital content	During this lesson children will begin to understand the	become familiar with the term 'pictogram'.	Children think about the importance of effective data	Children think about ways in which objects can be grouped	During this lesson children will understand that people can	Children will understand that there are other ways to present	pictogram is. *Understand the term attribute.					

*Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies	importance of organising data effectively for counting and comparing. They will create their own tally charts to organise data, and represent the tally count as a total. They will answer questions comparing totals in tally charts using vocabulary such as 'more than' and 'less than'.	They will create pictograms manually and then progress to creating them using a computer. Children will begin to understand the advantages of using computers rather than manual methods to create pictograms, and use this to answer simple questions.	collection and consider the benefits of different data collection methods. They will collect data to create a tally chart and use this to make a pictogram on a computer. Children will explain what their finished pictogram shows by writing a range of statements to describe this.	by attribute. They will then tally objects using a common attribute and present the data in the form of a pictogram. Children will answer questions based on their pictograms using mathematical vocabulary such as 'more than'/'less than' and 'most'/'least'.	be described by attributes. They will practise using attributes to describe images of people and the other learners in the class. Children will collect data needed to organise people using attributes and create a pictogram to show this pictorially. Draw conclusions from their pictograms and	data than using tally charts and pictograms. They will use a pre-made tally chart to create a block diagram on their device. Children then share their data with a partner and discuss their findings. They will consider whether it is always OK to share data. They will know it is ok to say no if someone asks for their data, and how to report their concerns.	
					pictograms and share their	concerns.	
			YEAR 2 CO	OMPUTING	tindings.		
		Can you	u create musi	c using techn	ology?		
Summer1 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to recall/achieve?)
*Use technology purposefully to create, organise,	How music makes us feel.	Rhythms and patterns	How music can be made.	Notes and tempo.	Creating digital music.	Reviewing and editing music.	*Know how to save a project.

store manipulate	In this lesson	In this lesson	During this	In this lesson	In this lesson		*Know how to edit
and retrieve digital	children will	children will	lesson children	children will	learners will	In this lesson	
	licton to and	ovploro rhythm	will ovploro	dovelop their	chooso an	childron will	
Content							
	compare two	I ney will create	now music can	understanding	animal and	retrieve and	
Music national	pieces of music	patterns and	be used in	of music. They	create a piece	review their	
curriculum links	from The	use those	different ways	will use a	of music using	work. They will	
*Play tuned and	Planets by	patterns as	to express	computer to	the animal as	spend time	
untuned instruments	Gustav Holst.	rhythms. They	emotions and	create and	inspiration.	making	
musically	They will then	will use	to trigger their	refine musical	They will think	improvements	
*Listen with	use a musical	untuned	imaginations.	patterns.	about their	and then share	
concentration and	description	percussion	They will		animal moving	their work with	
understanding to a	word bank to	instruments	experiment		and create a	the class.	
range of high-quality	describe how	and computers	with the pitch of		rhythm pattern		
live and recorded	this music	to hear the	notes to create		from that. Once		
music	generates	different rhythm	their own piece		they have		
*Experiment with,	emotions, i.e.	patterns that	of music, which		defined a		
create, select, and	how it makes	they create.	they will then		rhythm, they		
combine sounds	them feel.		associate with		will create a		
using the interrelated			a physical		musical pattern		
dimensions of music			object — in this		(melody) to go		
			case, an		with it.		
			animal.				

YEAR 2 COMPUTING												
How can you make a computer game?												
Summer 2 Unit Learning	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Substantive Knowledge (What facts and knowledge will the children be able to					
*Understand what	What do we	Looking at	Using a	Changing a	Designing and	Evaluating	*Understand that					
algorithms are; how	already know?	outcomes.	design.	design.	creating a		sequences of					
they are			-	-	program.	Children	commands have an					
implemented as	During this	Children	During this	Children look at		compare their	outcome.					
programs on digital	lesson, children	discover that a	lesson, children	an existing quiz		projects to their						

devices: and that	will recap what	sequence of	will be taught	design and	Children create	designs. They	
programs execute by	they know	commands has	how to use the	think about	their own quiz	will think about	
following precise and	already about	an 'outcome'.	Start on tap	how this can be	question	how they could	
unambiguous	the ScratchJr	They will	and Go to page	realised within	designs	improve their	
instructions	app. They will	predict the	(Change	the ScratchJr	including their	designs by	
*Create and debug	begin to	outcomes of	background)	app. They will	own choices of	adding	
simple programs	identify the	real-life	blocks. They	choose	question,	additional	
*Use logical	start of	scenarios and	will use a	backgrounds	artwork, and	features. They	
reasoning to predict	sequences in	a range of	predefined	and characters	algorithms.	will modify their	
the behaviour of	real-world	small programs	design to	for their own	They will	designs and	
simple programs	scenarios, and	in ScratchJr.	create an	quiz projects.	increase the	implement the	
	learn that	Children will	animation	Children will	number of	changes on	
	sequences	then match	based on the	modify a given	blocks used	their devices.	
	need to be	programs that	seasons.	design sheet	within their	Learners will	
	started in	produce the	Children will	and create their	sequences to	find and correct	
	ScratchJr.	same outcome	then be	own quiz	create more	errors in	
	Children will	when run, and	introduced to	questions in	complex	programs	
	create	use a set of	the task for the	ScratchJr.	programs.	(debug) and	
	programs and	blocks to	next lesson.			discuss	
	run them in	create	They will			whether they	
	full-screen	programs that	predict what a			debugged	
	mode using the	produce	given algorithm			errors in their	
	Green flag.	different	might mean.			own projects.	
		outcomes					
		when run					