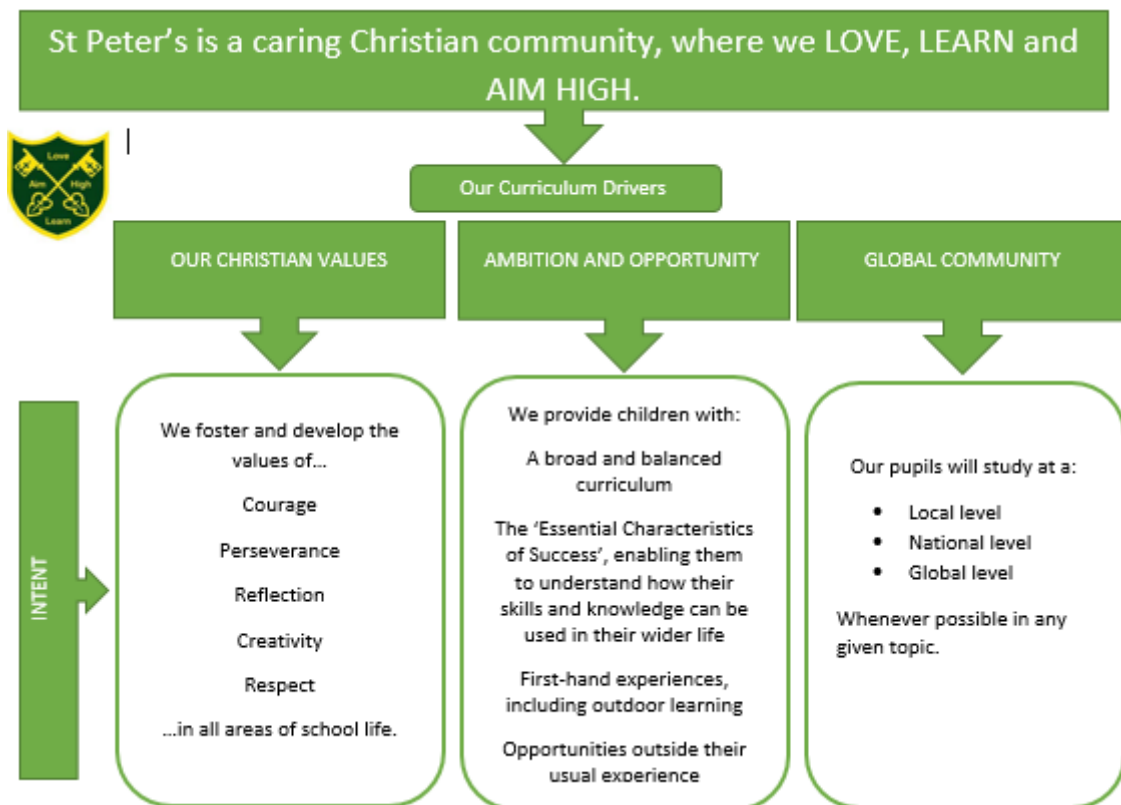


How we Teach Computing at St Peter's

At St Peter's, computing is integrated with the wider curriculum. Our computing curriculum seeks to inspire and engage pupils and enable them to become computational thinkers. We develop our pupils' abilities to be creative and resilient problem solvers and equip them with the necessary skills to thrive in tomorrow's digital world.



INTENT:

At St Peter's we seek to develop computational thinkers. Our approach to computing looks to develop the skills and behaviours required of a computational thinker and enhance pupil's knowledge of the computing concepts underpinning this.

It is our aim, and our responsibility, to 'open our pupils' eyes' to the opportunities presented to them by the digital world. Through the provision of an effective Computing curriculum, we should develop a strong (age appropriate) appreciation of the types of careers currently available in this area so that our pupils are fired with ambition to take their study further in the future. We want to give the children chances to see if they have a talent, and love, for this subject that will run throughout the rest of their lives.

AMBITION AND OPPORTUNITY



Amongst the behaviours and skills we seek to develop through computing, is intellectual curiosity. We want to afford pupils with opportunities to be curious and encourage them to 'tinker' and explore what happens when changes are made within a system. We also want our pupils to have opportunities to be **creative**, so they can 'Design and Build' solutions to solve computing challenges presented to them.

OUR CHRISTIAN VALUES



Aligned to this, we want our pupils to develop the skills they need to find and fix errors within their models. Most notably, our pupils will be encouraged to show **courage** and **reflect** and from there, develop a willingness to **persevere** when problems with their designs are not easy to resolve. Finally, the behaviours we want to see developed in our pupils is a willingness to collaborate **respectfully** with others when creating, making and solve computational challenges. We see that these are vital skills and behaviours inherent in all successful computational thinkers and they are echoed in our Christian values as a school.

Underpinning these skills and behaviours is the subject knowledge of computing. At St Peter's we will develop within our pupils the subject knowledge underpinning computing as a discipline. Developing subject knowledge means pupils will be given opportunities to approach problems **logically** so they can make predictions and analyse outcomes with increasing accuracy and success. They will be also be given opportunities to **evaluate** and make judgements about their computing designs. They will have opportunities to develop understanding of what **algorithms** are as well as opportunities to create their own. This means they will be increasingly able to identify the steps and rules necessary to complete given tasks, opportunity to spot **patterns** and identify similarities with things they have seen before and opportunities to **decompose** problems into smaller steps and parts. Finally, pupils at St Peter's, at age and developmentally appropriate levels, will be given opportunity to recognise and then remove unnecessary detail from their designs and work in the **abstract**.

GLOBAL COMMUNITY



These are the underlying concepts behind computational thinking and pupils at St Peter's pupils will be equipped with this knowledge at age and developmentally appropriate levels. To that they can move forward confidence and with a solid foundation ready to succeed in a digitally connected world.

IMPLEMENTATION: Essential Characteristics and Curriculum Structure

At St Peter's, in order to turn the intent of 'Our Curriculum Drivers' in to reality for the children – we use 'The Essential Characteristics' of a Computational Thinker to be the driving force behind the activities we plan and teach.

The simple premise here is: 'If you have the ambition to work in The Digital World, these are the most important characteristics you will need in the future.'

Essential Characteristics of Computational Thinkers

Approaches

- Tinkering: Changing things to see what happens
- Creating: Designing and making
- Debugging: finding and fixing errors
- Persevering: keeping going
- Collaborating: working together

Concepts

- Logic: Predicting and analysing
- Evaluation: making judgements
- Algorithms: making steps and rules
- Patterns: Spotting and using similarities
- Decomposition: breaking down into parts
- Abstraction: removing unnecessary details

Curriculum Structure

- **Essential Characteristics**

The things you need to show, do & understand to be a Geographer.

- **The Key Concepts**

The biggest ideas we can work at whilst we develop The Essential Characteristics.

- **The Scheme of Learning**

The Essential Characteristics broken down into a progression of descriptors. Do them and you'll gradually achieve those Characteristics.

Key Concepts

The children will work at 3 Key Concepts; within which they will have the opportunity to develop their Essential Characteristics. The level at which the children are expected to operate is described in detail in our '***Scheme of Learning***' (Tier C).

The Key Concepts At St Peter's

Computer Science	Use logical reasoning to explain how simple algorithms work.
	Can design and write programs (including the process of debugging errors).
	Understand computer networks such as the internet.
Information Technology	Use search engines effectively.
	Collect, analyse, evaluate and present information in a variety of ways.
Digital Literacy	Evaluate digital content.
	Use technology safely respectfully and responsibly.

IMPLEMENTATION: Planning, Assessment and Further Details

At St Peter's we have developed a comprehensive planning document detailing how the key concepts and the skill and behaviours required of computational thinkers will be developed progressively and at an age appropriate level through the school.

- **Planning:**

For medium term planning, we follow the St Peter's internal ***Scheme of Learning***. This ensures appropriate coverage and progression throughout the school. We also ensure our planning meets the requirements of our '***Essential Characteristics of Computational Thinkers***', as outlined by Barefoot Computing and Computing at School.

Teachers then produce 'unit' plans where progression through a series of lessons is outlined. On these plans, provision for SEN and higher attaining pupils is detailed, ensuring appropriate challenge for all.

- **Lesson Structure:**

Every computing lesson at St Peter's includes an element of promoting internet safety and online responsibility. This supports our whole child approach and ensures that pupils are increasingly able to behave with maturity and responsibility when using digital networks.

- **Assessment for Learning:**

At St Peter's, we include pupils in the assessment of their own learning as much as is appropriate. During lessons and units of work, pupils and staff gain feedback from one another. Feedback includes making observations and using questioning and using the results to make assessments about attainment, inform future learning and develop and adapt shorter term plans.

As a result of assessment staff modify the teaching for each pupil to move them on to the next step in their learning; be this in a lesson or afterwards by preparing for the next one. Where possible, feedback is instant and verbal so no time is wasted and children are able to understand what their next steps for learning will be.

The quality of computing provision in school is checked regularly by the subject leader through a range of pupil conferencing, work scrutiny, staff questionnaires and discussions, team teaching, pupil progress meetings and lesson 'drop ins'.

- **Provision for high attaining pupils and those with SEN:**

Specific questions and tasks designed for high attaining pupils are highlighted on teachers' planning in red; these pupils are considered, and planned for in all aspects of the lesson. Appropriate intervention for all pupils is designed and planned for in pupil progress meetings, held regularly throughout the year.

- **Transparency and consistency:**

At St Peter's, we include all stake-holders in the intent and implementation of the computing curriculum. Meetings and consultations with link-governors take place to ensure governors are included in decision making. We also ensure parents feel included in pupils' learning journeys through open lessons and workshops so that they have first-hand experience in what pupils are learning and feel subsequently able to support at home.

Teachers and school staff have opportunities to take part in 'team teaching' to share good practice and to further ensure consistency in our approach. There are also regular opportunities to receive professional development so that teachers feel confident and competent in their own skills and subject knowledge.

IMPACT:



Our pupils will demonstrate:

- A love of learning
- A strong knowledge about, and compassion for, local and global issues (e.g. Fairtrade, climate change)
- The skills and attitudes to be life-long learners.
- Academic excellence
- An understanding of the diversity of their local area, Britain and The World.
- A knowledge of how to keep themselves safe
- An understanding of British Values
- Increased 'Cultural Capital'.
- An awareness of their strengths, talents and opportunities