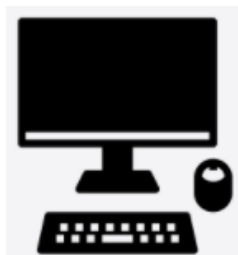




Computing



Together we believe, achieve and enjoy

Our School Vision

“Together, we believe, achieve and enjoy”

Through our vision, we serve our community by providing an inclusive, happy, secure and caring Christian environment where all are valued and respected. We believe that God loves all his children unconditionally and values the uniqueness of the individual and recognise the diversity and range of contributions that each child can make. In our computing curriculum, we ensure that children fully understand the role and benefits that technology can have on our daily lives.

Following the Church of England's Vision for Education 'Life in all its fullness' John 10:10, we provide a high-quality education within a creative, stimulating, encouraging and mutually supportive environment where children are enabled to develop the skills they require to become successful in computing.

Our Five Crown Principles



Challenge



Resilience



Opportunities



Wellbeing



kNnowledge

Our five Crown Principles drive our computing curriculum.

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Rationale for our Computing Curriculum

Challenge

Through the 'challenge' curriculum driver we want our children to relish challenges that being a computer scientist can bring: asking perceptive questions, thinking critically, weighing evidence, sifting arguments, and developing perspective and judgement. Our computing curriculum is to prepare our children for a rapidly changing world through the use of technology. Our high-quality computing curriculum is designed to enable them to use computational thinking and creativity to further understand the world.

Resilience

Through the 'resilience' curriculum driver, we promote optimism and determination in computing. Not only do we want our pupils to be digitally literate and competent end-users of technology, we also want them to develop creativity, resilience and problem-solving as well as critical thinking skills. A selection of carefully chosen challenges are embedded within our computing curriculum to promote resilience. Children are encouraged to be resilient and good at problem solving using key computational thinking skills such as abstraction, decomposition, generalisation and pattern spotting.

Opportunities

Through 'opportunities', we raise aspirations to broaden our children's horizons - opening their eyes to the myriad careers they might pursue. We have carefully planned and incorporated visits from guest speakers within the local area who have careers in computer technology. Our children aspire to work towards careers in the field of computing. These tangible role models have the effect of raising the aspirations of our pupils to inspire them to work even harder to be the best that they can be. We want our pupils to have a clear understanding of the link between achieving well and having goals for the future.

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Wellbeing

At Queen's Park, we understand that happiness is linked to personal growth, health and development. We ensure our children are happy, healthy individuals. In computing, children can discuss and reflect upon the impact that computing has on their learning, development and their wellbeing. Pupils are able to find a balance between their online and offline life and understand why this balance is essential. Our computing curriculum inspires confident users of technology who are competent digital citizens of the future. With 'wellbeing' as a curriculum driver, we give children the confidence to thrive in a diverse, global society and be respectful citizens with British and Christian Values at the core.

knowledge

Through the 'knowledge' curriculum driver, we encourage our children to be resourceful learners. It is uniquely challenging and coherent to our children. The knowledge imparted in computing is crafted by our curriculum leader and computing subject leader to ensure that all pupils 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. All our teachers teach with the aim to ensure pupils have sufficient knowledge to progress through primary school and beyond.



Being a Queen's Park
Computer Scientist

Being a computer scientist means that children will have developed the knowledge, skills and understanding to help them access and use a range of technology in a safe and creative way. Our approach to online safety cross references Teaching Online Safety in Schools (DFE 2019) and Education for a Connected World (UK Council for Internet Safety 2020). It is delivered via our PSHE and SMSC curriculum, alongside stand-alone online safety lessons. Children

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will have developed skills that equip them to use computational thinking and creativity to understand and change the world. Our computing curriculum is enhanced by the use of carefully selected quality fiction and non-fiction texts which have been embedded in our guided reading lessons.



Intent

Computing Long Term Plan

Having faith in God, ourselves and each other as we strive to reach our potential

Computing Long Term Plan

Queen's Park 'Crown Curriculum' - all our planning is based on our key principles and intent for our curriculum
Challenge Resilience Opportunities Wellbeing & Knowledge

Computing strands	Digital Literacy	Computational thinking and Programming	Computers and Hardware	Data Representation (taught through STEM / Geography Lessons)	Digital Literacy (taught through STEM / Geography lessons)	Online Safety
EYFS				Grouping objects and counting (Maths)		
Year One	Introduction to Data	Programming - Beebots Algorithms unplugged		Weather Pictograms using JITS (Science)		
Year Two	Word Processing	Programming - Scratch Jr	What is a computer?	Materials Hunt (Science) Tally and bar graph using 2Simple		
Year Three	Emailing	Programming Scratch	Journey inside a computer	Traffic Survey data - Excel (Geography and maths)		
Year Four	Website Design	Programming Scratch	The Internet	Sound investigation graph - Excel		

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Computing is taught three times throughout the year (with the exception of Year 6).

Progression documents



Our progression documents have been created by the Curriculum Leader and Computing Subject Leader to ensure clear progress in the four strands of computing we focus on at Queen's Park: Digital Literacy, and Programming, Computer Science, Online Safety and Data representation.

The progression documents show key knowledge, key vocabulary and key skills and assessment outcomes from EYFS - Year 6 in programming, data and computer science.

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Progression in Programming

EYES

- Introduction to unplugged algorithms (Jam Sandwich instructions)
- Follow instructions from adult / peer using correct vocabulary
- Watch and listen to Year 1 children. Introduction to Beebots.
- Knowledge of sequence built: ordering steps in a process using time connectives (first, next, then) - can add timings or decisions if appropriate



Year 1

- Revisit unplugged algorithms
- Programming Beebots - Challenge cards
- Create 'How to use a Beebot' video to support Reception children.
- Use precise instructions to create a map for Beebots - Problem solving
- Predict - explore - explain cycle



Year 2



- Programming the character to move using blocks (coding) through linking
- Explain what blocks can do and how they work
- Predict - test - review cycle (reasoning with coding) in talk partners
- Create an animation using programming blocks and recognise loops
- Create and debug simple programs
- Program a code to run on top - make the musical instrument play
- Introduction to controlling a sequence
- Use recordings of their own voice or pre-recordings and put them in a sequence
- Coding a joke
- Creating a three little pigs algorithm

Vocabulary

Vocabulary is V.I.T.A.L in Computing

Valued

We value vocabulary in computing and in everything we do.

Identified

Computing vocabulary is identified by the computing subject leader and is explicitly planned for.

Taught

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Vocabulary is explicitly taught in every lesson. Our Crown Planners are used as a teaching tool for *key computing vocabulary* and the *computing medium term plans* include additional vocabulary to be taught.

Applied

Once vocabulary is taught, it is applied. Children apply their vocabulary in their speaking and listening, writing and assessment *outcomes in computing*.

Learned

Vocabulary is revisited and relearned. Vocabulary sticks in the children's long-term memory. Lesson by lesson, year by year, children revisit and relearn key computing vocabulary.



Through an 'explosion of experiences', our youngest computer scientists are exposed to the foundations of their computing learning. Computing knowledge, skills and experiences are provided for through play-based, unplugged (no computer) activities that focus on building children's listening skills, curiosity and creativity and problem solving. High quality, carefully selected books, stories and rhymes are the beating heart of our computing curriculum in EYFS. Computing vocabulary is planned for. Staff are role models in demonstrating computing vocabulary and this is further enhanced in our excellent provision. Children take part in a variety of tasks with digital devices, such as Bee Bots, tablets, laptop and the interactive whiteboard. This develops their understanding of a technologically diverse world and gains familiarity with the foundations of computing learning in EYFS which are linked to Year 1 and beyond.

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Year 1 to Year 6

Year on year, children will build upon their computing knowledge, skills and vocabulary. The curriculum leader and computing subject leader have created a meaningful, sequential learning journey through computing. Careful curriculum thinking and planning ensures that our children have the subject knowledge and components embedded in their long-term memories.



Implementation

Pedagogy



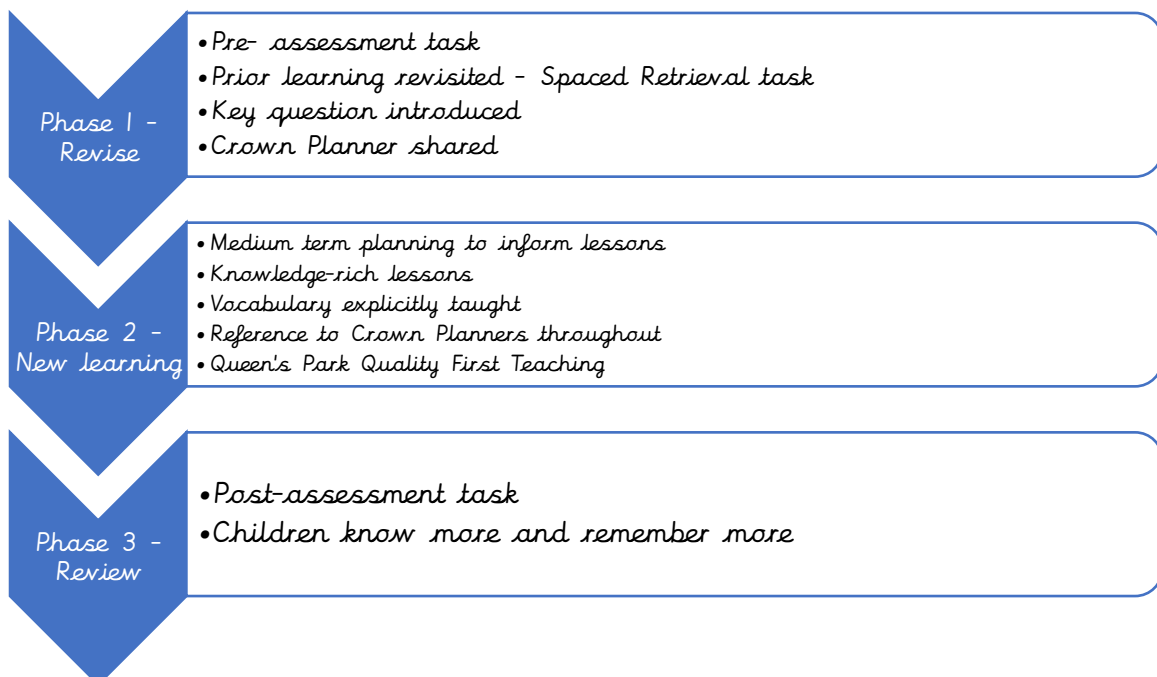
Both our staff and children are enthusiastic about computing. Through ongoing CPD, we strive to ensure our teachers have expert knowledge of the computing they teach. Our pedagogy is firmly based upon our curriculum intent of embedding concepts into long-term memory so that they are able to be recalled, to ensure substantive and disciplinary knowledge and skills can be applied fluently.

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Our 'Queen's Park Quality First Teaching' model ensures that lessons are effectively sequenced so that new knowledge and skills build on what has been taught before and towards defined end points.

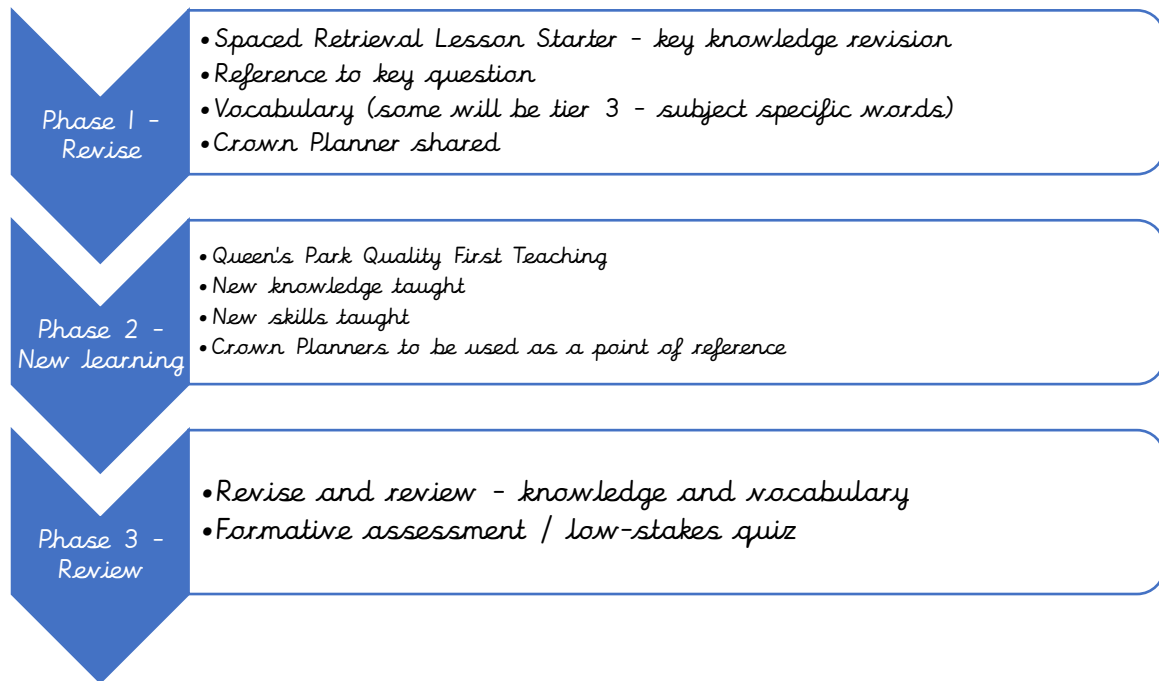
Lesson Structure

The sequence of lessons across computing follows the same structure:



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Each lesson, within the sequence, follows the structure so prior knowledge is constantly revisited and transferred to long term memory.







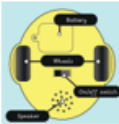
Crown Planners

Our Crown Planners support our children with vocabulary and key knowledge for each unit of work. They enhance children's understanding of key concepts, present information clearly and promote appropriate discussion.

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Crown Planner - Year One: Bee Bots

Year group: 1		Subject: Computing	Term: Autumn 2
Key vocabulary:		 <p>Cross curricular links: Geography knowledge of directions (compass points), mathematics - write of measure.</p>    	Hours: 5 hours teaching time
input	An input is data that a computer receives.		Key Knowledge:
output	An output is data that a computer sends.		1. understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
Algorithm	A clear set of instructions to carry out a task.		2. create and debug simple programs
Bee Bot	A small programmable floor robot with seven buttons.		3. use logical reasoning to predict the behaviour of simple programs
Computing code	Words, numbers and symbols that make a computing language.		Assessment outcome
Predict	Make a guess.		<ul style="list-style-type: none"> I can 'tinker' with the buttons of a Bee-Bot to see what they do I can complete a range of challenges I can create a video to explain how to use a Bee-Bot I can personalise my Bee-Bot world I can consider how the Bee-Bot can move from one place to another I can take on all of the following roles: Bee-Bot, Controller, Judge I can plan a Bee-Bot route I can program a Bee-Bot to follow my planned route
Tinker	To explore and play with something to discover what it can do.		Prior learning: Experience with programmable toys from EYFS
Debug	Debugging is when you find an issue in the program that you have written and repair it.		
Explore	Look at something new to learn more about it.		



We understand that we may not see the true impact of our computing curriculum on our children as our computing curriculum is just the beginning of a lifetime of learning.

Our well-constructed and well-taught computing curriculum leads to great outcomes. Our results are a reflection of what our children have learnt. At Queen's Park, our philosophy is that broad and balanced leads to great outcomes and meeting end points at the end of each key stage. National assessments are useful indicators of the outcomes our children achieve.

We ensure all groups of children are given the knowledge and cultural capital they need to succeed in life. We strive to ensure that our children are equipped with the skills (through a growth mindset approach) to fluently be able to retrieve key facts from their semantic memory.

The quality of our children's work, at every stage, is of a high standard. All learning is built towards an end point and at each stage of their education, we prepare our children for the next stage.

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We ensure all our children read to a stage appropriate level and fluency. Reading is the beating heart of our computing curriculum. Through disciplinary literacy in computing lessons, the impact of reading on the children's computational learning is paramount.

The impact of Queen's Park computing curriculum is measured through the following:

- Assessment at the end of each unit of work
- Vocabulary and knowledge are assessed at the end of each lesson and at the end of each sequence
- Pupil voice
- Progress evident in children's books and record of experiences
- Seeking views of parents where appropriate