



Our Computing curriculum is ambitiously constructed to engage, inspire, challenge and develop logical thinking, awareness of digital issues and confidence and competence in using a range of tools to support learning across the curriculum.

A high-quality computing education should equip our children to think critically, logically, creatively and safely in their use of technology. As pupils progress through the curriculum, they should develop increasing confidence and the skills that will underpin their economic and mental wellbeing in an increasingly technological and global world.



BIG IDEAS

Technology is everywhere and will play a pivotal part in our students' lives, therefore, we want:

- our pupils to know how to use technology positively, responsibly and safely.
- to ensure our pupils are not just consumers, but also potential creators.
- to help our pupils to understand that there is always a choice with using technology and to model positive use.
- to provide opportunity for pupils to apply their knowledge creatively and to ensure staff try and embed computing across the whole curriculum.
- our pupils to be fluent with a range of tools to best express their understanding and have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.



CONTENT & SEQUENCING

- **Knowledge and skill development**
In order to support teachers, in what is a highly technical area, to provide a high quality computing curriculum we have chosen to broadly follow a scheme of work using 2Simple's 'Purple Mash' which provides a good, progressive curriculum coverage across all year groups, as well as provision for mixed year classroom settings. In addition, the skills learnt, combined with the resources available, are expected to be implemented across the broader curriculum as a means of both learning through investigation and of providing a record of learning.
- **Quality assurance**
Periodic planning and 'walk-in' lesson scrutinies will be used within and across year groups to ensure high quality planning and teaching is taking place. Progress will be demonstrated through the ability of pupils to be able to use and apply a range of software and hardware to complete age appropriate tasks and to talk, using computational language, about how they achieved their end results and why they chose specific tools and methods.
- **Equality**
All pupils will have access on a class by class basis to the resources required to teach the computing curriculum. In addition, as above, opportunities will arise for all children to demonstrate their skills through the use of IT in other subject areas. All children will be taught about the safe and respectful use of the internet and communication tools in an age appropriate manner.



DIRECT INSTRUCTION

- A range of hardware and software to be used including Laptops, tablets and other recording devices using Purple Mash, Microsoft and Apple based software and a range of appropriate design, recording and editing apps.
- Lessons are led by teachers (or suitably competent adults) with **learning focussed**, progressive activities.
- Feedback is predominantly 'in the moment' and explicit.



RETRIEVAL PRACTISE

- "Can you still...?" tasks are systematically included in teaching *sequences through utilisation of technology in other subject areas*.
- Cross year group links are made explicitly in order to refer to and build on prior learning.
- Important concepts and vocabulary e.g. specified vocabulary is taught, used, expected and tested regularly.



PROGRESS

- Units of work that are carefully sequenced so that prior knowledge, concepts and skills are built upon#.
- Our curriculum follows a progressive model that also allows for development through cross-curricular use of skills gained.
- Organising, developing and connecting big ideas through the effective use of hardware, software and appropriate apps to link with other subjects.
- End of unit saved pieces of work.



SUPPORT

- Everyone has equitable access to units of work.
- Structured questions and **sentence stems** are used to support children's progress.
- Quality, guided instruction and explicit modelling are used for all.



STEM: Science, Technology & Computing

Year Group	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cycle (A or B)	FS1	FS2	Year 1/2 A	Year 1/2 B	Year 3/4 A	Year 3/4 B	Year 5/6 A	Year 5/6 B

Computing Key Themes: Coding & computational thinking Spreadsheets, Databases & Graphing Online Safety Art, Design & Music Writing & Presenting Communication & Networks	Children's learning will include an age- appropriate introduction to e-safety and the protection of personal information (in red). All modules can be found on Purple Mash with the plan numbers indicated in bold below. Outcomes will focus on the understanding of key concepts and the application of learning to achieve outcomes within computing and applied across other subject areas.							
			Coding and Computational thinking Following and creating simple instructions on a computer. PM1.4 Sorting using a range of criteria. PM1.2 Using code blocks to perform actions. PM1.7	Coding and Computational thinking Changing and extending algorithms PM1.5 Understanding algorithms PM2.1	Coding and Computational thinking Using flowcharts PM3.1	Coding and Computational thinking Using 'variables' PM4.1 Logo PM4.5	Coding and Computational thinking Making games PM5.1	Coding and Computational thinking Design, Code, Test, Debug PM6.1 Mapping and creating text adventures PM 6.5
				Spreadsheets, Databases and Graphing Handling Data, Answering questions PM2.4 Using Pictograms PM1.3 Counting machines and graphs PM2.3	Spreadsheets, Databases and Graphing Yes, or No? PM3.6 Handling Data, Answering questions II PM3.8 Formatting, Formulas and Wizards PM4.3		Spreadsheets, Databases and Graphing Handling Data, Answering questions III PM5.4 Modelling and answers PM6.3	
			Internet & email Searching PM2.5	Internet & email Searching and sharing Digital footprints PM2.2	Internet & email Blogging, truth and safety PM3.2 Emails PM3.5	Internet & email Identity theft, Copying and online wellbeing PM4.2 Truth and reliability PM4.7	Internet & email Impacts and Responsibilities PM5.2	Internet & email Sharing, Caring and what you Leave Behind PM6.2
			Art and Design Digital Painting, Impressionism, Pointillism - William Morris PM2.6	Art and Design Stories with Sound and Motion PM1.6	Music Using sounds, making music PM2.7	Art and Design Animation PM4.6	Art and Design Game environments PM5.5 Computer Aided Design PM5.6	
				Writing and presenting Stories, Fact-files and Presentations PM2.8	Writing and presenting Using a keyboard PM3.4	Writing and presenting In the News PM4.4	Writing and presenting Concept maps and visuals PM5.7	Writing and presenting Blogging PM6.4 Quizzes PM6.7
			Communication and networks Logging in, Logging out Keeping ourselves safe PM1.1 Technology everywhere.PM1.9	Communication and networks Logging in, Logging out Keeping ourselves safe PM1.1	Communication and networks Simulations PM3.7	Communication and networks What is a computer made of? PM4.8		Communication and networks What has the internet ever done for us? PM6.6



Skill Development

Year Group	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cycle (A or B)	FS1	FS2	Year 1/2 A	Year 1/2 B	Year 3/4 A	Year 3/4 B	Year 5/6 A	Year 5/6 B
Coding & computational thinking			<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. Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code. Create and debug simple programs. Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors. Their program designs display a growing awareness of the need for logical, programmable steps. Use logical reasoning to predict the behaviour of simple programs. Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program. 	<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. Children's designs show an understanding of the task set and an understanding of how to accomplish it in code. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Children use timers to achieve repetition effects. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. 	<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. Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole. 			
Spreadsheets, Databases & Graphing			<ul style="list-style-type: none"> Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Children demonstrate an ability to organise data using, for example, a database such as 2Investigate and can retrieve specific data for conducting simple searches. They are confident when creating, naming, saving and retrieving content. They use a range of media in their digital content including photos, text and sound. 	<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. Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database or using spreadsheet software to create graphs. Children can consider what software is most appropriate for a given task a create purposeful content. 	<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. Children objectively review solutions from others and are able to collaboratively create content and solutions using digital features within software. They are able to use several ways of sharing digital content. 			
Online Safety			<ul style="list-style-type: none"> 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. Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. 	<ul style="list-style-type: none"> Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact. Children can explore key concepts relating to online safety. They can help others to understand the importance of online safety. They know a range of ways of reporting inappropriate content and contact. 	<ul style="list-style-type: none"> Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concern about content and contact. Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety. 			



Art, Design & Music	•	•	<ul style="list-style-type: none"> • Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Children are able to edit more complex digital data such as music compositions within. They are confident when creating, naming, saving and retrieving content. 	<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. Children make informed software choices when presenting information and data. They create linked content using a range of software and are able to share digital content within their community 	<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. Children make clear connections to the audience when designing and creating digital content. They are able to design and create their own blogs and are able to evaluate the quality of digital content, identify improvements and make some refinements. 	
Writing & Presenting	•	•	<ul style="list-style-type: none"> • Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Children use a range of media in their digital content including photos, text and sound. They are confident when creating, naming, saving and retrieving content. 	<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. Children make informed software choices when presenting information and data. They create linked content using a range of software and are able to share digital content within their community 	<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. Children make clear connections to the audience when designing and creating digital content. They are able to design and create their own blogs and are able to evaluate the quality of digital content, identify improvements and make some refinements. 	
Communication & Networks	•	•	•	•	<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. Children recognise the main component parts of hardware which allow computers to join and form a network. They can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails (using 2Email). They can describe appropriate email conventions when communicating in this way. 	<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. Children understand and can explain in some depth the difference between the internet and the World Wide Web. They know what a WAN and LAN are and can describe how they access the internet in school. They understand the value of computer networks but are also aware of the main dangers. They can select the most appropriate form of online communications contingent on audience and digital content.

Sample questions asked during recent inspections under the EIF (Sept 2019). These are not included here to be answered directly as individual questions but should provoke careful thought about the development of our curriculum, the role of the subject leader and the quality of everyday teaching and provision.

Curriculum (mainly aimed at senior leaders but also applicable to subject leaders):

- Where are you in your curriculum development?
- How are we developing our approach to the curriculum?
- How is the curriculum designed for disadvantaged children and children with SEND?
- How do we ensure clear subject coverage, progression and sequencing in our curriculum?
- Does what is taught and learned (i.e. remembered and therefore can be recalled) match intended coverage?
- Does the provision meet the same standards across different subjects?
 - Which subjects are stronger than others? What are we doing about that?
- To what extent do pupils retain prior learning?
- How are subject misconceptions addressed?
- How do teachers and children record learning and how is this assessed?
- Do teachers use and teach, and children learn and use, key subject vocabulary?
- Do teachers have sound subject knowledge?
- Do senior leaders, subject leaders and teachers have strong pedagogical knowledge?

Subject Leaders (generic questions):

- How have you designed your curriculum?
- What are you trying to achieve with your curriculum?
- What are your aims for this subject in our school?
- What schemes do you follow and why (or why not)?
- Why is this subject taught in this way?
- How do children progress in this subject over time at our school?
(Progress is defined as knowing more, remembering more and being able to do more.)
- How do you ensure that subject specific knowledge is retained?
- How do you ensure that pupils with SEND benefit from the curriculum in this subject?
- Are expectations high enough for these pupils and how do you know?
- What do curriculum leaders expect that inspectors will see when they visit lessons and speak to pupils?
- How are misconceptions addressed in this subject?
- How does this subject link with other curriculum areas?
- How do you, as subject leader, support staff?
- What subject specific resources do you offer pupils and how are they matched to the curriculum?

Thongsley Fields Primary & Nursery School

Each inspection under the current inspection framework (EIF Sept 2019) will include at least two mandatory 'deep dives' in addition to one or more other subject areas.

Early Reading and Phonics Deep Dives (mandatory in most Primary schools):

- How is reading prioritised in our school?
- How do we promote a love of reading?

- The inspector will check reading books to ensure that they match to the sounds that children are being taught.
- The inspector will visit phonics lessons.
- The inspector will look at how quickly children begin reading in Reception.

- How do we ensure that children keep up?
- What happens when children fall behind?
- How have staff developed their expertise in teaching early reading so that children learn to read quickly?

- The inspector will scrutinise the phonics programme in use.

Deep Dives into specified subject areas will focus on the Intent (content and planning – the what and why), the Implementation (teaching) and Impact (learning) evident in that subject area. Questions will be asked of subject leaders and quality assured through discussions with teachers, teaching assistants, pupils and evidence gained through work produced and observations of teaching.

Deep Dive – Phonics Questions to English/Phonics Leader:

- In a nutshell, how do you ensure that the teaching of early reading is prioritised?
- How often do teachers read to children?
- How do you support teachers to ensure that storytime is engaging?
- How do you select the books that you are reading to children?
- How do you decide on those stories that children get to know inside out?
- How do you get parents to love reading to their children?
- Can you tell me how the Y1s did in the Phonics Screening Check?
 - I'd like to explore how your programme enables you to achieve this year after year.
 - What plans do you have to improve the score?
- How do you ensure that children remember the sound for letters, digraphs and trigraphs, blend sounds into words, read exception words, learn correct letter formation and learn to spell?
- Could you tell me how you break down your phonics curriculum?
- What phonic knowledge do you want your children to have by the time that they finish Year 1?
- What do you do to ensure that children continue to make progress in reading accuracy and fluency in Year 2?
- How does this set them up for the next stage in their learning?
- How do parents listen to their children at home?
- How often do children change their reading books?
- How do you know which children are not keeping up?
- What systems do you have in place to quickly spot children that fall behind?
 - What provision is put in place for them?
- How do you develop your staff?
- How do you know that all staff have the same knowledge and skills (including new staff and NQTs)?

Questions to teachers:

- Which books have you enjoyed reading to your children recently?
 - What made you choose that book?
- How do you spot children who are not keeping up?
- What support is put in place for these children?
- Tell me about your training and development.
 - How has this helped you teach children so that children remember what you teach them?

Questions to Reception Teacher:

- When do you start to teach children letter-sound correspondence?
- How many sounds will your children be able to read at the end of each term?
- We are now X weeks into the Autumn/Spring Term – where are children at currently in their phonics progression?

Deep Dive – Maths Questions to Maths Leader:

- How you sequence maths learning from Early Years to Y2?
- How do you tweak maths planning? Why do you do that?
- How are chn performing in EYFS?
- What does long-term planning look like?
- How does this break down across year groups?
- How do teachers use these plans to design their lessons?
- Do the children revisit prior learning? (E.g. Length and height)
- How do you enable children to remember?
- How is learning built upon?
- Will I see these “small steps” (White Rose Maths) when I am visiting lessons?
- So, Early Years, tell me how that’s planned?
- What training have staff had to enable them to teach maths successfully?

Book look with maths leader:

- What will I see in the books?
- What do you notice?
- Can you show me, in the books, how learning is built upon?

“We are not necessarily looking at progress in isolation – but how well the books match the skills that are planned and how well the children achieve against this.”

- What’s the latest piece of work in the book?
- What’s happened before? (In the sequence)
- What will I see today when I look at lessons?
- Is there progression in vocabulary and language used?
- How do you know what the children struggled with in the previous year?

Geography Deep Dive (similar to maths deep dive)

- What are the big ideas that you want children to have grasped by the time that they leave your school?
- How you sequence learning from Early Years to Y6?
- How do we revisit prior learning?
- How is the revisiting of prior learning built into long term planning?
- What progression models do you use in Geography?
- How are chn performing in EYFS in understanding of the world?
- What is there in provision for UotW in EYFS?
- What does long-term planning look like?
- How do teachers use the long-term planning to decide on teaching activities?
- What pedagogical choices to teachers make, that ensure that children make progress, whilst staying true to the ways that we know children learn?

Joint observation – HMI and Geography Leader.

During the observation the inspector watched closely: the language used by the teacher, the interactions between children, the role of the TA and how they supported learning, the information that was given to children.

After the observation, the HMI asked the subject leader:

- What did you see?
- What would be the development point that you would give after that lesson?
- How has that lesson built on prior learning?
- What pedagogical choices did the teacher make in delivery of the lesson content?

Book Look:

The HMI and Geography leader examined books from the current Y1 and Y2, and learning journals from EYFS.

- KS1 books:
 - Can you tell me how the teacher has progressed through the progression model?
 - How well have the children grasped the learning here?
 - Do you think the children will remember the key learning from this lesson (pointing to work from first week back)?
 - What would you expect the teacher to do next?
- EYFS Learning Journals:
 - How do you sequence learning in EYFS?
 - Do you think this enables pupils to excel as potential future geographers? Why?
 - Could you tell me about the progress that this child has made in Understanding of the World in Nursery? (Using last year's learning journals).
 - Do the learning journals enable leaders to monitor progress in specific areas effectively?