Computer Science

Information Technology

Digital Literacy

Subject: Computing

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	• Remote control cars • Operating torches • Taking photos on cameras • Looking at safe images Nursery continuous provision: Ipads on Weds afternoons, recordable microphones, battery operated toys, torches Nursery will use recordable boxes to label parts of a tree (new for 2021) Pupils watch videos about different religious festivals, such as Eid, who celebrates Eid and a day in the life of a Muslim. Festivals and religious leaders are explained through the use of videos and images online, such as Diwali, Guru Nanak, Christmas. Pupils are consistently shown videos on IWB for non/fiction & fiction texts to enhance their understanding of the world to develop their language. Reception continuous provision: Ipads Mon & Thurs pm Pupils take photographs of their 'Movable Art'. Pupils are consistently shown videos on the IWB about non/fiction & fiction texts to enhance their understanding of the world and to develop their language. Online Safety lesson 1. Ipads to record retelling of Diwali.		 Operating books with pulleys/flaps Remote control Beebots 		 Voice recorders – recording words/ phrases Retelling stories on voice recorders 	
			Nursery Continuous provision: Ipads on Weds afternoons, recordable microphones, battery operated toys, torches Pupils use recordable pegs for their 'My history' unit. Pupils bring in photos of themselves and clip these onto the pegs and record what is happening in the photo (new for 2021). Pupils watch life cycle and habitat videos online about chicks as part of their science learning. Pupils plant beans towards the end of Spring term and watch videos of the bean plant germinating. They also watch videos of sunflowers germinating. West Ham Park visit whereby pupils take pictures and videos of their observations. Reception continuous provision: Ipads Mon & Thurs pm, J2e for drawing and hand control. Online safety lesson 2. Writing repeater for phonics. Listen to sounds in Science for trees topic. All religious festivals are discussed and shown on IWB.		Nursery continuous provision: Ipads on Weds afternoons, recordable microphones, water proof turtles for counting, torches Nursery go to West Ham park each half term. Classes will take ipads for pupils to capture photos and videos (new for 2021) Pupils to use remote control toys to navigate them around a map using positional language. Reception continuous provision: Ipads Mon & Thurs pm, Beebots and Beebot maps, walkie talkies. Reception go to West Ham park each half term. Classes will take ipads for pupils to capture photos and videos (new for 2021) Reception watch life cycle and habitat videos online about butterflies as part of their science learning. Zoom link with police officer where pupils ask questions.	
	E-Safety: How can we stay safe	online? Buddy the Dog story	E-Safety: Internet Safety Day acti	vity	E-Safety: How can we stay safe of story	online? Smartie the Penguin



Subject: Computing

Year

1

1.1 We are treasure hunters

Programming a Beebot (8)

NC big ideas:

- understand what algorithms are
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to store digital content

Specific knowledge:

- How to read a map
- Understanding directional language
- Understanding what algorithms are

Specific skills:

- Programming a Beebot (alongside app)
- Predicting what the instructions will do
- Introduction to debugging

Links: Year 1 Explorer's unit

Resources: J2e - Introduction coding, Beebot app

E-Safety: How to be safe online (Aut 1)

Pupils are read Smartie the Penguin by the teacher, a story which covers the themes of Pop-ups, in-app purchasing, inappropriate websites and cyber bullying.

Trusted adults (Aut 2)

Pupils look at what information is personal and talk about adults who they can share personal information with.

1.3 We are painters

Creating an illustration in Paint (6)

NC big ideas:

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
- Recognise common uses of information technology beyond school.
- Use technology safely and respectfully

Specific knowledge:

- Learning how to use the web to search for images safely
- Select and use appropriate paint tools to create and change images on a computer

Specific skills:

- How to log on to computers
- Knowing how to save and retrieve work
- Learning how Paint tools work and how best to manipulate an image
- Mouse control skills developed

Links: Literacy (Fairytales)

Resources: JIT (J2e) first on iPads

E-Safety: Internet Safety Day activity (Spr 1)

Personal and non-personal information (Spr 2)

Pupils read Little Red Riding Hood and discuss what she does and says to the wolf. They reenact the story, this time not disclosing any personal information.

1.5 We are storytellers

Creating a talking book (6)

NC big ideas:

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
- Recognise common uses of information technology beyond school.
- Use technology safely and respectfully.

Specific knowledge:

- Learning how the save/open function works on computers
- How to create audio content
- How IT can be used beyond school

Specific skills:

- How to log on to computers
- How to save and retrieve files
- How to use different media, e.g: voice recording
- Collaboration skills developed

Links: Unit 1.3 We are painters. Pupils use Book Creator on iPads to record sound for fairytale pics to use in a book.

E-Safety: How to be responsible online (Sum 1)

Pupils read Chicken Clicking and discuss how to behave responsibly online. They think of top tips for the farmer to protect himself.

What have I learnt this year? (Sum 2)

Show pupils your class learning journal for this year. Ask them to reflect on what they have learnt. They can produce a digital or paper poster, booklet, leaflet etc including the key learning from one or all of their online safety lessons.



Year 2

2.4 We are Digital Writers NEW UNIT

Pupils explore keyboard and edit text (6)

NC big ideas:

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
- Recognise common uses of information technology beyond school
- Use technology safely and respectfully, keeping personal information private; identify where to go for help and supportwhen they have concerns about content or contact on the internet or other online technologies.
- Use a range of applications and devices in order to communicate ideas, work and messages.
- Collaborate with others online on sites approved and moderated by teachers.

Specific Knowledge:

This unit will develop pupils' understanding of the various aspects of using a computer and how to create and change text. Learners will familiarise themselves with typing on a keyboard and begin using tools to change the look of their writing, and then they will consider the differences between using a computer and writing on paper to create text.

Specific skills:

- Develop typing skills
- Awareness of the purpose of word processors
- Understanding the function of different keys on a keyboard
- Understanding the function of different formatting tools

Links: Pupils will be moving on from the Year 1 Storytellers unit - going from verbally recording sentences to typing sentences and editing text.

E-Safety: Online and in-app purchasing (Sum 1)

Pupils are read 'Once Upon a Time Online' and discuss how the fairytale characters purchased items without asking for permission. Pupils also learn about in-app purchases and what to do if they are encouraged to buy these by companies.

What have I learnt this year? (Sum 2)

Show pupils your class learning journal for this year. Ask them to reflect on what they have learnt. They can produce a digital or paper poster, booklet, leaflet etc including the key learning from one or all of their online safety lessons.

2.1 We are astronauts (8)

Moving a sprite around the screen in Scratch ()

NC big ideas (1-7):

- (1) Design, write and debug programs that accomplish specific goals...
- **(2)**Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.
- (3) Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. (4) Understand computer networks including the internet; how they can provide multipleservices, such as the world wide web; and the opportunities they offer for communication and collaboration.
- (7) Use technology safely, respectfully and responsibly.

Specific knowledge:

- How to create an algorithm on a loop by looking at smaller components first and then piecing together
- Understand the function of the coloured coding blocks in Scratch and the effect they will have on the sprite(s)

Specific skills: Projects to incorporate the majority of these blocks as the fundamentals. Some blocks and individual sprites will differ.

- 'Move', 'Go to...' and 'Glide...' movement blocks
- 'When green flag clicked', 'When space key pressed' and 'When this sprite clicked' event blocks
- 'Wait', 'Forever' and 'Repeat' control blocks
- 'Show' and 'Hide' looks blocks

Links: Year 1 & 2 algorithm work

E-Safety: Internet Safety Day Activity (Spr 1)

Secrets (Spr 2)

Pupils identify good secrets and worry secrets and discuss what to do with them.

2.3 We are photographers

Creating a class portfolio of original photographs (6)

NC big ideas:

Subject: Computing

Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

- Recognise common uses of information technology beyond school.
- Use technology safely and respectfully, keeping personal information private.

Specific knowledge:

- Understanding that digital content can be enhanced.
- Knowing to ask permission from the content creator before using their content
- Knowing what to do if pupils see something worrying online

Specific skills:

- How to use the camera function on an iPad
- Review and delete images as necessary
- Editing images in **PixIr**
- Evaluating quality of images

Links: London Landmarks trip – editing pictures taken by pupils on the trip.

E-Safety: LO: Trust and appreciation (Aut 1)

Pupils identify people in their circle of trust and those not in their circle of trust. They create a profile for one/some of their trusted adults and put together to make a class book.

Who can we share personal information with? (Aut 2)

Pupils look at a video of children sharing personal info with an online player. They discuss top tips to be safe whilst playing online.



Year

3

Subject specific progression map

3.1 We are programmers

Creating a short, scripted animation cartoon (8)

NC big ideas:

- Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts.
- Use sequence ... in programs; work with variables and various forms of input and output.

Use logical reasoning to detect and correct errors in algorithms and programs.

 Select, use and combine a variety of software ... to design and create ... content that accomplish(es) given goals, including ... presenting ... information.

Specific knowledge:

 Knowing how to insert various forms of outputUnderstanding how to sequence a conversation

Specific skills:

- Breaking down dialogue and actions into simple steps (algorithm)
- Inserting text, images and sound
- How to debug using logical reasoning
- Select, create and edit sounds. Control when they are heard, their volume, duration and rests. Needs to be written into plans.

Links: To year 2 Scratch unit.

E-Safety: Internet Safety Day Activity (Spr 1)

Being a good digital citizen (Spr 2)

Pupis look at what being a good digital citizen looks like in practice. They create posters promoting this behaviour.

3.6 We are opinion pollsters

Creating an online survey and analysing the results (6)

NC big ideas:

- 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.
- 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.

Specific knowledge

- Understanding how the internet can help encourage communication and collaboration
- Awareness of how important it is to keep anonymity when collecting responses
- Understanding the purpose of surveys

Specific skills:

- Designing a survey in Google forms using a range of response types
- Asking unambiguous questions
- Analysing results through the use of Charts
- Presenting findings Powerpoint

E-Safety: Cyberbullying (Aut 1)

Teacher to read 'Troll Stinks' to pupils and discuss how Billy Goat and his friend have repeatedly upset others and behaved irresponsibly. They suggest alternative actions the friends could take so that the story turns into a positive one.

Creating strong passwords (Aut 2)

Pupils learn what makes a strong password and make one of their own, following top password tips.

3.3 We are Presenters NEW UNIT

<u>Create a video of themselves practicing a sport or skill</u> (6)

NC big ideas:

Subject: Computing

- 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.
- Work with various forms of input and output.
- Use technology safely, respectfully and responsibly.

Specific Knowledge:

Pupils learn how to make a short narrated video of themselves practising a sport or other skill, and to use this to help improve their performance.

Specific Skills:

- Learn how to use Movie Maker
- Gain skills in shooting live video, such as framing shots, holding the camera steady, and reviewing
- Editing video, including adding narration and editing clips by setting in/out points
- Understand the qualities of effective video, such as the importance of narrative, consistency, perspective and scene length.

Link: PE topic Cricket & Gymnastics

E-Safety: Keeping myself safe online (Sum 1)

Pupils discuss trustworthiness of apps and games online. They look at and rank tips for keeping safe.

What have I learnt this year? (Sum 2)Show pupils your class learning journal for this year. Ask them to reflect on what they have learnt. They can produce a digital or paper poster, booklet, leaflet etc including the key learning from one or all of their online safety lessons.



Year 4

4.6 We are Meteorologists

Presenting a weather report (6)

NC big ideas:

- 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
- Select, use and combine a variety of software (including internet services) on a range of digital devices to designand create ...content that accomplishes given goals, including collecting, analysing, evaluating and presenting data and information.
- Use technology safely, respectfully and responsibly.

Specific knowledge:

- How to use the internet as a tool for researching, communicating and collaboration.
- How weather data is collected and analysed and the tools used for this purpose.
- How a weather report is presented.

Specific skills:

- Researching past weather reports on the internet
- Collecting and recording weather data
- Inputting weather data into spreadsheet
- Creating graphs & analysing results
- Combining images and video on green screen technology to create a weather PPT

E-Safety: Our Online Activity (Aut 1)

Pupils complete a Google Form about their online activity. Responses are discussed within the class. The internet is celebrated as a platform for positive experiences.

Age restrictions (Aut 2)

Pupils learn about age restrictions in general and then focus on them for social media sites and games. They think about the purpose of age restrictions.

4.1 We are software developers

Creating a multiplication game in Scratch (8)

NC big ideas:

- Design, write and debug programs that accomplish specific goals.
- 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.

Specific knowledge:

- Developing awareness of what makes a computer game successful
- How to plan and design a game
- Understand importance of testing and developing game

Specific skills:

- Creating a logical sequence of instructions
- Using selection in scripts how program will respond to different responses
- Using repetition in asking questions
- Inputting a score counter (variable)
- Debugging
- Select, create and edit sounds. Control when they are heard, their volume, duration and rests.

Links: multiplication, year 3 animation unit (sequencing instructions)

E-Safety: Internet Safety Day Activity (Spr 1)

Mixed messages (Spr 2)Pupils look at how different emojis and messages can be perceived differently by people. They look at turning negative comments into positive ones.

4.5 We are Desktop Publishers

Pupils design and edit a Magazine page (6)

NC big ideas:

Subject: Computing

- Use ... a variety of software (including internet
- services) ... to ... create ... content ... including ..presenting information
- Use technology safely, respectfully and responsibly; recognize 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
- I can use search technologies effectively

Specific knowledge:

- Learners will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages.
- Learners will be introduced to the terms 'templates',
 'orientation', and 'placeholders' and begin to understand
 how these can support them in making their own template
 for a magazine page.
- They will start to add text and images to create their own pieces of work using desktop publishing software.
- Learners will look at a range of page layouts thinking carefully about the purpose of these and evaluate how and why desktop publishing is used in the real world.

Specific skills:

- Comparing and evaluating digital content
- Inserting text and images fit for purpose
- demonstrate understanding of the use of search tools to find and access online content which can be reused by others

Links: Year 1 We are Painters, Year 2 Digital Writers and Year 2 Photographers

E-Safety: Screen Time (Sum1)Pupils look at how a lot of screen time affects their relationships with friends, family and teachers. They look at ways to develop healthier habits.

What have I learnt this year? (Sum 2)Show pupils your class learning journal for this year. Ask them to reflect on what they have learnt. They can produce a digital or paper poster, bookletleaflet etc including the key learning from one or all of their online safety lessons.



Year		We are Artists & We are Blogger	
5	5.1 We are game developers	5.3 We are artists	
	Creating a computer game in Scratch (8)	Creating geometric art (6)	
	NC big ideas:		
	 Design, write and debug programs that accomplish specific 	NC big ideas:	
	goals • Use sequence, selection, and repetition in programs; work with	 Use sequence, selection, and repetition in programs; work with variables and various forms of input and output. 	
	variables and various forms of input and output.	Use logical reasoning to explain how some simple algorithms	
	Use logical reasoning to explain how some simple algorithms	work and to detect and correct errors in algorithms and	
	work and to detect and correct errors in algorithms and	programs.	
	programs.	Select, use and combine a variety of software (including)	
	Understand computer networks including the internet; how	internet services) on a range of digital devices to design and	
	they can provide multiple services, such as the world wide	create a range of programs, systems and content that	
	web; and the opportunities they offer for communication and	accomplish given goals, including collecting, analysing,	
	collaboration.	evaluating and presenting data and information.	
	Use technology safely, respectfully and responsibly.		
		Specific knowledge:	
	Specific knowledge:	Develop appreciation of links between geometry and art	
	How to build a computer game by looking at smaller		
	components first and then piecing together	Specific skills:	
	Understand the function of the coloured coding blocks in	Learn how to use Scratch to create geometric art.	
	Scratch and the effect they will have on the game	Manipulating algorithms for different artistic effects	
	Scratch and the effect they will have on the game	Debugging	
	Specific skills: Games to incorporate majority of these blocks as the	- Bebugging	
	fundamentals. Some move/Looks blocks and individual sprites will differ.		
	'Wait', 'Repeat' and 'Repeat until' control blocks		
	'IfThen' and 'IfThenElse' control blocks		
	'Change colour/backdrop/costume/size', 'Hide' and 'Show'		
	looks blocks		
	'Movesteps', 'Point towards mouse pointer' and 'rotation'		
	movement blocks		
	'Or' operations block	Links: This unit offers another opportunity for the pupils to develop their	
	· ·		
	'Touching mouse pointer', 'Touching edge', 'Touching sprite' and 'Touching select' sensing blocks	programming skills, drawing on sequence and repetition ideas, as well as	
	and 'Touching colour' sensing blocks	logical reasoning, algorithmic thinking and debugging, which the pupils	
	 Inserting a variable(s) score count/time limit/randomization/ level 	will be familiar with from other programming work.	
	Upload/record sounds from file and edit		
	Debugging using the knowledge gained above		
		E-Safety: Internet Safety Day Activity (Spr 1)	
	Links: Building on year 4 'We are software developers' unit.		
	E-Safety: Being in an Online Community (Aut 1)Pupils discuss the benefits and risks	My Digital Footprint (Spr 2) Pupils learn about what a digital footprint is	
	of belonging to online communities. They think about the rights and responsibilities	and how it can affect them in the future.	
	of users and what trusted sources they can turn to.		
	Maintaining healthy relationships online and offline (Aut 2)Pupils reflect on what a		
	healthy friendship looks like and what to do if there are concerns about the		
	friendship.		

We are Bloggers combined for SPR and SUM unit

Subject: Computing

5.5 We are bloggers Creating a blog, adding and responding to comments (6)

NC big ideas:

- Understand computer networks including the internet; and the opportunities they offer for communication and collaboration.
- 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
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
- ... be discerning in evaluating digital content

Specific knowledge:

- Pupils will become familiar with blogs as a medium and a genre
- They will learn how to create a sequence of blog posts on a
- They will develop a critical view of a range of media

Specific skills:

- How to use Wordpress
- incorporating additional media
- comment on the posts of others
- collaboration and communication skills developed
 - understanding copyright and searching for copyright-free media

Links: Using blogging skills to combine Year 5 Artists learning.

E-Safety: Online Gaming (Sum 1)Pupils look at the positives and negatives of online gaming. They create safer gaming apps in order to address the negative aspects.

What have I learnt this year? (Sum 2)Show pupils your class learning journal for this year. Ask them to reflect on what they have learnt. They can produce a digital or paper poster, booklet, leaflet etc including the key learning from one or all of their online safety lessons.



Subject: Computing

Year 6

6.1 We are adventure gamers (8) Creating a Scratch adventure game

NC big ideas:

- 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.

Specific knowledge:

Designing, planning, writing and debugging a programme.

Specific skills:

- Identifying good/bad features of arcade style gamesCreate own backgrounds (more complex background), sprites and costumes
- Programming sprites to move according to different conditions
- Inserting variables score count, time limit, randomization or level
- Inserting sound
- Inserting Sensing blocks
- Debugging

Links: Building on from year 5 Scratch game.

E-safety: Think before you share (Aut 1)Pupils read #Goldilocks and discuss how important it is to think before you share. It covers posting for 'likes', selfies, asking for permission and the purpose of sharing content online.

What can we trust online? (Aut 2)Fake vs Real. Safe vs UnSafe. Pupils are thinking about the motives behind messages sent from friends, family, strangers and businesses. Assessing whether it is a trustworthy source or not.

6.3 We are Musicians NEW UNIT BEING DEVELOPED 2021 (6)

NC big ideas:

Specific knowledge:

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Specific skills:

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Links: To Year 4 Musicians unit (music)

E-Safety: Internet Safety Day Activity (Spr 1)

Online profiles (Spr 2)

Pupils think about what you share publicly and how this information could be used against you. Pupils design online safety posters to be shared within the school community.

6.6 We are publishers Creating a yearbook (6)

NC big ideas:

- Understand computer networks including the internet 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.

Use technology safely, respectfully and responsibly.

Specific knowledge:How to source, collect and present information in a collaborative way.

Specific skills:

- Learn the different functions of Google Docs
- Write and review content
- Sourcing digital media safely and responsibly

Links: Year 6 end of year publication

E-Safety: Grooming (Sum 1)

Pupils find out what grooming is and suggest ways in which to protect themself and others from this potential threat. They are informed about ways to report any concerns of abuse.

What have I learnt this year? (Sum 2) Show pupils your class learning journal for this year. Ask them to reflect on what they have learnt. They can produce a digital or paper poster, booklet, leaflet etc including the key learning from one or all of their online safety lessons.