

COMPUTING & E-SAFETY AT NATEBY PRIMARY SCHOOL

THE NATIONAL CURRICULUM

Aims:

The national curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

How will Computing & E-Safety be taught?

INTENT

At Nateby we want all children to embrace and utilise new technology in a socially responsible and safe way in order to flourish in this ever- changing technological world. We not only want all children to learn and develop computing skills but also to learn resilience through trying things out, having a go and problem solving. Our computing & e-Safety curriculum will provide opportunities to develop children's ability to think critically and creatively as well as developing their computational thinking. Our curriculum will teach children valuable lessons about being safe online and about how to be responsible digital citizens.

IMPLEMENTATION

How pupils at Nateby will learn through and about Computing & e-Safety

RECEPTION AND COMPUTING & e-SAFETY

In the latest EYFS Statutory framework (Published March 2021), the Early Learning Goal for technology has been removed, meaning there is no specific objective for computing for children working in Reception. However, much of the teaching in the early years is about helping children to develop an understanding of the world around them and technology is most likely a significant part of children's lives. Therefore, it is important that children in Reception learn about how technology is used in school and in their wider lives.

At Nateby, we teach Reception children how to use technology effectively so that they may use it as part of their own learning. Here are some examples;

- using a camera or an i-pad to take a photograph of something they have made as a way of early recording
- using sound recording equipment to record their ideas before writing
- using the IWB to practice big mark making, improving gross motor skills
- using the Beebots to further their learning on position and direction in maths
- using a laptop to play an online phonics/ maths game

It is also important in the foundation stage to give children a broad, play-based experience of computing in a range of contexts, including outdoor play. At Nateby, our early years learning environment features computing scenarios based on experience in the real world, such as in role play.

KEY STAGE ONE

The National Curriculum states that pupils should be taught:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- 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 support when they have concerns about content or contact on the internet or other online technologies.

KEY STAGE TWO

The National Curriculum states that pupils should be taught:

- 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
- 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
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Curriculum Map 2025-2026

	Class One: Y1	Class Two: Y2, 3 & 4	Class Three: Y4, 5 & 6
Autumn	NC OBJECTIVES: <ul style="list-style-type: none">• use technology purposefully to create, organise, store,	NC OBJECTIVES: KS1 <ul style="list-style-type: none">• use technology purposefully to create, organise, store, manipulate and retrieve digital content	NC OBJECTIVES: <ul style="list-style-type: none">• 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

	<p>manipulate and retrieve digital content.</p> <p>Painting Portraits Children will learn how to use basic painting skills in a painting application. They will use different colours, brushes, create shapes, fill areas and add text.</p>	<p>KS2</p> <ul style="list-style-type: none"> 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. <p>Digital Artist Children will learn about different artists and artistic styles and how to replicate these using digital painting software.</p>	<p>content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information</p> <ul style="list-style-type: none"> use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. <p>Word Processing (Y4) Children will learn about formatting images and organising content into an effective layout. Children will learn new skills and techniques and apply them to creating a range of different word documents.</p>
Spring	<p>NC OBJECTIVES:</p> <ul style="list-style-type: none"> understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions create and debug simple programs use logical reasoning to predict the behaviour of simple programs <p>Programming Toys</p>	<p>NC OBJECTIVES:</p> <p>KS1</p> <ul style="list-style-type: none"> understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions create and debug simple programs use logical reasoning to predict the behaviour of simple programs <p>KS2</p> <ul style="list-style-type: none"> design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts 	<p>NC OBJECTIVES:</p> <ul style="list-style-type: none"> 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 <p>Kodu Programming (Y6) Children will use Kodu to program a character to follow a path. They will create a race track with an end goal for a game. They will decompose code</p>

	<p>Children will be introduced to the principles of programming through unplugged tasks and the use of Bee-Bots (or similar programmable toys). They will be introduced to algorithms as a set of step-by-step instructions given to a device, will learn how to debug simple algorithms and how to use logical reasoning to predict how a program will behave.</p>	<ul style="list-style-type: none"> • 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 <p>Programming Turtle Logo & Scratch (Y2&Y3) Children will create and debug algorithms. Use the basic commands in Logo to move and draw using the turtle on screen, and then further develop algorithms using the “repeat” command. These skills are then developed by teaching children to create algorithms in Scratch using a selection of blocks.</p>	<p>into smaller parts and use tools to change the size of the ground.</p>
<p>Summer</p>	<p>NC OBJECTIVES</p> <ul style="list-style-type: none"> • use technology purposefully to create, organise, store, manipulate and retrieve digital content • recognise common uses of information technology beyond school • <p>Computer Skills Children will be taught how to turn on and shut down a PC device. They will learn how to navigate a</p>	<p>NC OBJECTIVES:</p> <p>KS1</p> <ul style="list-style-type: none"> • use technology purposefully to create, organise, store, manipulate and retrieve digital content • recognise common uses of information technology beyond school <p>KS2</p> <ul style="list-style-type: none"> • 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 	<p>NC OBJECTIVES:</p> <ul style="list-style-type: none"> • 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,

	<p>mouse/ mouse pad and explore their functions e.g. clicking, double clicking and dragging. They will also learn to use the main keys on a keyboard.</p>	<ul style="list-style-type: none"> • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact <p>Drawing & Desktop Publishing (Y3) Children will learn to draw, order, group and manipulate objects to make a picture. They will also learn to evaluate and create effective layouts, combining text and images.</p>	<p>including collecting, analysing, evaluating and presenting data and information</p> <ul style="list-style-type: none"> • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. <p>Multi-media Presentation (Y6) Children will record and present information integrating a range of appropriate media. Combine text and graphics in printable form and sound and video for on-screen presentations which include hyperlinks. Use advanced tools in word-processing such as tabs, appropriate text formatting & line spacing to create quality presentations appropriate for a known audience. Convey a specific meaning for a specific audience with restrained use of effects.</p>
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CROSS-CURRICULAR LINKS

Some National Curriculum objectives for Computing are also taught in other subject areas, particularly in Key Stage 2. For example;

- 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.

These objectives would be taught whilst children use research skills on the internet in subjects such as English, History, Geography & Science.

e-Safety

The following NC Objectives are also taught through PSHE lessons. These objectives are taught as part of the PSHE Curriculum, particularly within the themes 'Valuing Difference', 'Keeping Myself Safe' and 'Rights and Responsibilities' (see PSHE Curriculum Map).

KS1

- 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.

KS2

- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

KEY SKILLS PROGRESSION IN COMPUTING

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Algorithms and Programs					
<p>Can they create a simple series of instructions - left and right to move around a room avoiding obstacles? Can they record their routes? Do they understand forwards, backwards, up and down? Can they put two or more instructions together to control a programmable toy? Can they begin to plan and test a Bee-bot journey?</p>	<p>Can they predict the outcomes of a set of instructions? Can they use right angle turns? Can they use the repeat commands? Can they test and amend a set of instructions? Can they write a simple program and test it? Can they predict what the outcome of a simple program will be?</p>	<p>Can they experiment with variables to control models? Can they use 90 degree and 45 degree turns? Can they give an on- screen robot directional instructions? Can they draw a square, rectangle and other regular shapes on screen, using commands? Can they write more complex programs?</p>	<p>Can they use repeat instructions to draw regular shapes on screen, using commands? Can they experiment with variables to control models? Can they make turns specifying the degrees? Can they give an on-screen robot specific directional instructions that takes them from x toy? Can they make accurate predictions about the outcome of a program they have written?</p>	<p>Can they combine sequences and instructions and procedures to turn devices on or off? Do they understand input and output? Can they use an ICT program to control an external device that is electrical and/or mechanical? Can they use ICT to measure sound or light or temperate using sensors? Can they explore 'What is' questions by playing adventure or quest games? Can they write programs that have sequences and repetitions?</p>	<p>Can they explain how an algorithm works? Can they detect errors in a program and correct them? Can they use an ICT program to control a number of events for an external device? Can they use ICT to measure sound, light or temperature using sensors and interpret data? Can they explore 'what if' questions by planning different scenarios for controlled devices? Can they use input from sensors to trigger events? Can they check and refine a series of instructions?</p>
Data Retrieving and Organising					
<p>Can they capture images with a camera? Can they print out a photograph from a camera with help? Can they record a sound and play it back? Can they enter information into a template to make a graph? Can they talk about the results shown on a graph?</p>	<p>Can they find information on a website? Can they click links in a website? Can they print a web page to use as a resource? Can they experiment with text, pictures and animation to make a simple slide show? Can they use the shape tools to draw?</p>	<p>Can they review images on a camera and delete unwanted images? Have they experienced downloading images from a camera into files on the computer? Can they use photo editing software to crop photos and add effects? Can they manipulate sound when using simple recording story boarding?</p>	<p>Can they capture images using screen capture and internet? Can they choose images and download into a file? Can they download images from the camera into files on the computer? Can they copy graphics from a range of sources and paste into a desktop publishing program?</p>	<p>Can they listen to streaming audio such as online radio? Can they download and listen to podcasts? Can they produce and upload a podcast? Can they manipulate sounds using Audacity? Can they select music from open sources and incorporate it into multimedia presentations? Can they work on simple film editing?</p>	<p>Can they explore the menu options and experiment with images (colour effects, options, snap to grid, grid settings etc.)? Can they add special effects to alter the appearance of a graphic? Can they 'save as' gif or ipeg. Wherever possible to make the file size smaller (for emailing or downloading)? Can they make an information poster using their graphics skills to effect?</p>
Communicating					
<p>Do they recognise what an email address looks like? Have they joined in sending a class email? Can they use the @ key and type an email address? Can they word process ideas using a keyboard?</p>	<p>Can they send and reply to messages sent by a safe email partner (within school)? Can they word process a piece of text? Can they insert/delete a word using the mouse and arrow keys? Can they highlight text to</p>	<p>Can they use the email address book? Can they open and send an attachment?</p>	<p>Do they appreciate the benefits of ICT to send messages and to communicate? • Can they use the automatic spell checker to edit spellings?</p>	<p>Can they use instant messaging to communicate with class members? Can they conduct a video chat with someone elsewhere in the school or in another school?</p>	<p>Can they conduct a video chat with people in another country or organisation?</p>

Can they use the spacebar, back space, enter, shift and arrow keys?	change its format (B, U, I)?				
Using the Internet					
Can they print out a page from the internet?		Can they find relevant information by browsing a menu? Can they search for an image, then copy and paste it into a document? Can they use 'Save picture as' to save an image to the computer? Can they copy and paste text into a document? Do they begin to use note making skills to decide what text to copy?	Can they use a search engine to find a specific website? Can they use note-taking skills to decide which text to copy and paste into a document? Can they use tabbed browsing to open two or more web pages at the same time? Can they open a link to a new window? Can they open a document (PDF) and view it?	Can they use a search engine using keyword searches? Can they compare the results of different searches? Can they decide which sections are appropriate to copy and paste from at least two web pages? Can they save stored information following simple lines of enquiry? Can they download a document and save it to the computer?	Can they contribute to discussions online? Can they use a search engine using keyword searches? Can they use complex searches using such as '+' 'OR' "Find the phrase in inverted commas"?
Databases					
		Can they input data into a prepared database? Can they sort and search a database to answer simple questions? Can they use a branching database?	Can they input data into a prepared database? Can they sort and search a database to answer simple questions? Do they recognise what a spread sheet is? Can they use the terms 'cells', 'rows' and 'columns'? Can they enter data, highlight it and make bar charts?	Can they create a formula in a spreadsheet and then check for accuracy and plausibility? Can they search databases for information using symbols such as = ≥ or ≤? Can they create databases planning the fields, rows and columns? Can they create graphs and tables to be copied and pasted into other documents?	Can they collect live data using data logging equipment? Can they identify data error, patterns and sequences? Can they use the formulae bar to explore mathematical scenarios? Can they create their own database and present information from it?
Presentation					
		Can they create a presentation that moves from slide to slide and is aimed at a specific audience? Can they combine text, images and sounds and show awareness of audience? Do they know how to manipulate text, underline text, centre text, change font and size and save text to a folder?	Can they create a lengthy presentation that moves from slide to slide and is aimed at a specific audience? Can they insert sound recordings into a multimedia presentation? Do they know how to manipulate text, underline text, centre text, change font and size and save text to a folder?	Can they use a range of presentation applications? Do they consider audience when editing a simple film? Can they use ICT to record sounds and capture both still and video images? Can they make a home page for a website that contains links to other pages? Can they capture sounds, images and video? Can they use the word count tool to check the length of a	Can they present a film for a specific audience and then adapt same film for a different audience? Can they create a sophisticated multimedia presentation? Can they confidently use text formatting tools, including heading and body text? Can they use the 'hanging indent' tool to

				document? Can they use bullets and numbering tools?	help format work where appropriate (e.g. a play script)?
Challenge					
Can they record pupils' voices as a voice over? Can they use a teacher prepared photo story to create a slideshow of photos?	Can they create a presentation in a small group and record the narration? Can they record sounds into software and playback? Can they insert pre-recorded sounds into a presentation? Can they capture still and moving images?	Can they search by keyword using a child friendly search engine? Can they bookmark a page into your favourites? Can they contribute to a class blog? Can they use repeat command in logo to create a pattern?	Can they use photo editing software to crop photographs and add effects? Can they copy and paste the graph/bar chart and use it in a WP document? Can they use animation in their presentation?	Can they make a multimedia presentation that contains: sound; animation; video and buttons to navigate? Can they save an image document as a gif or I peg. File format using the 'save as' command? Can they make an information poster using graphic skills to good effect?	Can they incorporate graphics where appropriate, using the most effective text wrapping formats? Can they conduct a video chat with more than one person at a time? Can they compare the information provided on two tabbed websites looking for bias and perspective?

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge and Understanding.					
	<p>Can they follow the school's safer internet rules?</p> <p>Can they use the search engines agreed by the school?</p> <p>Can they act if they find something inappropriate online or something they are unsure of (including identifying people who can help; minimising screen; online reporting using school system etc)?</p>	<p>Do they understand the need for rules to keep them safe when exchanging learning and ideas online?</p> <p>Can they recognise that information on the internet may not be accurate or reliable and may be used for bias, manipulation or persuasion?</p> <p>Do they understand that the internet contains fact, fiction and opinion and begin to distinguish between them?</p> <p>Do they understand the need for caution when using an internet search for images and what to do if they find an unsuitable image?</p> <p>Do they understand that copyright exists on most digital images, video and recorded music?</p> <p>Do they understand the need to keep personal information and passwords private?</p> <p>Do they understand that if they make personal information available online it may be seen and used by others?</p> <p>Do they know how to respond if asked for personal information or feel unsafe about content of a message? Can they recognise that cyber bullying is unacceptable and will be sanctioned in line with the school's policy?</p> <p>Do they know how to report an incident of cyber bullying? Do they know the difference between</p>	<p>Do they understand the need for rules to keep them safe when exchanging learning and ideas online? Can they recognise that information on the internet may not be accurate or reliable and may be used for bias, manipulation or persuasion? Do they understand that the internet contains fact, fiction and opinion and begin to distinguish between them? Can they use strategies to verify information, e.g. crosschecking? Do they understand the need for caution when using an internet search for images and what to do if they find an unsuitable image? Do they understand that copyright exists on most digital images, video and recorded music? Do they understand the need to keep personal information and passwords private? Do they understand that if they make personal information available online it may be seen and used by others? Do they know how to respond if asked for personal information or feel unsafe about content of a message? Can they recognise that cyber bullying is unacceptable and will be sanctioned in line with the school's policy? Do they know how to report an incident of cyber bullying? Do they know the</p>	<p>Can they discuss the positive and negative impact of the use of ICT in their own lives and those of their peers and family? Do they understand the potential risk of providing personal information online? Do they recognise why people may publish content that is not accurate and understand the need to be critical evaluators of content? Do they understand that some websites and/or pop-ups have commercial interests that may affect the way the information is presented? Do they recognise the potential risks of using internet communication tools and understand how to minimise those risks (including scams and phishing)? Do they understand that some material on the internet is copyrighted and may not be copied or downloaded? Do they understand that some messages may be malicious and know how to deal with this? Do they understand that online environments have security settings, which can be altered, to protect the user? Do they understand the benefits of developing a 'nickname' for online use? Do they understand that some malicious adults may use various techniques to contact and elicit personal information? Do they know that it is unsafe to arrange to meet unknown people online? Do they know how to report any suspicions? Do they understand they should not publish other people's pictures or</p>	<p>Can they discuss the positive and negative impact of the use of ICT in their own lives and those of their peers and family? Do they understand the potential risk of providing personal information online? Do they recognise why people may publish content that is not accurate and understand the need to be critical evaluators of content? Do they understand that some websites and/or pop-ups have commercial interests that may affect the way the information is presented? Do they recognise the potential risks of using internet communication tools and understand how to minimise those risks (including scams and phishing)? Do they understand that some material on the internet is copyrighted and may not be copied or downloaded? Do they understand that some messages may be malicious and know how to deal with this? Do they understand that online environments have security settings, which can be altered, to protect the user? Do they understand the benefits of developing a 'nickname' for online use? Do they understand that some malicious adults may use various techniques to contact and elicit personal</p>

		<p>online communication tools used in school and those used at home? Do they understand the need to develop an alias for some public online use? Do they understand that the outcome of internet searches at home may be different than at school?</p>	<p>difference between online communication tools used in school and those used at home? Do they understand the need to develop an alias for some public online use? Do they understand that the outcome of internet searches at home may be different than at school?</p>	<p>tag them on the internet without permission? Do they know that content put online is extremely difficult to remove? Do they know what to do if they discover something malicious or inappropriate?</p>	<p>information? Do they know that it is unsafe to arrange to meet unknown people online? Do they know how to report any suspicions? Do they understand they should not publish other people's pictures or tag them on the internet without permission? Do they know that content put online is extremely difficult to remove? Do they know what to do if they discover something malicious or inappropriate?</p>
Skills					
		<p>Can they use the internet for learning and communicating with others, making choices when navigating through sites? Can they send and receive email as a class? Can they recognise advertising on websites and learn to ignore it? Can they use a password to access the secure network?</p>	<p>Do they follow the school's safer internet rules? Do they recognise the difference between the work of others which has been copied (plagiarism) and restructuring and re-presenting materials in ways which are unique and new? Can they begin to identify when emails should not be opened and when an attachment may not be safe? Can they explain how to use email safely? Can they use different search engines? Can they use strategies to verify information, e.g. crosschecking?</p>	<p>Do they follow the school's safer internet rules? Do they recognise the difference between the work of others which has been copied (plagiarism) and restructuring and re-presenting materials in ways which are unique and new? Can they begin to identify when emails should not be opened and when an attachment may not be safe? Can they explain how to use email safely? Can they use different search engines?</p>	<p>Do they follow the school's safer internet rules? Can they make safe choices about use of technology? Do they use technology in ways which minimises risk, e.g. responsible use of online discussions, etc? Can they create strong passwords and manage them so that they remain strong? Can they independently, and with regard for e-safety, select and use appropriate communication tools to solve problems by collaborating and communicating with others within and beyond school? Can they competently use the internet as a search tool? Can they reference information sources? Can they use appropriate strategies for finding, critically evaluating, validating and verifying information, e.g. using different keywords, skim reading to check relevance of information, cross checking with different websites or other non ICT resources? Can they use knowledge of the meaning of different domain names and common website extensions (e.g. .co.uk; .com; .ac;</p>

					.sch; .org; .gov; .net) in order to support validation of information?
WIDER EXPERIENCES Cultural Capital & multiculturalism	Animation Day Visits to museums e.g. Museum of Science & Industry Lessons led by specialist Computing Teacher				

KEY SKILLS PROGRESSION IN e-SAFETY

IMPACT

Computing is assessed in a formative manner throughout lessons so that the teacher can make constructive interventions where needed in order that children can reflect on their work and progress. Teachers use this information to inform future lessons; ensuring children are supported and challenged appropriately.

Pupils will be assessed against the end of year expectations for their year group (as outlined in the 'LPDS National Curriculum Assessment Materials') at the end of each unit. Teachers will use the skills-based objectives as outlined above to help inform their judgements. This data is analysed on a termly basis to inform and address any trends or gaps in attainment.

Pupils in Key Stage Two are also encouraged to self and peer assess and evaluate their work and to make judgements on what they can improve.