

**Year Group: 4**



**Term: September 2018**

## School Theme

Science:

Electricity and Sound

### Essential Question:

Are Scientists code breakers or code makers?

### Authentic Outcome:

Whole school display: Scientist Wall of fame in school with each year group contributing a scientist who has made a difference to the world.

### Trips, Experiences & Making Community Links:

Create a link with St John Bosco (other local secondary schools) Science departments.

Visit a STEM related organisation / factory / engineering firm

### Mini Outcomes:

Explore key scientists / figures in developing early technology:  
The Early Fathers of Technology

Create a podcast/ short film / animation to show how 'technology fathers' were code breakers.

To use our understanding of the NC exp for sound and electricity to create an interactive experience including a Ted Talk.

### RE Curriculum Topics & Additional Links.

## PEOPLE who have made a difference in the world:

Sean Devereux

### Immersive Environment:

Scientific symbols used to immerse the room.

Draped in black material area with cogs to show thinking and scientist at work area.

Lab coats, goggles

### Technology:

Use of Class VR headsets to investigate the inside of electrical items.

Coding in Purple Mash

Use of iMovie and podcasting to create a TED talk about important inventors in history.

# Outcomes for this Term/National Curriculum Links and Coverage

Maths	English	REAL Project	RE	Other Subjects
<p><b>Number – number and place value</b> Statutory requirements Pupils should be taught to</p> <ul style="list-style-type: none"> <li>* count in multiples of 6, 7, 9, 25 and 1000</li> <li>* find 1000 more or less than a given number</li> <li>* count backwards through zero to include negative numbers</li> <li>* recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)</li> <li>* order and compare numbers beyond 1000</li> <li>* identify, represent and estimate numbers using different representations</li> <li>* round any number to the nearest 10, 100 or 1000</li> <li>* solve number and practical problems that involve all of the above and with increasingly large positive numbers</li> <li>* read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.</li> </ul> <p><b>Number – addition and subtraction</b> Statutory requirements Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</li> <li>* estimate and use inverse operations to check answers to a calculation</li> <li>* solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</li> </ul> <p>Notes and guidance (non-statutory) Pupils continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency (see Mathematics Appendix 1).</p> <p><b>Number – multiplication and division</b> Statutory requirements Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* recall multiplication and division facts for multiplication tables up to 12 x 12</li> <li>* use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers</li> <li>* recognise and use factor pairs and commutativity in mental calculations</li> <li>* multiply two-digit and three-digit numbers by a one-digit number using formal written layout</li> <li>* solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</li> </ul>	<p><b>Writing – transcription</b> Statutory requirements <u>Spelling:</u></p> <ul style="list-style-type: none"> <li>- augh and au</li> <li>- adding prefix 'in'</li> <li>- adding prefix 'im'</li> <li>- adding prefix 'il' and 'ir'</li> <li>- homophones and near homophones</li> <li>- sion words</li> <li>- ssion words</li> <li>- cian words</li> <li>- ough words</li> <li>- Challenge words from statutory list</li> </ul> <p>Writing tasks: Biography instructions linked to Computing the day the technology If I was an inventor... Explanation/recount of trip poetry</p> <p><b>Handwriting</b> Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* use the diagonal and horizontal strokes that are needed to join letters and understand which letters, when adjacent to one another, are best left unjoined</li> <li>* increase the legibility, consistency and quality of their handwriting [for example, by ensuring that the downstrokes of letters are parallel and equidistant; that lines of writing are spaced sufficiently so that the ascenders and descenders of letters do not touch].</li> </ul> <p>Notes and guidance (non-statutory) Pupils should be using joined handwriting throughout their independent writing. Handwriting should continue to be taught, with the aim of increasing the fluency with which pupils are able to write down what they want to say. This, in turn, will support their composition and spelling.</p> <p><b>English – key stages 1 and 2</b> <b>Writing – composition</b> Statutory requirements Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* plan their writing by:</li> <li>* discussing writing similar to that which they are planning to write in order to understand and learn from its structure, vocabulary and grammar</li> <li>* discussing and recording ideas</li> <li>* draft and write by:</li> <li>* composing and rehearsing sentences orally (including dialogue), progressively building a varied and rich vocabulary and an increasing range of sentence structures (English Appendix 2)</li> <li>* organising paragraphs around a theme</li> <li>* in narratives, creating settings, characters and plot</li> <li>* in non-narrative material, using simple organisational devices [for example, headings and sub-headings]</li> <li>* evaluate and edit by:</li> <li>* assessing the effectiveness of their own and others' writing and suggesting improvements</li> <li>* proposing changes to grammar and vocabulary to improve consistency, including the accurate use of pronouns in sentences</li> <li>* proof-read for spelling and punctuation errors</li> <li>* read aloud their own writing, to a group or the whole class, using appropriate intonation and controlling the tone and volume so that the meaning is clear.</li> </ul> <p><b>Writing – vocabulary, grammar and punctuation</b> Statutory requirements Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* develop their understanding of the concepts set out in English</li> </ul>	<p><b>Science</b> <b>Sound</b> Statutory requirements Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* identify how sounds are made, associating some of them with something vibrating</li> <li>* recognise that vibrations from sounds travel through a medium to the ear</li> <li>* find patterns between the pitch of a sound and features of the object that produced it</li> <li>* find patterns between the volume of a sound and the strength of the vibrations that produced it</li> <li>* recognise that sounds get fainter as the distance from the sound source increases.</li> </ul> <p><b>Electricity</b> Statutory requirements Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* identify common appliances that run on electricity</li> <li>* construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</li> <li>* identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</li> <li>* recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</li> <li>* recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul> <p><b>Computing</b> Key stage 2 Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts</li> <li>* use sequence, selection, and repetition in programs; work with variables and various forms of input and output</li> <li>* use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs</li> <li>* 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</li> <li>* use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content</li> <li>* 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</li> <li>* use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul> <p><b>D&amp;T</b> Key stage 2 Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to: Design</p> <ul style="list-style-type: none"> <li>* use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</li> <li>* generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded</li> </ul>	<p><b>Autumn TOPIC 1: DOMESTIC CHURCH– FAMILY: PEOPLE</b> <b>Learning Outcomes</b> <b>Know and understand:</b></p> <ul style="list-style-type: none"> <li>• Our family trees – <b>Explore</b></li> <li>• The family of God in Scripture – <b>Reveal</b></li> </ul> <p>Acquire the skills of assimilation, celebration and application of the above – <b>Respond</b></p> <p><b>Autumn TOPIC 2: BAPTISM/CONFIRMATION – BELONGING</b> <b>Learning Outcomes</b> <b>Know and understand:</b></p> <ul style="list-style-type: none"> <li>• The response to being chosen – <b>Explore</b></li> <li>• Confirmation: a call to witness – <b>Reveal</b></li> </ul> <p>Acquire the skills of assimilation, celebration and application of the above – <b>Respond</b></p> <p><b>Autumn TOPIC 3: ADVENT/CHRISTMAS – LOVING: GIFT</b> <b>Learning Outcomes</b> <b>Know and understand:</b></p> <ul style="list-style-type: none"> <li>• The gift of love and friendship – <b>Explore</b></li> <li>• Advent and Christmas: the Church's seasons of preparing to receive God's gift of love and friendship in Jesus – <b>Reveal</b></li> </ul> <p>Acquire the skills of assimilation, celebration and application of the above – <b>Respond</b></p>	<p><b>Music</b> -Trumpets taught by Mr Curtis</p> <p><b>PE: at Ellergreen Sports Centre</b> <u>Swimming and water safety</u> All schools must provide swimming instruction either in key stage 1 or key stage 2. In particular, pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* swim competently, confidently and proficiently over a distance of at least 25 metres</li> <li>* use a range of strokes effectively [for example, front crawl, backstroke and breaststroke]</li> <li>* perform safe self-rescue in different water-based situations.</li> </ul> <p style="text-align: right;">q</p>

	<p>Appendix 2 by:</p> <ul style="list-style-type: none"> <li>* extending the range of sentences with more than one clause by using a wider range of conjunctions, including when, if, because, although</li> <li>* using the present perfect form of verbs in contrast to the past tense</li> <li>* choosing nouns or pronouns appropriately for clarity and cohesion and to avoid repetition</li> <li>* using conjunctions, adverbs and prepositions to express time and cause</li> <li>* using fronted adverbials</li> <li>* learning the grammar for years 3 and 4 in English Appendix 2</li> <li>* indicate grammatical and other features by:</li> <li>* using commas after fronted adverbials</li> <li>* indicating possession by using the possessive apostrophe with plural nouns</li> <li>* using and punctuating direct speech</li> <li>* use and understand the grammatical terminology in English Appendix 2 accurately and appropriately when discussing their writing and reading.</li> </ul> <p><b>Reading – word reading</b> <b>Statutory requirements</b></p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* apply their growing knowledge of root words, prefixes and suffixes (etymology and morphology) as listed in English Appendix 1, both to read aloud and to understand the meaning of new words they meet</li> <li>* read further exception words, noting the unusual correspondences between spelling and sound, and where these occur in the word.</li> </ul> <p>Reading – comprehension</p> <p>Statutory requirements</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>* develop positive attitudes to reading and understanding of what they read by:</li> <li>* listening to and discussing a wide range of fiction, poetry, plays, non-fiction and reference books or textbooks</li> <li>* reading books that are structured in different ways and reading for a range of purposes</li> <li>* using dictionaries to check the meaning of words that they have read</li> <li>* increasing their familiarity with a wide range of books, including fairy stories, myths and legends, and retelling some of these orally</li> <li>* identifying themes and conventions in a wide range of books</li> </ul>	<p>diagrams, prototypes, pattern pieces and computer-aided design</p> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>* select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>* select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>* investigate and analyse a range of existing products</li> <li>* evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>* understand how key events and individuals in design and technology have helped shape the world</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>* apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>* understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> <li>* understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</li> <li>* apply their understanding of computing to program, monitor and control their products.</li> </ul>		
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