A voyage of discovery – We are sailing to success together… Computing

INTENT	AIMS
	At Trafalgar Community Infant School, 'we keep safe' is a core value so we model and educate our children on how to use technology positively, responsibly and safely. All children have equal and inclusive opportunities to achieve highly. Our knowledge rich curriculum is balanced and provides children with opportunities to apply their knowledge creatively, which will in turn help our children become skilful computer scientists. We understand that technology is everywhere and is becoming a pivotal part in children's lives, so we embed computing across the whole curriculum, making links to other curriculum areas in a creative and accessible way. We ensure children have equal opportunities to work collaboratively with a range of technology. We want our pupils to be fluent with a range of tools that best express their understanding, and for them to have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.

IMPLEMENTATION	APPROACH: Holistic, physical , well-being, healthy lifestyle, intellectual, personal, social, emotional, spiritual, moral and cultural		
	Computer Science	Information Technology	Digital Literacy
	Computational Thinking	Word Processing/Typing	Self Image and Identity
	Programming	Data Handling	Online Relationships
	Computer Networks	Presentations and eBook	Online Reputation
		Animation	Online Bullying
		Video creation	Managing Online Information
		Photography and Digital Art	Health, wellbeing and Lifestyle
		Sound	Privacy and Security
	We feel the majority of computing should be embedded across the curriculum. Although a timetabled Computing session is sometimes used, we hope this approach will allow for flexibility; using technology to demonstrate learning in other subjects. When used, a timetabled computing session should focus on one of two elements: An Explicit Computer Science lesson or A Tinkering Session. The computer science part of the computing curriculum will often, but not always, need a more explicit approach. That is not to say it can't be embedded across the curriculum. A tinkering session looks at introducing a new app or tool and giving children opportunity to experiment and familiarise themselves with the different elements and tools before it can be applied in a more focused approach across the curriculum.		

IMPACT	CHILDREN MAKE EXPECTED OR GREATER THAN EXPECTED PROGRESS
	We encourage our children to enjoy and value the curriculum we deliver. We will constantly ask the WHY behind their learning and not just the HOW. We want learners to discuss, reflect and appreciate the impact computing has on their learning, development and well-being. Finding the right balance with technology is key to an effective education and a healthy life-style. We feel the way we implement computing helps children realise the need for the right balance and one they can continue to build on in their next stage of education and beyond. We encourage regular discussions between staff and pupils to best embed and understand this. The way pupils showcase, share, celebrate and publish their work will best show the impact of our curriculum. We also look for evidence through reviewing pupil's knowledge and skills digitally through tools like 2 Simple-Evidence Me and Purple Mash and observing learning regularly. Progress of our computing curriculum is demonstrated through outcomes and the record of coverage in the process of achieving these outcomes.

Long Term Progression Plan – Computing

Communication & Language:

Listening, Attention & Understanding

Listen attentively and respond to what they hear with relevant questions, comments and actions.

Make comments about what they have heard and ask questions to clarify their understanding.

Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.

Speaking

Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.

Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems where appropriate.

Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.

EYFS ELG	Expressive Arts & Design: Creating with Materials	Understanding the World: Past and Present	Mathematics: Number	Expressive Arts & Design: Being Imaginative & Expressive	Personal, Social and Emotional Development: Managing Self	Mathematics: Number
	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. Make use of props and materials when role playing characters in narratives and stories. **Physical Development: Fine Motor Skills** Begin to show accuracy and care when drawing.	Talk about the lives of the people around them and their roles in society. **People, Culture & Communities** Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.	Have a deep understanding of number to 10, including the composition of each number. Subitise up to 5. **Understanding the World: Past & Present** Understand the past through settings, characters and events encountered in books read in class and storytelling.	Sing a range of well-known nursery rhymes and songs. Perform songs, rhymes, poems and stories with others. Invent, adapt and recount narratives and stories with peers and their teacher.	Manage their own basic hygiene and personal needs including the importance of healthy food choices. **Understanding the World: The Natural World** Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. **Literacy: Writing** Spell words by identifying sounds in them and representing the sounds with a letter or letters.	Have a deep understanding of number to 10, including the composition of each number. Subitise up to 5. Automatically recall number bonds up to 5 and some number bonds to 10, including double facts. **Numerical Patterns** Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

					Write (type) simple phrases and sentences that can be read by others. **Comprehension** Demonstrate understanding of what has been read to them by retelling stories and narratives using their own words and recently introduced vocabulary. Anticipate key events in stories.	
EYFS	**Autumn 1**	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
	Continuous provision/ self-initiated/ independent learning: Class computers iPads Talk tins Interactive whiteboard – games and activities to support all areas of the curriculum. *See Purple Mash lesson plans/ ideas.*					
	Topic PINS on Mini Mash: All About Me, Feelings, Autumn, Christmas, People Who Help Us.	**Topic PINS on Mini Mash:** All About Me, Feelings, Autumn, Christmas, People Who Help Us.	**Topic PINS on Mini Mash:** Toys, Spring, Chinese New Year, Easter, Superheroes, Transport, Vehicles.	**Topic PINS on Mini Mash:** Toys, Spring, Chinese New Year, Easter, Superheroes, Transport, Vehicles.	**Topic PINS on Mini Mash:** Summer, Growing, Baby Animals, Farm, Teddy Bear's Picnic, Food, Seaside, Mini-beasts.	**Topic PINS on Mini Mash:** Summer, Growing, Baby Animals, Farm, Teddy Bear's Picnic, Food, Seaside, Mini-beasts.
	Adult Led (AL) focus area: 2 Paint a Picture **Knowledge** **Pupils will know:** • how to share their creations, explaining the process they have used. • how to change the size of brush to show accuracy and care when drawing. Paint Projects **Knowledge** **Pupils will know:** • how to experiment with a variety of pens (different thickness and colours). *See Purple Mash for lesson plans/ ideas.*	**AL focus area:** Simple City (The Doctors, The Vets) **Knowledge** **Pupils will know:** • the roles and responsibilities of people in the community. • How to compare their own experiences and environments with those around them. *See Purple Mash for lesson plans/ ideas.* **Skills focus:** Keyboard skills. Using Purple Mash with an Individual Login.	**AL focus area:** Maths City 1 'Toy Shop' **Knowledge** **Pupils will know:** • how to read a price tag. • how to count out a certain amount. Old and New Slide Slows (Toys, Vehicles) **Knowledge** **Pupils will know:** • how to discuss the differences between past and present. *See Purple Mash for lesson plans/ ideas.* ChatterPix Talk Tins	**AL focus area**: Mashcams (link to role play area) **Knowledge** **Pupils will know:** • how to create their own role play character to support their imaginative play. • how to offer their own ideas in small group role play. 2Beat **Knowledge** **Pupils will know:** • how to experiment with beats and rhythms. • How to choose their own instrument and create a	**AL focus area:** Paint Projects **Knowledge** **Pupils will know:** • Different types of plants, animals, insects and habitats around us. • how to create a picture to show the changes in seasons. 2 Create a Story **Knowledge** **Pupils will know:** • how to create a story based on a class key text. • how to change the characters/ plot to create their 'own' story.	**AL focus area:** 2Race (number bonds to 5 and 10) **Knowledge** **Pupils will know:** • number bonds to 5 and 10. Maths City 1 (The Farm) **Knowledge** **Pupils will know:** • the composition of numbers to 10. *See Purple Mash for lesson plans/ ideas.* **Skills focus:** Quizzes. *See 'I can' statements for Purple Mash.*

	Skills focus: Mouse and Trackpad skills. *See 'I can' statements for Purple Mash.*	*See 'I can' statements for Purple Mash.*	**SAFER INTERNET DAY** **Skills focus:** Safety and Privacy. *See 'I can' statements for Purple Mash.*	simple tune, experimenting with volume and speed. *See Purple Mash for lesson plans/ ideas.* **Skills focus:** Robots. *See 'I can' statements for Purple Mash.*	• how to express their own ideas including words, pictures, sound effects, music and voice. *See Purple Mash for lesson plans/ ideas.* **Skills focus:** Technology Around Us. *See 'I can' statements for Purple Mash.*	
EYFS Key Skills Vocabulary	computer mouse, cursor, computer screen, touchpad, mouse roller.	keyboard, keys, capital letters, lowercase letters, arrow keys, screen, inputs. username, password, login, shortcut icon.	private.	route, directions, robot, forwards, backwards, rotation, program, predict, instructions,	technology.	quiz, multiple choice, sequencing.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	**1.1 Online Safety** **(Digital Literacy)** *See Purple Mash for lesson plans.* **By the end of the unit pupils will know:** • how to log in safely. • how to find saved work in the Online Work area and find teacher comments. • how to open, save and print. • the importance of logging out. **By the end of the unit pupils will be able to:** •	**1.3 Pictograms** **(Information Technology)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • that data can be represented in picture format. • how to contribute to a class pictogram. • how to use a pictogram to record the results of an experiment.	**1.4 Lego Builders** **(Computer Science)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • how to compare the effects of adhering strictly to instructions to completing tasks without complete instructions. • how to follow and create simple instructions on the computer. • how to consider how the order of instructions affects the result.	**1.6 Animated Story Books** **(Information Technology)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • how to add animation and sound to a story, including voice recording and music the children have composed. • how to add backgrounds and copy and paste pages, to produce a more complex story. • how to share e-books on a class display board.	**1.7 Coding** **(Computer Science)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • what instructions are and predict what might happen when they are followed. • how code executes when a program is run. • how to plan and make a computer program.	**1.9 Technology Outside of School** **(Digital Literacy)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • how to walk around the local community and find examples of where technology is used. • how to record examples of technology outside school.

Year 1 Key Vocabulary	Alert, device, log in, my work area, avatar, file name, log out, notification, private, button, icon, menu, password, Purple Mash tools, saving, search.	Collect data, compare, data, pictogram, record results, title.	Algorithm, code, computer, debugging, instructions, program.	Animation, e-book, sound, background, edit, sound effect, clip-art gallery, font, text.	Action, algorithm, background, code, command, debug/ debugging, event, execute, input, instructions, object, output, properties, run, scale, scene, sound, when clicked.	Computer, technology.

Year 2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	2.1 Coding (Computer Science) *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • what an algorithm is. • how to create a computer program using an algorithm. • that algorithms follow a sequence. • how to debug simple programs.	**2.2 Online Safety (Digital Literacy)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • and understand about sharing more globally on the Internet. • how we should talk to others in an online situation. • that information put online leaves a digital footprint or trail. • how to identify the steps that can be taken to keep personal data and hardware secure.	**2.4 Questioning (Information Technology)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • about data handling tools that can give more information than pictograms. • how to construct a binary tree to identify items. • how to use the Search tool to find information.	**2.8 Presenting Ideas (Information Technology)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • how a story can be presented in different ways. • how to make a quiz about a story or class topic. • how to make a fact file on a non-fiction topic. • how to make a presentation to the class.	**2.3 Spreadsheets (Information Technology)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • how to copy and paste. • how to use a money spreadsheet for money calculations. • how to use the 2Calculate equals tool to check calculations and to collect data and produce a graph.	**2.6 Creating Pictures (Information Technology)** *See Purple Mash for lesson plans.* **Knowledge** **Pupils will know:** • how to recreate the impressionist style of art (Monet, Degas, Renoir). • about the work of Piet Mondrian and recreate the style using the lines template. • about the work of William Morris and recreate the style using the patterns template.
Year 2 Key Vocabulary	Action, bug, collision detection, algorithm, button, command, event, background, click events, debug/ debugging, execute, implement, interval, properties, instructions, object, run, interaction, output.	Attachment, filter, private information, digital footprint, internet, search, email, personal information, secure, sharing.	Binary tree, field, record, data, pictogram, search, database, question, sort.	E-book, mind map, presentation, fact file, node, quiz, fiction, non-fiction.	Block graph, copy, drag, label, table, cell, count tool, equals, row, total, column, data, equals tool, speak tool.	Art, palette, style, fill, pointillism, impressionism, surrealism.

Early Learning Goals

Communication and Language

Listening, Attention and Understanding

- Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions.
- Make comments about what they have heard and ask questions to clarify their understanding.
- Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.

Speaking

- Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.
- Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate.
- Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.

Understanding the World

Past and Present

- Talk about the lives of the people around them and their roles in society.
- Know some similarities and differences between things in the past and now, drawing on their experiences and what has been read in class.
- Understand the past through settings, characters and events encountered in books read in class and storytelling.

People, Culture and Communities

- Describe their immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps.
- Know some similarities and differences between different religious and cultural communities in this country, drawing on their experiences and what has been read in class.
- Explain some similarities and differences between life in this country and life in other countries, drawing on knowledge from stories, non-fiction texts and (when appropriate) maps.

The Natural World

- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Personal, Social and Emotional Development

Self-Regulation

- Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly.
- Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate.
- Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.

Managing Self

- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
- Explain the reasons for rules, know right from wrong and try to behave accordingly.
- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Building Relationships

- Work and play cooperatively and take turns with others.
- Form positive attachments to adults and friendships with peers.
- Show sensitivity to their own and to others' needs.

Expressive Arts and Design

Creating with Materials

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used.
- Make use of props and materials when role playing characters in narratives and stories.

Being Imaginative and Expressive

- Invent, adapt and recount narratives and stories with peers and their teacher.
- Sing a range of well-known nursery rhymes and songs.
- Perform songs, rhymes, poems and stories with others, and (when appropriate) try to move in time with music.

Mathematics

Number

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Physical Development

Gross Motor Skills

- Negotiate space and obstacles safely, with consideration for themselves and others.
- Demonstrate strength, balance and coordination when playing.
- Move energetically, such as running, jumping, dancing, hopping, skipping and climbing.

Fine Motor Skills

- Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases.
- Use a range of small tools, including scissors, paintbrushes and cutlery.
- Begin to show accuracy and care when drawing.

Literacy

Comprehension

- Demonstrate understanding of what has been read to them by retelling stories and narratives using their own words and recently introduced vocabulary.
- Anticipate (where appropriate) key events in stories.
- Use and understand recently introduced vocabulary during discussions about stories, non-fiction, rhymes and poems and during role play.

Word Reading

- Say a sound for each letter in the alphabet and at least 10 digraphs.
- Read words consistent with their phonic knowledge by sound-blending.
- Read aloud simple sentences and books that are consistent with their phonic knowledge, including some common exception words.

Writing

- Write recognisable letters, most of which are correctly formed.
- Spell words by identifying sounds in them and representing the sounds with a letter or letters.
- Write simple phrases and sentences that can be read by others.

Assessment in Computing in EYFS

The most relevant statements for computing are taken from the following areas of learning:
- Personal, Social and Emotional Development
- Physical Development
- Understanding the World
- Expressive Arts and Design

Computing			
Three and Four-Year-Olds	Personal, Social and Emotional Development		• Remember rules without needing an adult to remind them.
	Physical Development		• Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		• Explore how things work.
Reception	Personal, Social and Emotional Development		• Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: -sensible amounts of 'screen time'.
	Physical Development		• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		• Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	• Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly.
	Expressive Arts and Design	Creating with Materials	• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

At the beginning of each lesson: Teachers will deliver a short <u>review</u> section of the lesson to recap prior learning.

Throughout/ towards the end of each unit: Teachers will introduce <u>knowledge organisers</u> (on Purple Mash) at the beginning of a unit of work and throughout. Teachers will use <u>concept maps and quizzes</u> at the beginning of a unit to gather an understanding of what the children already know. Teachers will also use this assessment tool to assess the children at the end of the unit. The concept maps and quizzes can be set as 2Do's.

End of each unit: Teachers will use the Y1 and Y2 <u>Assessment document</u> (on Purple Mash). This assessment document is designed to be filled in at the end of each unit and then the end of the academic year. Unless stated it is assumed that the children are working at the expected outcomes for each unit. Only children not achieving the expected outcomes or those exceeding them need to be listed.

At the end of KS1 pupils will be able to: Teachers will use the <u>assessment document</u> as their main form of guidance and record keeping for children's attainment of units.

Subject content

Key stage 1

Pupils should be taught to:

- 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.