These are the skills that children need to learn to make progress:

a. listen, read and view in order to understand and respond
b. discuss, debate and draft in order to develop and explore ideas, themes and viewpoints
c. speak, write and broadcast in order to present ideas and opinions
d. evaluate, analyse and critique in order to review, refine and comment
e. interact and collaborate in order to share understanding of what is said, read and communicated.

	Which skills are the children learning?		What Core Knowledge will the children acquire? Y1		What Core Knowledge will the children acquire? Y2
KS1	SPEAKING AND LISTENING	1. to organise what they say, giving relevant details and using appropriate vocabulary to make main points clear to the listener 2. to remember what they have heard and ask questions 3. to reflect on how talk varies in different circumstances and for different listeners 4. to recognise when to use formal language, including some features of spoken standard English 5. to recognise how talk is enhanced by non-verbal communication, including gesture, eye-contact and by intonation and emphasis 6. to speak clearly, take turns, make relevant contributions, give opinions and listen to different views 7. to explore the imaginative use of language and the conventions of talk through role play	SPOKEN LANGUAGE	• listen and respond appropriately to adults and their peers • ask relevant questions to extend their understanding and build vocabulary and knowledge • articulate and justify answers, arguments and opinions • give well-structured descriptions and explanations • maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments • use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas • speak audibly and fluently with an increasing command of Standard English • participate in discussions, presentations, performances and debates • gain, maintain and monitor the interest of the listener(s) • consider and evaluate different viewpoints, attending to and building on the contributions of others • select and use appropriate registers for effective communication.	

	READING	8. to hear, identify, segment and blend phonemes in the order in which they occur in words to decode text 9. to link sounds and letter patterns using their knowledge of the alphabet and identify syllables in high-frequency and familiar words 10. simple grammar, including how word order affects meaning 11. to make connections between different parts of texts and the meaning as a whole 12. to use screen-based and book conventions to find information efficiently and safely 13. to recognise how writers and poets select words and use patterns of rhythm, rhyme and sound to create effects 14. to identify characters and retell and enact narratives 15. to identify the characteristic features of texts with different purposes	**Reading** • apply phonic knowledge and skills as the route to decode words • respond speedily with the correct sound to graphemes (letters or groups of letters) for all 40+ phonemes, including, where applicable, alternative sounds for graphemes • read accurately by blending sounds in unfamiliar words containing GPCs that have been taught • read common exception words, noting unusual correspondences between spelling and sound and where these occur in the word • read words containing taught GPCs and –s, –es, –ing, –ed, –er and –est endings • read other words of more than one syllable that contain taught GPCs • read words with contractions, e.g. I'm, I'll, we'll, and under-stand that the apostrophe represents the omitted letter(s) • read aloud accurately books that are consistent with their developing phonic knowledge and that do not require them to use other strategies to work out words • re-read these books to build up their fluency and confidence in word reading. **Comprehension** • develop pleasure in reading, motivation to read, vocabulary and understanding by: • listening to and discussing a wide range of poems, stories and non-fiction at a level beyond that at which they can read independently • being encouraged to link what they read or hear read to their own experiences • becoming very familiar with key stories, fairy stories and traditional tales, retelling them and considering their particular characteristics • recognising and joining in with predictable phrases • learning to appreciate rhymes and poems, and to recite some by heart • understand both the books they can already read accurately and fluently and those they listen to by: • drawing on what they already know or on background information and vocabulary provided by the teacher • checking that the text makes sense to them as they read and correcting inaccurate reading • discussing the significance of the title and events • making inferences on the basis of what is being said and done • predicting what might happen on the basis of what has been read so far • participate in discussion about what is read to them, taking turns and listening to what others say • explain clearly their understanding of what is read to them.	**Reading** • continue to apply phonic knowledge and skills as the route to decode words until automatic decoding has become embedded and reading is fluent • read accurately by blending the sounds in words that contain the graphemes taught so far, especially recognising alternative sounds for graphemes • read accurately words of two or more syllables that contain the same GPCs as above • read words containing common suffixes • read further common exception words, noting unusual correspondence between spelling and sound and where these occur in the word • read most words quickly and accurately when they have been frequently encountered without overt sounding and blending • read aloud books closely matched to their improving phonic knowledge, sounding out unfamiliar words accurately, automatically and without undue hesitation • re-read these books to build up their fluency and confidence in word reading. **Comprehension** • develop pleasure in reading, motivation to read, vocabulary and understanding by: i. listening to, discussing and expressing views about a wide range of poetry (including contemporary and classic), stories and non-fiction at a level beyond that at which they can read independently ii. discussing the sequence of events in books and how items of information are related iii. becoming increasingly familiar with and retelling a wider range of stories, fairy stories and traditional tales iv. being introduced to non-fiction books that are structured in different ways v. recognising simple recurring literary language in stories and poetry vi. discussing their favourite words and phrases vii. continuing to build up a repertoire of poems learnt by heart, appreciating these and reciting some, with appropriate intonation to make the meaning clear • understand both the books that they can already read accurately and fluently and those that they listen to by: i. drawing on what they already know or on background information and vocabulary provided by the teacher ii. checking that the text makes sense to them as they read and correcting inaccurate reading iii. making inferences on the basis of what is being said and done iv. answering and asking questions v. predicting what might happen on the basis of what has been read so far • participate in discussion about books, poems and other works that are read to them and those that they can read for themselves, taking turns and listening to what others say • explain and discuss their understanding of books, poems and other material, both those that they listen to and those that they read for themselves.
	WRITING	16. to plan, discuss and review their work in order to improve it, including using ICT where appropriate 17. to combine written text with illustration, moving image and sound	**Spelling** • words containing each of the 40+ phonemes already taught • common exception words • the days of the week • name the letters of the alphabet:	**Spelling** • segmenting spoken words into phonemes and representing these by graphemes, spelling many correctly • learning new ways of spelling phonemes for which one or more spellings are already known, and learn some words with each spelling, including a few common homophones

		18. to communicate with known audiences using ICT where appropriate 19. to recognise and use different sentence constructions, exploring how ideas are linked within and between sentences and how nouns, verbs and adjectives are used 20. how paragraphs, bullets, screen layout and headings are used to organise and link ideas, and to use these in their own work 21. how punctuation affects meaning, clarifies structure and represents pace and emphasis 22. to segment phonemes, identify morphemes in words and recognise and apply common spelling patterns and conventions 23. to form letters correctly and type accurately 24. to create and shape their writing for different readers, choosing appropriate vocabulary	i. naming the letters of the alphabet in order ii. using letter names to distinguish between alternative spellings of the same sound iii. add prefixes and suffixes: iv. using the spelling rule for adding –s or –es as the plural marker for nouns and the third person singular marker for verbs v. using the prefix un– vi. using –ing, –ed, –er and –est where no change is needed in the spelling of root words (e.g. helping, helped, helper, eating, quicker, quickest) • apply simple spelling rules and guidelines • write from memory simple sentences dictated by the teacher that include words taught so far. **Handwriting** • sit correctly at a table, holding a pencil comfortably and correctly • begin to form lower-case letters in the correct direction, starting and finishing in the right place • form capital letters • form digits 0-9 • understand which letters belong to which handwriting 'families' (i.e. letters that are formed in similar ways) and to practise these. **Composition** • write sentences by: i. saying out loud what they are going to write about ii. composing a sentence orally before writing it iii. sequencing sentences to form short narratives iv. re-reading what they have written to check that it makes sense • discuss what they have written with the teacher or other pupils • read aloud their writing clearly enough to be heard by their peers and the teacher. **Vocabulary, grammar and punctuation** • develop their understanding of the concepts set out in Appendix 2 of 2014 curriculum by: i. leaving spaces between words ii. joining words and joining sentences using and iii. beginning to punctuate sentences using a capital letter and a full stop, question mark or exclamation mark iv. using a capital letter for names of people, places, the days of the week, and the personal pronoun 'I' • learning the grammar in column 1 in year 1 in Appendix 2 use the grammatical terminology in Appendix 2 in discussing their writing.	• learning to spell common exception words • learning to spell more words with contracted forms • distinguishing between homophones and near-homophones • add suffixes to spell longer words, e.g. –ment, –ness, –ful, • –less, –ly • apply spelling rules and guidelines • write from memory simple sentences dictated by the teacher that include words and punctuation taught so far. **Handwriting** • form lower-case letters of the correct size relative to one another • start using some of the diagonal and horizontal strokes needed to join letters and understand which letters, when adjacent to one another, are best left unjoined • write capital letters and digits of the correct size, orientation and relationship to one another and to lower case letters • use spacing between words that reflects the size of the letters. **Composition** • develop positive attitudes towards and stamina for writing by: i. writing narratives about personal experiences and those of others (real and fictional) ii. writing about real events iii. writing poetry iv. writing for different purposes • consider what they are going to write before beginning by: i. planning or saying out loud what they are going to write about ii. writing down ideas and/or key words, including new vocabulary iii. encapsulating what they want to say, sentence by sentence • make simple additions, revisions and corrections to their own writing by: i. evaluating their writing with the teacher and other pupils ii. re-reading to check that their writing makes sense and that verbs to indicate time are used correctly and consistently, including verbs in the continuous form iii. proof-reading to check for errors in spelling, grammar and punctuation (e.g. ends of sentences punctuated correctly) • read aloud what they have written with appropriate intonation to make the meaning clear. **Vocabulary, grammar and punctuation** • develop their understanding of the concepts set out in Appendix 2 by: i. learning how to use both familiar and new punctuation correctly (see Appendix 2), including full stops, capital letters, exclamation marks, question marks, commas for lists and apostrophes for contracted forms • learning how to use: i. sentences with different forms: statement, question, exclamation, command ii. expanded noun phrases to describe and specify, e.g. the blue butterfly iii. the present and past tenses correctly and consistently including the progressive form iv. subordination (using when, if, that, or because) and co-ordination (using or, and, or but) v. learning the grammar in column 1 of year 2 in Appendix 2 vi. using some features of written Standard English • use and understand the grammatical terminology in Appendix 2 in discussing their writing.
How will the children be enabled to do this? 'Breadth of Learning'				

a. in speaking and listening children should:
1. develop and apply speaking and listening skills to suit a variety of audiences and for different purposes
2. tell and listen to stories and explore ideas and opinions in both formal and informal contexts
3. express themselves creatively in improvisation, role play and other drama activities
4. use digital and visual media to support communication both face-to-face and remotely.

b. In reading children should:
1. read widely for pleasure
2. develop and apply their reading skills in order to become critical readers
3. engage with an extensive range of texts, including literature from different times and cultures, information and reference texts, literary non-fiction, media texts6 and online social and collaborative communications
4. work with writers, playwrights and poets in and beyond the classroom.

c. In writing children should:
1. learn to write for a variety of purposes, for a range of audiences and in a range of forms
2. develop their understanding of how writing is essential to thinking and learning and is enjoyable, creative and rewarding
3. explore writing using different media including web pages and multimodal formats in English and in other languages.

d. By engaging with other languages, including, where appropriate, those used in their communities, children should:
1. look at the patterns, structures and origins of languages in order to understand how language works
2. listen to and join in with conversation in other languages and communicate about simple, everyday matters
3. understand how learning other languages can help them appreciate and understand other cultures as well as their own.

These are the skills that children need to learn to make progress:

a. listen, read and view in order to understand and respond
b. discuss, debate and draft in order to develop and explore ideas, themes and viewpoints
c. speak, write and broadcast in order to present ideas and opinions
d. evaluate, analyse and critique in order to review, refine and comment
e. interact and collaborate in order to share understanding of what is said, read and communicated.

		Which skills are the children learning?		**What Core Knowledge will the children acquire? Y3 & 4**
LKS2	SPEAKING AND LISTENING	1. to organise and shape what they say, selecting relevant ideas and using appropriate vocabulary to interest their listeners 2. to organise and adjust what they say according to listeners' needs, including the use of spoken standard English when appropriate 3. to identify the main points of what has been said and ask questions to clarify meaning 4. to reflect on their own and others' speech and investigate how it varies 5. to take different roles and make relevant contributions in group discussion and role play 6. to explain their opinions and ideas, modifying them in the light of what they have heard 7. to use dialogue and discussion to build up and refine ideas collaboratively in groups 8. to convey action, themes and emotions through role play and drama	SPOKEN LANGUAGE	• listen and respond appropriately to adults and their peers • ask relevant questions to extend their understanding and build vocabulary and knowledge • articulate and justify answers, arguments and opinions • give well-structured descriptions and explanations • maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments • use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas • speak audibly and fluently with an increasing command of Standard English • participate in discussions, presentations, performances and debates • gain, maintain and monitor the interest of the listener(s) • consider and evaluate different viewpoints, attending to and building on the contributions of others • select and use appropriate registers for effective communication.
	READING	9. to focus on the meaning of the text as a whole, identifying features of text and understanding their use 10. to use inference and deduction to find meaning beyond the literal 11. to make connections between different parts of a text and with other texts they have read 12. to skim, scan and use key word searches and other features of texts to locate and select information 13. to verify the accuracy and reliability of information, distinguishing between fact and opinion 14. to recognise and describe how writers and poets select words and use a variety of language forms and structures to create effects 15. to recognise how authors of moving-image and multimodal texts use different combinations of words, images and sounds to create effects and make meaning 16. to identify different structural and organisational features and different presentational devices, layouts and combinations of formats and how they affect meaning 17. to respond critically to arguments and recognise how they are constructed 18. to explore and reflect on characters, ideas and themes in narratives		**Reading** • apply their growing knowledge of root words, prefixes and suffixes (etymology and morphology) as listed in Appendix 1, both to read aloud and to understand the meaning of new words they meet • read further exception words, noting the unusual correspondences between spelling and sound, and where these occur in the word. **Comprehension** • develop positive attitudes to reading and understanding of what they read by: i. listening to and discussing a wide range of fiction, poetry, plays, non-fiction and reference books or textbooks ii. reading books that are structured in different ways and reading for a range of purposes iii. using dictionaries to check the meaning of words that they have read iv. increasing their familiarity with a wide range of books, including fairy stories, myths and legends, and retelling some of these orally v. identifying themes and conventions in a wide range of books vi. preparing poems and play scripts to read aloud and to perform, showing understanding through intonation, tone, volume and action vii. discussing words and phrases that capture the reader's interest and imagination viii. recognising some different forms of poetry (e.g. free verse, narrative poetry) • understand what they read, in books they can read independently, by: i. checking that the text makes sense to them, discussing their understanding and explaining the meaning of words in context ii. asking questions to improve their understanding of a text iii. drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence iv. predicting what might happen from details stated and implied v. identifying main ideas drawn from more than one paragraph and summarising these vi. identifying how language, structure, and presentation contribute to meaning • retrieve and record information from non-fiction • participate in discussion about both books that are read to them and those they can read for themselves, taking turns and listening to what others say.

	WRITING	19. to create and shape their writing, using different techniques to interest the reader 20. to select form, content and vocabulary to suit particular purposes 21. to create effects by combining written text with illustration, moving image and sound 22. to share ideas and collaborate with others remotely using ICT 23. to plan, develop and review their work in order to improve it, understanding how language varies in different formats 24. to use features of layout, presentation and organisation in print and on screen 25. how paragraphs, bullets, hyperlinks, screen layout and headings are used to organise and link ideas, and to use these in their own work 26. to recognise and use different types of sentences, exploring how ideas are linked within and between sentences 27. the function of punctuation within sentences and using it to clarify structure and represent emphasis 28. to recognise and apply common spelling patterns, conventions and spell checking techniques, using knowledge of word families and the roots and origins of words 29. to form and join letters fluently and correctly and type accurately	**Spelling** • use further prefixes and suffixes and understand how to add them (Appendix 1) • spell further homophones • spell words that are often misspelt (Appendix 1) • use the first two or three letters of a word to check its spelling in a dictionary • write from memory simple sentences, dictated by the teacher, that include words and punctuation taught so far. **Handwriting** • 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 • increase the legibility, consistency and quality of their handwriting, e.g. 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. **Composition** • plan their writing by: i. discussing writing similar to that which they are planning to write in order to understand and learn from its structure, vocabulary and grammar ii. discussing and recording ideas • draft and write by: i. composing and rehearsing sentences orally (including dialogue), progressively building a varied and rich vocabulary and an increasing range of sentence structures (See Appendix 2) ii. organising paragraphs around a theme iii. in narratives, creating settings, characters and plot# iv. in non-narrative material, using simple organisational devices such as headings and sub-headings • evaluate and edit by: i. assessing the effectiveness of their own and others' writing and suggesting improvements ii. proposing changes to grammar and vocabulary to improve consistency, e.g. the accurate use of pronouns in sentences • proof-read for spelling and punctuation errors • 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. **Vocabulary, grammar and punctuation** • develop their understanding of the concepts set out in Appendix 2 by: i. extending the range of sentences with more than one clause by using a wider range of conjunctions, e.g. when, if, because, although ii. using the perfect form of verbs to mark relationships of time and cause iii. choosing nouns or pronouns appropriately for clarity and cohesion and to avoid repetition iv. using conjunctions, adverbs and prepositions to express time and cause v. using fronted adverbials vi. learning the grammar in column 1 of year 3 and 4 in Appendix 2 • indicate grammatical and other features by: i. using commas after fronted adverbials ii. indicating possession by using the possessive apostrophe with singular and plural nouns iii. using and punctuating direct speech • use and understand the grammatical terminology in Appendix 2 accurately and appropriately when discussing their writing and reading.

How will the children be enabled to do this? 'Breadth of Learning'

a. in speaking and listening children should:
1. develop and apply speaking and listening skills to suit a variety of audiences and for different purposes
2. tell and listen to stories and explore ideas and opinions in both formal and informal contexts
3. express themselves creatively in improvisation, role play and other drama activities
4. use digital and visual media to support communication both face-to-face and remotely.

b. In reading children should:
1. read widely for pleasure
2. develop and apply their reading skills in order to become critical readers
3. engage with an extensive range of texts, including literature from different times and cultures, information and reference texts, literary non-fiction, media texts6 and online social and collaborative communications
4. work with writers, playwrights and poets in and beyond the classroom.

c. In writing children should:
1. learn to write for a variety of purposes, for a range of audiences and in a range of forms
2. develop their understanding of how writing is essential to thinking and learning and is enjoyable, creative and rewarding
3. explore writing using different media including web pages and multimodal formats in English and in other languages.

d. By engaging with other languages, including, where appropriate, those used in their communities, children should:
1. look at the patterns, structures and origins of languages in order to understand how language works
2. listen to and join in with conversation in other languages and communicate about simple, everyday matters
3. understand how learning other languages can help them appreciate and understand other cultures as well as their own.

These are the skills that children need to learn to make progress:

a. listen, read and view in order to understand and respond
b. discuss, debate and draft in order to develop and explore ideas, themes and viewpoints
c. speak, write and broadcast in order to present ideas and opinions
d. evaluate, analyse and critique in order to review, refine and comment
e. interact and collaborate in order to share understanding of what is said, read and communicated.

	Which skills are the children learning?		**What Core Knowledge will the children acquire? Y5 & 6**	
UKS2	SPEAKING AND LISTENING	1. to convey complex ideas, using different techniques for clarity and effect 2. to select relevant ideas and use appropriate vocabulary to engage and maintain the interest of listeners 3. to organise and adjust what they say, including the use of spoken standard English, according to the formality of the context, the needs of their listeners and any communication technology being used 4. to evaluate their own and others' speech and identify how it varies 5. to sustain different roles, deal with disagreement and vary contributions in group discussion 6. to extend and justify their opinions and ideas, building on what they have heard 7. to use dialogue and discussion to build up and refine ideas, move groups on and reach agreement collaboratively 8. to identify differences between spoken and written language, both on paper and on screen, taking account of context, purpose and audience	SPOKEN LANGUAGE	• listen and respond appropriately to adults and their peers • ask relevant questions to extend their understanding and build vocabulary and knowledge • articulate and justify answers, arguments and opinions • give well-structured descriptions and explanations • maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments • use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas • speak audibly and fluently with an increasing command of Standard English • participate in discussions, presentations, performances and debates • gain, maintain and monitor the interest of the listener(s) • consider and evaluate different viewpoints, attending to and building on the contributions of others • select and use appropriate registers for effective communication.

	READING	9. to use inference and deduction to understand layers of meaning 10. to make connections and comparisons between different parts of a text and with other texts they have read 11. to verify the accuracy and reliability of information, including from online sources, detect bias and distinguish evidence from opinion 12. to search for information using ICT and other methods and make choices about the appropriateness of the information 13. to evaluate techniques used by writers and poets, commenting on how effective they are 14. to recognise and use some conventions for conveying meaning in moving-image and multimodal texts 15. to evaluate structural and organisational features, including the use of different presentational devices, layouts and combinations of formats, and their effects 16. to evaluate ideas and themes that broaden perspectives and extend thinking 17. to express and justify preferences by referring to the texts 18. to identify the use of specialist vocabulary and structures and techniques associated with different forms and purposes of writing 19. to critique views, opinions and arguments 20. to reflect on viewpoints in narratives and to distinguish between those of the characters and those of the author	**Reading** • apply their growing knowledge of root words, prefixes and suffixes (morphology and etymology), as listed in Appendix 1, both to read aloud and to understand the meaning of new words that they meet. **Comprehension** • maintain positive attitudes to reading and understanding of what they read by: i. continuing to read and discuss an increasingly wide range of fiction, poetry, plays, non-fiction and reference books or textbooks ii. reading books that are structured in different ways and reading for a range of purposes iii. increasing their familiarity with a wide range of books, including myths, legends and traditional stories, modern fiction, fiction from our literary heritage, and books from other cultures and traditions iv. recommending books that they have read to their peers, giving reasons for their choices v. identifying and discussing themes and conventions in and across a wide range of writing vi. making comparisons within and across books vii. learning a wider range of poetry by heart viii. preparing poems and plays to read aloud and to perform, showing understanding through intonation, tone and volume so that the meaning is clear to an audience • understand what they read by: i. checking that the book makes sense to them, discussing their understanding and exploring the meaning of words in context ii. asking questions to improve their understanding iii. drawing inferences such as inferring characters' feelings, thoughts and motives from their actions, and justifying inferences with evidence iv. predicting what might happen from details stated and implied v. summarising the main ideas drawn from more than one paragraph, identifying key details that support the main ideas vi. identifying how language, structure and presentation contribute to meaning • discuss and evaluate how authors use language, including figurative language, considering the impact on the reader • distinguish between statements of fact and opinion • retrieve, record and present information from non-fiction • participate in discussions about books that are read to them and those they can read for themselves, building on their own and others' ideas and challenging views courteously • explain and discuss their understanding of what they have read, including through formal presentations and debates, maintaining a focus on the topic and using notes where necessary • provide reasoned justifications for their views.

	WRITING	21. to plan, create, shape and review their work, knowing when and how to improve it, including using ICT 22. to select form, content, style and vocabulary to suit particular purposes and readers 23. to combine written text and illustration, moving image and sound, integrating different effects to add power to the words and meanings 24. to synthesise ideas using ICT by combining a variety of information from different sources 25. to communicate and collaborate with others remotely and in locations beyond the school by selecting and using appropriate ICT 26. to use features of layout, presentation and organisation effectively in written and on-screen media 27. how paragraphs, bullets, hyperlinks, screen layout and headings are used to organise and link ideas, and to use these in their own work 28. to explore how ideas are linked within and between sentences 29. the function of punctuation within sentences and how to use it to clarify structure and development in what they write 30. to recognise and apply common spelling patterns for regular and irregular words, using conventions and spell checking techniques as well as their knowledge of the origins of words and how spelling has changed over time 31. to gain fluency in handwriting and keyboard use	**Spelling** • use further prefixes and suffixes and understand the guidelines for adding them • spell some words with 'silent' letters, e.g. knight, psalm, solemn • continue to distinguish between homophones and other words which are often confused • use knowledge of morphology and etymology in spelling and understand that the spelling of some words needs to be learnt specifically, as listed in Appendix 1 • use dictionaries to check the spelling and meaning of words • use the first three or four letters of a word to check spelling, meaning or both of these in a dictionary • use a thesaurus. **Handwriting** • write legibly, fluently and with increasing speed by: i. choosing which shape of a letter to use when given choices and deciding, as part of their personal style, whether or not to join specific letters ii. choosing the writing implement that is best suited for a task (e.g. quick notes, letters). **Composition** • plan their writing by: i. identifying the audience for and purpose of the writing, selecting the appropriate form and using other similar writing as models for their own ii. noting and developing initial ideas, drawing on reading and research where necessary iii. in writing narratives, considering how authors have developed characters and settings in what they have read, listened to or seen performed • draft and write by: i. selecting appropriate grammar and vocabulary, understanding how such choices can change and enhance meaning ii. in narratives, describing settings, characters and atmosphere and integrating dialogue to convey character and advance the action iii. précising longer passages iv. using a wide range of devices to build cohesion within and across paragraphs v. using further organisational and presentational devices to structure text and to guide the reader (e.g. headings, bullet points, underlining) • evaluate and edit by: i. assessing the effectiveness of their own and others' writing ii. proposing changes to vocabulary, grammar and punctuation to enhance effects and clarify meaning iii. ensuring the consistent and correct use of tense throughout a piece of writing iv. ensuring correct subject and verb agreement when using singular and plural, distinguishing between the language of speech and writing and choosing the appropriate register • proof-read for spelling and punctuation errors • perform their own compositions, using appropriate intonation, volume, and movement so that meaning is clear. **Vocabulary, grammar and punctuation** • develop their understanding of the concepts set out in Appendix 2 by: i. recognising vocabulary and structures that are appropriate for formal speech and writing, including subjunctive forms ii. using passive verbs to affect the presentation of information in a sentence iii. using expanded noun phrases to convey complicated information concisely iv. using modal verbs or adverbs to indicate degrees of possibility v. using relative clauses beginning with who, which, where, when, whose, that or with an implied (i.e. omitted) relative pronoun vi. learning the grammar in column 1 of year 1 in Appendix 2 • indicate grammatical and other features by: using commas to clarify meaning or avoid ambiguity in writing i. using hyphens to avoid ambiguity ii. using brackets, dashes or commas to indicate parenthesis iii. using semi-colons, colons or dashes to mark boundaries between main clauses iv. using a colon to introduce a list v. punctuating bullet points consistently • use and understand the grammatical terminology in Appendix 2 accurately and appropriately in discussing their writing and reading.
How will the children be enabled to do this? 'Breadth of Learning'			

a. in speaking and listening children should:
1. develop and apply speaking and listening skills to suit a variety of audiences and for different purposes
2. tell and listen to stories and explore ideas and opinions in both formal and informal contexts
3. express themselves creatively in improvisation, role play and other drama activities
4. use digital and visual media to support communication both face-to-face and remotely.

b. In reading children should:
1. read widely for pleasure
2. develop and apply their reading skills in order to become critical readers
3. engage with an extensive range of texts, including literature from different times and cultures, information and reference texts, literary non-fiction, media texts6 and online social and collaborative communications
4. work with writers, playwrights and poets in and beyond the classroom.

c. In writing children should:
1. learn to write for a variety of purposes, for a range of audiences and in a range of forms
2. develop their understanding of how writing is essential to thinking and learning and is enjoyable, creative and rewarding
3. explore writing using different media including web pages and multimodal formats in English and in other languages.

d. By engaging with other languages, including, where appropriate, those used in their communities, children should:
1. look at the patterns, structures and origins of languages in order to understand how language works
2. listen to and join in with conversation in other languages and communicate about simple, everyday matters
3. understand how learning other languages can help them appreciate and understand other cultures as well as their own.

These are the skills that children need to learn to make progress:

a. explore, investigate and experiment from a range of stimuli and starting points, roles, techniques, approaches, materials and media4
b. create, design, devise, compose and choreograph their individual and collective work
c. improvise, rehearse and refine in order to improve their capability and the quality of their artworks
d. present, display and perform for a range of audiences, to develop and communicate their ideas and evoke responses
e. use arts-specific vocabulary to respond to, evaluate, explain, analyse, question and critique their own and other people's artistic works.

		Which skills are the children learning?	**What Core Knowledge will the children acquire? KS1**	**What Core Knowledge will the children acquire? LKS2**	**What Core Knowledge will the children acquire? UKS2**
ART	KS1	1. To explore a wide range of media and materials, tools and techniques to create artworks, improvise and depict imagined worlds, and model the real world through the arts 2. To experiment with designs, shapes, colours and sounds, explore and record ideas using ICT where appropriate	• to use a range of materials creatively to design and make products • to use drawing, painting and sculpture to develop and share their ideas, experiences and imagination • to develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space • about the work of a range of artists, craft makers and designers, describing the differences and similarities between different practices and disciplines, and making links to their own work.	• to create sketch books to record their observations and use them to review and revisit ideas • to improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials (e.g. pencil, charcoal, paint, clay) • about great artists, architects and designers in history.	• to use a range of techniques to record their observations in sketchbooks, journals and other media as a basis for exploring their ideas • to use a range of techniques and media, including painting • to increase their proficiency in the handling of different materials • to analyse and evaluate their own work, and that of others, in order to strengthen the visual impact or applications of their work • about the history of art, craft, design and architecture, including periods, styles and major movements from ancient times up to the present day.
	LKS2	1. To explore and refine a range of techniques, materials, processes and media, including digital media, to draw, sculpt, model, design, paint and print 2. To design and create images and artefacts, expressing ideas for clearly defined purposes			
	UKS2	1. To investigate, explore and record information, to appreciate aesthetic qualities and generate imaginative ideas 2. To design and create images and artefacts by selecting, developing and refining techniques and using a range of materials and media ideas			
MUSIC	KS1	3. To sing songs and make music with expression and control 4. To listen and observe carefully, taking account of simple instructions	• use their voices expressively and creatively by singing songs and speaking chants and rhymes • play tuned and untuned instruments musically • listen with concentration and understanding to a range of high-quality live and recorded music • experiment with, create, select and combine sounds using the inter-related dimensions of music.	• play and perform in solo and ensemble contexts, using their voices and playing musical instruments with increasing accuracy, fluency, control and expression • improvise and compose music for a range of purposes using the inter-related dimensions of music • listen with attention to detail and recall sounds with increasing aural memory • use and understand staff and other musical notations • appreciate and understand a wide range of high-quality live and recorded music drawn from different traditions and from great composers and musicians • develop an understanding of the history of music.	
	LKS2	3. To listen carefully, recognise and use repeated patterns and increase aural memory 4. To perform26 with control and awareness of audience and what others are playing or singing 5. To compose and perform28 simple melodies and accompaniments recognising different musical elements and how they can be used together to compose music 6. To recall, plan and explore sounds using symbols and ICT			
	UKS2	3. To listen carefully, developing and demonstrating musical understanding and increasing aural memory 4. To perform by ear and use notations and ICT to support creative work 5. To compose their own instrumental and vocalmusic and perform their own and others' compositions in ways that reflect their meaning and intentions 6. To describe and compare different kinds of music using appropriate musical vocabulary			
DANCE/DRAMA	KS1	5. To use role play and imaginative play to engage and empathise with characters, situations and events from known stories and stories they create together 6. To explore movement skills and create movement patterns in response to stimuli	• perform dances using simple movement patterns.	• perform dances using a range of movement patterns	
	LKS2	7. To explore a range of actions, dynamics, space and relationships, and how to create dance motifs and compose simple dances 8. To learn, practise, refine and perform dance phrases with physical control, expression, rhythmic timing, musicality and an awareness of other performers 9. To adopt, sustain and develop a range of roles for different purposes using a range of dramatic conventions 10. To create and perform in order to make and convey meaning			

	UKS2	7. To draw upon different dance styles to compose dances and communicate meaning 8. To develop and refine their movement repertoire and show understanding of artistic meanings and intentions when they dance 9. To create roles and devise performances that sustain characters, plots and intentions 10. How facial expressions, body language, movement and space can communicate different emotions and characteristics of behaviour 11. To select and experiment with a broad range of drama conventions and forms for different purposes and effects		

How will the children be enabled to do this? 'Breadth of Learning'
During the year, pupils should be taught the knowledge, skills and understanding through: a. practical activity, exploration and discussion b. using mathematical ideas in practical activities, then recording these using objects, pictures, diagrams, words, numbers and symbols c. using mental images of numbers and their relationships to support the development of mental calculation strategies d. estimating, drawing and measuring in a range of practical contexts e. drawing inferences from data in practical activities f. exploring and using a variety of resources and materials, including ICT g. activities that encourage them to make connections between number work and other aspects of their work in mathematics.

These are the skills that children need to learn to make progress:

a. undertake investigations and enquiries, using various methods, media and sources
b. compare, interpret and analyse different types of evidence from a range of sources
c. present and communicate findings in a range of ways and develop arguments and explanations using appropriate specialist vocabulary and techniques
d. consider, respond to and debate alternative viewpoints in order to take informed and responsible action.

		Which skills are the children learning?	What Core Knowledge will the children acquire? KS1	What Core Knowledge will the children acquire? KS2
GEOGRAPHY	KS1	1. to find out about the key human and physical features of their own locality, its location in the UK, and how it has changed over time 2. to explore how people's ways of life, including their own, change with location and time 3. about the links between their locality and other places in the UK and beyond 4. to find out about the lives of significant people and events from the past and the present 5. to investigate issues, express views and take part in decision-making activities to improve their immediate environment or community	**Location knowledge** • name and locate the world's seven continents and five oceans • name, locate and identify characteristics of the four countries and capital cities of the United Kingdom and its surrounding seas **Place knowledge** • understand geographical similarities and differences through studying the human and physical geography of a small area of the United Kingdom, and of a small area in a contrasting non-European country **Human and physical geography** • identify seasonal and daily weather patterns in the United Kingdom and the location of hot and cold areas of the world in relation to the Equator and the North and South Poles • use basic geographical vocabulary to refer to: • key physical features, including: beach, cliff, coast, forest, hill, mountain, sea, ocean, river, soil, valley, vegetation, season and weather • key human features, including: city, town, village, factory, farm, house, office, port, harbour and shop **Geographical skills and fieldwork** • use world maps, atlases and globes to identify the United Kingdom and its countries, as well as the countries, continents and oceans studied at this key stage • use simple compass directions (North, South, East and West) and locational and directional language (e.g. near and far; left and right) to describe the location of features and routes on a map • use aerial photographs and plan perspectives to recognise landmarks and basic human and physical features; devise a simple map; and use and construct basic symbols in a key • use simple fieldwork and observational skills to study the geography of their school and its grounds and the key human and physical features of its surrounding environment.	**Location knowledge** • locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities • name and locate counties and cities of the United Kingdom, geographical regions and their identifying human and physical characteristics, key topographical features (including hills, mountains, coasts and rivers), and land-use patterns; and understand how some of these aspects have changed over time • identify the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, the Prime/Greenwich Meridian and time zones (including day and night) **Place knowledge** • understand geographical similarities and differences through the study of human and physical geography of a region of the United Kingdom, a region in a European country, and a region within North or South America **Human and physical geography** • describe and understand key aspects of: • physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle • human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water **Geographical skills and fieldwork** • use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied • use the eight points of a compass, four and six-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world • use fieldwork to observe, measure and record the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.
	LKS2	1. how identities, communities, places, cultures and traditions have changed and are changing over time 2. to identify patterns in communities, places and past events by searching for and locating information using keywords, and carrying out searches, fieldwork and surveys 3. where significant places are located in the UK, Europe and the wider world 4. to identify the similarities and differences between places and environments, and understand how they are linked 5. to appreciate the relationship between the physical, built and economic and social environments 6. how different ways in which people live around the world sometimes have consequences for the environment and the lives of others from local to global scales		
	UKS2	1. how societies have been organised and governed in different ways and at different times, including in the present 2. to distinguish between fact and opinion and make choices about sources of online information to find out about communities, locations, environments and events 3. a range of geographical processes that cause change in the physical and human world in different places 4. how human patterns are influenced by both human and physical processes 5. about the factors that affect weather and climate 6. ways in which environments can be managed sustainably and why this is important now and in the future		
HISTORY	KS1	6. to use the internet and other digital sources and simulations to find out about significant issues, events and people, and to explore distant and contrasting places	**What Core Knowledge will the children acquire? KS1** • changes within living memory. Where appropriate, these should be used to reveal aspects of change in national life • events beyond living	**What Core Knowledge will the children acquire? KS2** • **changes in Britain from the Stone Age to the Iron Age , this could include:** late Neolithic hunter-gatherers and early farmers, e.g. Skara Brae Bronze Age religion, technology and travel, e.g. Stonehenge Iron Age hill forts: tribal kingdoms, farming, art and culture • **the Roman Empire and its impact on Britain, this could include:** Julius Caesar's attempted invasion in 55-54 BC the Roman Empire by AD 42 and the power of its army

	LKS2	7. to explore the different ways we can find out about the past and how to understand the evidence 8. how significant events, developments or individuals and groups have influenced their locality, the UK and beyond in the recent and distant past 9. about the movement and settlement of people in different periods of British history, and the impact these have had	memory that are significant nationally or globally (e.g. the Great Fire of London, the first aeroplane flight or events commemorated through festivals or anniversaries) • the lives of significant individuals in the past who have contributed to national and international achievements. Some should be used to compare aspects of life in different periods (e.g. Elizabeth I and Queen Victoria, Christopher Columbus and Neil Armstrong, William Caxton and Tim Berners-Lee, Pieter Bruegel the Elder and LS Lowry, Rosa Parks and Emily Davison, Mary Seacole and Edith Cavell) • significant historical events, people and places in their own locality.	successful invasion by Claudius and conquest, including Hadrian's Wall British resistance, e.g. Boudica "Romanisation" of Britain: sites such as Caerwent and the impact of technology, culture and beliefs, including early Christianity • **Britain's settlement by Anglo-Saxons and Scots, this could include:** Roman withdrawal from Britain in c. AD 410 and the fall of the western Roman Empire Scots invasions from Ireland to north Britain (now Scotland) Anglo-Saxon invasions, settlements and kingdoms: place names and village life Anglo-Saxon art and culture Christian conversion – Canterbury, Iona and Lindisfarne • **the Viking and Anglo-Saxon struggle for the Kingdom of England to the time of Edward the Confessor, this could include:** Viking raids and invasion resistance by Alfred the Great and Athelstan, first king of England further Viking invasions and Danegeld Anglo-Saxon laws and justice Edward the Confessor and his death in 1066 • **a local history study, for example:** a depth study linked to one of the British areas of study listed above a study over time tracing how several aspects national history are reflected in the locality (this can go beyond 1066) a study of an aspect of history or a site dating from a period beyond 1066 that is significant in the locality. • **a study of an aspect or theme in British history that extends pupils' chronological knowledge beyond 1066, for example:** the changing power of monarchs using case studies such as John, Anne and Victoria changes in an aspect of social history, such as crime and punishment from the Anglo-Saxons to the present or leisure and entertainment in the 20th Century the legacy of Greek or Roman culture (art, architecture or literature) on later periods in British history, including the present day a significant turning point in British history, e.g. the first railways or the Battle of Britain the achievements of the earliest civilizations – an overview of where and when the first civilizations appeared and a depth study of one of the following: Ancient Sumer; The Indus Valley; Ancient Egypt; The Shang Dynasty of Ancient China Ancient Greece – a study of Greek life and achievements and their influence on the western world a non-European society that provides contrasts with British history - one study chosen from: early Islamic civilization, including a study of Baghdad c. AD 900; Mayan civilization c. AD 900; Benin (West Africa) c. AD 900-1300.
	UKS2	7. the characteristic features of, and changes within, two key periods of history that were significant to the locality and the UK 8. the effects of economic, technological and scientific developments on the UK and the wider world over time 9. to understand the broad chronology of major events in the UK, and some key events in the wider world, from ancient civilisations to the present day, and to locate within this the periods, events and changes they have studied		

How will the children be enabled to do this? 'Breadth of Learning'

a. When exploring local, national and global contexts children should:

1. learn about the ways people, communities, places and environments have changed over time, and how they are interconnected
2. develop and extend local and global links through communications and collaboration tools.

b. Through the study of people and communities, children should:

1. find out about the main political and social institutions that affect their lives
2. find out about issues and take action to improve things in their communities and make a positive contribution to society
3. engage with different representatives from the community
4. explore issues of justice, rights and responsibilities in their own contexts and the wider world.

c. In the study of place and space children should:

1. use fieldwork, first-hand experience and secondary sources to locate and investigate the geographical features of a range of places and environments, including their own locality, a contrasting area in the UK and a different locality in another country
2. learn about and develop informed views and opinions on local, national and global issues such as sustainability, climate change, economic inequality, and their impact on people, places and environments in the past and the present.

d. The study of the past should include aspects of local, British and world history, children should:

1. study the past in outline and in depth, covering different societies and periods of history from ancient times to modern day
2. use dates and vocabulary related to the passing of time
3. place events, people and changes within a broad chronological framework
4. use a range of sources of information8 and visit historic buildings, museums, galleries and sites.

These are the skills that children need to learn to make progress:

a. reflect on and evaluate evidence when making personal choices or bringing about improvements in performance and behaviour
b. generate and implement ideas, plans and strategies, exploring alternatives
c. move with ease, poise, stability and control in a range of physical contexts
d. find information and check its accuracy, including the different ways that issues are presented by different viewpoints and media
e. communicate clearly and interact with a range of audiences to express views on issues that affect their wellbeing.

<table>
<tr><th colspan="3">Which skills are the children learning?</th><th>What Core Knowledge will the children acquire? KS1</th><th>What Core Knowledge will the children acquire? LKS2</th><th>What Core Knowledge will the children acquire? UKS2</th></tr>
<tr><td rowspan="3">PE</td><td>KS1</td><td>1. to develop control and coordination of their physical movements
2. to recognise, observe and apply rules in competitive and cooperative games and other physical activities and why they are important
3. to devise and use repeat compositions and sequences in physical activities
4. to use and apply simple tactics and strategies
5. to improve performance by observation and use criteria for evaluation
6. about the benefits of regular exercise and how their bodies feel when they exercise</td><td rowspan="3">• master basic movements including running, jumping, throwing and catching, as well as developing balance, agility and co-ordination, and begin to apply these in a range of activities
• participate in team games, developing simple tactics for attacking and defending
• perform dances using simple movement patterns.</td><td rowspan="3" colspan="2">• use running, jumping, throwing and catching in isolation and in combination
• play competitive games, modified where appropriate, such as badminton, basketball, cricket, football, hockey, netball, rounders and tennis, and apply basic principles suitable for attacking and defending
• develop flexibility, strength, technique, control and balance, for example through athletics and gymnastics
• perform dances using a range of movement patterns
• take part in outdoor and adventurous activity challenges both individually and within a team
• compare their performances with previous ones and demonstrate improvement to achieve their personal best.</td></tr>
<tr><td>LKS2</td><td>1. to control and coordinate their bodies and movements with increasing skill and confidence
2. to follow and apply more complex rules in a range of competitive and cooperative games and physical activities
3. to develop physical skills and techniques by observation, evaluation and refinement; and to use repetition and practice to reach higher standards
4. to use tactics, strategies and compositional ideas to achieve set objectives and improve performance
5. to recognise ways in which stamina and flexibility can be improved through daily physical activity</td></tr>
<tr><td>UKS2</td><td>1. to perform physical movements and complex series of movements with increasing control, coordination, precision and consistency
2. to create and apply rules and use more complex compositions, tactics and strategies in competitive and cooperative games and other physical activities
3. to develop and perform sequences and compositions using appropriate movements to express ideas and emotions
4. to refine physical skills and techniques, commenting on strengths and weaknesses in their own and others' performance
5. to recognise the benefits of practice and reflection for improving personal and group performance</td></tr>
<tr><td rowspan="2">PSHE (non statutory)</td><td>KS1</td><td>7. why healthy eating and physical activity are beneficial
8. to make healthy eating choices and prepare simple healthy foods
9. that some substances can help or harm the body
10. about the simple physical changes to their bodies they have experienced since birth and the similarities and differences between people
11. to manage personal hygiene
12. to identify different relationships that they have and why these are important
13. how to recognise, manage and control strong feelings and emotions</td><td colspan="3" rowspan="2">• Developing confidence and responsibility and making the most of their abilities

a. to talk and write about their opinions, and explain their views, on issues that affect themselves and society
b. to recognise their worth as individuals by identifying positive things about themselves and their achievements, seeing their mistakes, making amends and setting personal goals
c. to face new challenges positively by collecting information, looking for help, making responsible choices, and taking action
d. to recognise, as they approach puberty, how people's emotions change at that time and how to deal with their feelings towards themselves, their family and others in a positive way
e. about the range of jobs carried out by people they know, and to understand how they can develop skills to make their own contribution in the future
f. to look after their money and realise that future wants and needs may be met through saving.
• Developing a healthy, safer lifestyle

a. what makes a healthy lifestyle, including the benefits of exercise and healthy eating, what affects mental health, and how to make informed choices
b. that bacteria and viruses can affect health and that following simple, safe routines can reduce their spread</td></tr>
<tr><td>LKS2</td><td>6. about the relationship and balance between physical activity and nutrition in achieving a physically and mentally healthy lifestyle
7. to plan and help prepare simple healthy meals
8. about the impact of some harmful and beneficial substances on their body
9. about the physical and emotional changes that take place as they grow and approach puberty
10. how to form and maintain relationships with a range of different people
11. strategies for managing and controlling strong feelings and emotions</td></tr>
</table>

	UKS2	6. to understand the particular benefits of different physical activities for promoting health 7. to take responsibility for their physical activity and nutrition in achieving a physically and mentally healthy lifestyle 8. to plan, prepare and cook simple healthy meals 9. how to make responsible, informed decisions relating to medicines, alcohol, tobacco and other substances and drugs 10. about the physical changes that take place in the human body as they grow and how these relate to human reproduction 11. how to manage changing emotions and relationships and how new relationships may develop 12. that hygiene, physical activity and nutrition needs might change as a result of growth and adolescence 13. strategies for understanding, managing and controlling strong feelings and emotions and dealing with negative pressures	c. about how the body changes as they approach puberty d. which commonly available substances and drugs are legal and illegal, their effects and risks e. to recognise the different risks in different situations and then decide how to behave responsibly, including sensible road use, and judging what kind of physical contact is acceptable or unacceptable f. that pressure to behave in an unacceptable or risky way can come from a variety of sources, including people they know, and how to ask for help and use basic techniques for resisting pressure to do wrong g. school rules about health and safety, basic emergency aid procedures and where to get help. • **Developing good relationships and respecting the differences between people** a. that their actions affect themselves and others, to care about other people's feelings and to try to see things from their points of view b. to think about the lives of people living in other places and times, and people with different values and customs c. to be aware of different types of relationship, including marriage and those between friends and families, and to develop the skills to be effective in relationships d. to realise the nature and consequences of racism, teasing, bullying and aggressive behaviours, and how to respond to them and ask for help e. to recognise and challenge stereotypes f. that differences and similarities between people arise from a number of factors, including cultural, ethnic, racial and religious diversity, gender and disability g. where individuals, families and groups can get help and support.
CITIZENSHIP	KS1	14. about the different types of work people do and about different places of work 15. about where money comes from and the choices people make to spend money on things they need and want 16. ways to contribute to enterprise activities41	**Working towards knowing:** • how the political system of the UK has developed as a democracy, including the role of Parliament and the monarch • the operation of Parliament, including voting and elections, and the role of political parties • the precious liberties enjoyed by the citizens of the United Kingdom • the nature of rules and laws and the justice system, including the role of the police and the operation of courts and tribunals • the functions and uses of money, the importance of personal budgeting, and managing risk.
	LKS2	12. why people work and the different jobs people do 13. what influences the choices people make about how money is spent 14. how they can contribute to a range of activities that help them to become more enterprising	
	UKS2	14. about the connections between their learning, the world of work and their future economic wellbeing 15. about how people manage money and about basic financial capability 16. to show initiative and take responsibility for activities that develop enterprise capability	

How will the children be enabled to do this? 'Breadth of Learning'

During the year, pupils should be taught the knowledge, skills and understanding through being enabled:

a. to take the lead, prioritise actions and work independently and collaboratively towards goals
b. to listen to, reflect on and respect other people's views and feelings while negotiating and presenting their own views
c. to recognise and challenge stereotyping and discrimination
d. to self-assess, set goals, prioritise and manage time and resources, understanding how this will help their future actions
e. to recognise their strengths and how they can contribute to different groups
f. to take responsibility for their own safety and the safety of others and where to seek help in an emergency
g. to use ICT safely, including using software features and settings
h. to understand how to respond to challenges, including recognising, taking and managing risks

These are the skills that children need to learn to make progress:

a. generate and explore ideas and strategies, pursue lines of mathematical enquiry and apply logic and reasoning to mathematical problems
b. make and test generalisations, identify patterns and appreciate equivalences and relationships
c. develop, select and apply a range of mental, written and ICT-based methods and models to estimate, approximate, calculate, classify, quantify, order and compare
d. communicate ideas and justify arguments using mathematical symbols, diagrams, images and language
e. interpret findings, evaluate methods and check outcomes.

	Which skills are the children learning?		**What Core Knowledge will the children acquire? Y1**		**What Core Knowledge will the children acquire? Y2**
KS1	1. to investigate their local environment and use their findings to inform actions to care for and improve it. ***Further skills:*** *3. to explore simple electrical circuits and find out how electricity is used in the home, at school and in some products*	Working scientifically	• asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions.		
	2. to explore ways of looking after living things and keeping them alive and healthy ***Further skills:*** *5. to apply scientific knowledge and understanding to grow healthy plants and explain how humans and other animals stay fit and healthy* *6. to investigate the physical characteristics of the local environment and the living things in it, comparing them with those from another locality*			All living things and their habitats	• explore and compare the differences between things that are living, dead, and things that have never been alive • identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • identify and name a variety of plants and animals in their habitats, including micro-habitats describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.
		Plants	• identify and name a variety of common plants, including garden plants, wild plants and trees, and those classified as deciduous and evergreen • identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers.	Plants	• observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
		Animals, including Humans	• identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates • identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, and including pets) • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Animals, including Humans	• notice that animals, including humans, have offspring which grow into adults • find out about and describe the basic needs of animals, including humans, for survival (water, food and air) describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
	1. to investigate their local environment and use their findings to inform actions to care for and improve it. ***Further skills:*** *2. to investigate the effects of different forces and how they can use these to move mechanical parts or objects in specific ways* *3. to identify, group and select materials using properties and behaviours that can be tested, and identify and group living things using observable features and other characteristics* *4. to investigate what happens when materials are mixed, and whether and how they can be separated again*	Everyday Materials	• distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties • find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	Uses of everyday materials	• identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard compare how things move on different surfaces.

	3. to explore simple electrical circuits and find out how electricity is used in the home, at school and in some products 4. to explore sources of light and sound and how we sense them ***Further skills:*** *1. to investigate how light and sound travel and how shadows and sounds are made*	Light	• observe and name a variety of sources of light, including electric lights, flames and the Sun • associate shadows with a light source being blocked by something.		
				Sound	• observe and name a variety of sources of sound, noticing that we hear with our ears • recognise that sounds get fainter as the distance from the sound source increases.
	1. to investigate their local environment and use their findings to inform actions to care for and improve it.	Seasonal Changes	• observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies.		

How will the children be enabled to do this? 'Breadth of Learning'

a. When investigating science and design and technology children should:

1. share their expertise in subjects that interest them and respond to relevant and current issues, locally and in the national media
2. apply their knowledge and understanding in real-life contexts, relating it to the world around them and visiting places to learn about science and design and technology
3. work with experts and enthusiasts to find out how science and design and technology are used and applied in day-to-day life.

b. Children should use investigations and designing and making activities to:

1. explore a range of familiar and less familiar contexts, environments and products
2. develop practical skills that will help them to carry out investigations and to make functional products from their design ideas.
3. use design and technology contexts to develop scientific understanding and apply their scientific knowledge to inform their designing and making
4. work collaboratively towards a common goal by sharing ideas, making compromises, negotiating and providing feedback.

c. When applying their knowledge and understanding of science and design and technology children should:

1. think creatively and inventively about how things work10, identify patterns and establish links between causes and effects
2. test their ideas through practical activities and review their own and others' ideas and investigations, designs and products
3. carry out their own investigations, deciding what kind of evidence to collect and what equipment and materials to use
4. suggest the results they expect and explain their observations and the significance and limitations of the conclusions they draw.

d. When developing their own design ideas children should:

1. explore ways of improving designs for products, mechanisms, structures, systems and control
2. investigate different materials, and use them to provide functional solutions to meet user needs, evaluating and refining their products as they work.

These are the skills that children need to learn to make progress:

a. generate and explore ideas and strategies, pursue lines of mathematical enquiry and apply logic and reasoning to mathematical problems
b. make and test generalisations, identify patterns and appreciate equivalences and relationships
c. develop, select and apply a range of mental, written and ICT-based methods and models to estimate, approximate, calculate, classify, quantify, order and compare
d. communicate ideas and justify arguments using mathematical symbols, diagrams, images and language
e. interpret findings, evaluate methods and check outcomes.

	Which skills are the children learning?		What Core Knowledge will the children acquire? Y3	What Core Knowledge will the children acquire? Y4	
LKS2	***Further Skills:*** *1. to investigate and explain how scientific and technological developments affect the physical and living worlds* *2. to explore and explain practical ways in which science can contribute to a more sustainable future* *3. to explore and explain how time measurement relates to day and night and the Earth's place in the solar system*	Working scientifically	• asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings.		
	1. to apply scientific knowledge and understanding to grow healthy plants and explain how humans and other animals stay fit and healthy 2. to investigate the physical characteristics of the local environment and the living things in it, comparing them with those from another locality 3. to identify, group and select materials using properties and behaviours that can be tested, and identify and group living things using observable features and other characteristics ***Further Skills:*** *4. to apply knowledge and understanding to describe and explain the structure and function of key human body systems including reproduction* *5. to investigate the structure, function, life cycle and growth of flowering plants and how these grow and are used around the world* *6. to investigate, identify and explain the benefits of micro-organisms and the harm they can cause* *7. to investigate and explain how plants and animals are interdependent and are diverse and adapted to their environment as a result of evolution*			All living things	• identify and name a variety of living things (plants and animals) in the local and wider environment, using classification keys to assign them to groups • recognise that environments can change and that this can sometimes pose dangers to living things.
		Plants	• identify and describe the functions of different parts of flowering plants: roots, stem, leaves and flowers • explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.		
		Animals, including Humans	• identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • identify that humans and some animals have skeletons and muscles for support, protection and movement.	Animals, including Humans	• describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans and their simple functions • construct and interpret a variety of food chains, identifying producers, predators and prey.
	3. to identify, group and select materials using properties and behaviours that can be tested, and identify and group living things using observable features and other characteristics	Rocks	• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • describe in simple terms how fossils are formed when things that have lived are trapped within rock • recognise that soils are made from rocks and organic matter.		

	4. to investigate what happens when materials are mixed, and whether and how they can be separated again ***Further Skills:*** *8. to explore, explain and use reversible and nonreversible changes that occur in the world around them and how changes can be used to create new and useful materials*			States of matter	• compare and group materials together, according to whether they are solids, liquids or gases • observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C) • identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
	5. to investigate how light and sound travel and how shadows and sounds are made ***Further Skills:*** *9. to investigate the properties and behaviour of light and sound in order to describe and explain familiar effects*	Light	• notice that light is reflected from surfaces • find patterns that determine the size of shadows.		
				Sound	• identify how sounds are made, associating some of them with something vibrating • find patterns between the pitch of a sound and features of the object that produced it • find patterns between the volume of a sound and the strength of the vibrations that produced it.
	6. to investigate the effects of different forces and how they can use these to move mechanical parts or objects in specific ways ***Further Skills:*** *10. to investigate combinations of forces* *11. to investigate and explain the effect of changes in electrical circuits*	Forces and magnets	• notice that some forces need contact between two objects, but magnetic forces can act at a distance • observe how magnets attract or repel each other and attract some materials and not others • compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • describe magnets as having two poles • predict whether two magnets will attract or repel each other, depending on which poles are facing.		
				Electricity	• identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • 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 • recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit • recognise some common conductors and insulators, and associate metals with being good conductors.
How will the children be enabled to do this? 'Breadth of Learning'					

a. When investigating science and design and technology children should:

1. share their expertise in subjects that interest them and respond to relevant and current issues, locally and in the national media
2. apply their knowledge and understanding in real-life contexts, relating it to the world around them and visiting places to learn about science and design and technology
3. work with experts and enthusiasts to find out how science and design and technology are used and applied in day-to-day life.

b. Children should use investigations and designing and making activities to:

1. explore a range of familiar and less familiar contexts, environments and products
2. develop practical skills that will help them to carry out investigations and to make functional products from their design ideas.
3. use design and technology contexts to develop scientific understanding and apply their scientific knowledge to inform their designing and making
4. work collaboratively towards a common goal by sharing ideas, making compromises, negotiating and providing feedback.

c. When applying their knowledge and understanding of science and design and technology children should:

1. think creatively and inventively about how things work10, identify patterns and establish links between causes and effects
2. test their ideas through practical activities and review their own and others' ideas and investigations, designs and products
3. carry out their own investigations, deciding what kind of evidence to collect and what equipment and materials to use
4. suggest the results they expect and explain their observations and the significance and limitations of the conclusions they draw.

d. When developing their own design ideas children should:

1. explore ways of improving designs for products, mechanisms, structures, systems and control
2. investigate different materials, and use them to provide functional solutions to meet user needs, evaluating and refining their products as they work.

These are the skills that children need to learn to make progress:

a. generate and explore ideas and strategies, pursue lines of mathematical enquiry and apply logic and reasoning to mathematical problems
b. make and test generalisations, identify patterns and appreciate equivalences and relationships
c. develop, select and apply a range of mental, written and ICT-based methods and models to estimate, approximate, calculate, classify, quantify, order and compare
d. communicate ideas and justify arguments using mathematical symbols, diagrams, images and language
e. interpret findings, evaluate methods and check outcomes.

	Which skills are the children learning?		**What Core Knowledge will the children acquire? Y5**		**What Core Knowledge will the children acquire? Y6**
UKS2	1. to investigate and explain how scientific and technological developments affect the physical and living worlds 2. to explore and explain practical ways in which science can contribute to a more sustainable future	Working scientifically	• planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs • using test results to make predictions to set up further comparative and fair tests • using simple models to describe scientific ideas • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments.		
	Prior Skills: *1. to apply scientific knowledge and understanding to grow healthy plants and explain how humans and other animals stay fit and healthy* *2. to investigate the physical characteristics of the local environment and the living things in it, comparing them with those from another locality* 3. to apply knowledge and understanding to describe and explain the structure and function of key human body systems including reproduction 4. to investigate the structure, function, life cycle and growth of flowering plants and how these grow and are used around the world 5. to investigate, identify and explain the benefits of micro-organisms and the harm they can cause 6. to investigate and explain how plants and animals are interdependent and are diverse and adapted to their environment as a result of evolution	All living things	• explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird • describe the life process of reproduction in some plants and animals.	All living things	• describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals • give reasons for classifying plants and animals based on specific characteristics.
		Animals, including Humans	• describe the changes as humans develop from birth to old age.	Animals, including Humans	• identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle onthe way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans.
				Evolution and Inheritance	• recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago • recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
	Prior Skills: *3. to identify, group and select materials using properties and behaviours that can be tested, and identify and group living things using observable features and other characteristics* *4. to investigate what happens when materials are mixed, and whether and how they can be separated again* 7. to explore, explain and use reversible and nonreversible changes that occur in the world around them and how changes can be used to create new and useful materials	Properties and changes of materials	• compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets • understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • demonstrate that dissolving, mixing and changes of state are reversible changes • explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.		

	8. to explore and explain how time measurement relates to day and night and the Earth's place in the solar system	Earth and Space	• describe the movement of the Earth, and other planets, relative to the Sun in the solar system • describe the movement of the Moon relative to the Earth • describe the Sun, Earth and Moon as approximately spherical bodies • use the idea of the Earth's rotation to explain day and night.		
	Prior Skills: *5. to investigate how light and sound travel and how shadows and sounds are made* 9. to investigate the properties and behaviour of light and sound in order to describe and explain familiar effects			Light	• understand that light appears to travel in straight lines • use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye • explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes.
	Prior Skills: *6. to investigate the effects of different forces and how they can use these to move mechanical parts or objects in specific ways* 10. to investigate and explain the effect of changes in electrical circuits 11. to investigate combinations of forces	Forces	• explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • identify the effects of air resistance, water resistance and friction, that act between moving surfaces • understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.		
				Electricity	• associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • use recognised symbols when representing a simple circuit in a diagram.

How will the children be enabled to do this? 'Breadth of Learning'

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1. explore ways of improving designs for products, mechanisms, structures, systems and control
2. investigate different materials, and use them to provide functional solutions to meet user needs, evaluating and refining their products as they work.

These are the skills that children need to learn to make progress:

a. observe and explore to generate ideas, define problems and pose questions in order to develop investigations and products
b. engage safely in practical investigations and experiments and gather and record evidence by observation and measurement
c. apply practical skills to design, make and improve products safely, taking account of users and purposes
d. communicate and model in order to explain and develop ideas, share findings and conclusions
e. to continually make systematic evaluations when designing

		Which skills are the children learning?	What Core Knowledge will the children acquire? KS1	What Core Knowledge will the children acquire? KS2
DT	KS1	1. to explore changes in the way things move by using push and pull forces 2. to explore simple mechanisms and structures to investigate how they work 3. to give instructions to make things happen using programmable devices 4. to explore simple electrical circuits and find out how electricity is used in the home, at school and in some products 5. to explore sources of light and sound and how we sense them 6. to explore ways of looking after living things and keeping them alive and healthy 7. to investigate their local environment and use their findings to inform actions to care for and improve it.	**Design** • design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology **Make** • select from and use a range of tools and equipment to perform practical tasks such as cutting, shaping, joining and finishing • select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics **Evaluate** • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria **Technical knowledge** • build structures, exploring how they can be made stronger, stiffer and more stable • explore and use mechanisms, such as levers, sliders, wheels and axles, in their products. **Food** • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from	**Design** • 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 • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **Make** • select from and use a wider range of tools and equipment to perform practical tasks, such as cutting, shaping, joining and finishing, accurately • 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 **Evaluate** • investigate and analyse a range of existing products • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • understand how key events and individuals in design and technology have helped shape the world **Technical knowledge** • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products, such as gears, pulleys, cams, levers and linkages • understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs, buzzers and motors • apply their understanding of computing to programme, monitor and control their products. **Food** • understand and apply the principles of a healthy and varied diet • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
	LKS2	1. to apply knowledge, skills and understanding when designing and making products using construction materials and textiles 2. to use a variety of methods to explore design alternatives and to test fitness for purpose of materials, components and techniques 3. to apply knowledge of mechanical and electrical control when designing and making functional products 4. to refine sequences of instructions to control events or make things happen using ICT		
	UKS2	1. to make controllable systems or models, devising and refining sequences of instructions taking into account users, purposes and needs 2. to consider the implications of familiar designs and products for the environment and different communities		
ICT	KS1	It is important that we understand how ICT skills progress throughout the primary phase, taking into account children's use of technology both in and beyond school. The application of ICT skills across the wider curriculum provides opportunities for learners to use ICT to support communication and collaboration, enquiry, creative and critical thinking. The aim is for children to become proficient, independent and discerning users of technology who recognise when and where ICT can enhance their learning and employ appropriate strategies to stay safe.	**Computing** • 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,	**Computing** • design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts • use sequence, selection, and repetition in programs; work with variables and various forms of input and output • use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs • understand computer networks including the internet; how they can provide
	LKS2			

	UKS2		organise, store, manipulate and retrieve digital content • use technology safely and respectfully, keeping personal information private; know where to go for help and support when they have concerns about material on the internet • recognise common uses of information technology beyond school.	multiple services, such as the world-wide web; and the opportunities they offer for communication and collaboration • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • use technology safely, respectfully and responsibly; know a range of ways to report concerns and inappropriate behaviour • select, use and combine a variety of software (including internet services) on a range of digital devices to accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

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a. generate and explore ideas and strategies, pursue lines of mathematical enquiry and apply logic and reasoning to mathematical problems
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c. develop, select and apply a range of mental, written and ICT-based methods and models to estimate, approximate, calculate, classify, quantify, order and compare
d. communicate ideas and justify arguments using mathematical symbols, diagrams, images and language
e. interpret findings, evaluate methods and check outcomes.

		Which skills are the children learning?	**What Core Knowledge will the children acquire? Y1**	**What Core Knowledge will the children acquire? Y2**	**How will we know if this has been successful?**
KS1	Number	1. to estimate the number of objects and count them, recognising conservation of number 2. to read, write and order numbers to 100 and beyond using a range of representations 3. to explore and explain patterns, including number sequences in the counting system 4. to group, match, sort, partition and recombine numbers, developing an understanding of place value	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens • given a number, identify one more and one less • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words.	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward • recognise the place value of each digit in a two-digit number (tens, ones) • identify, represent and estimate numbers using different representations, including the number line • compare and order numbers from 0 up to 100; use <, > and = signs • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems.	- Give the children three digit cards, including 0, for example: 3 6 0 What numbers can you make, using two or three of these digits? Write down each number you make. Read those numbers to me. Can you write the largest of the numbers in words? - Which of your numbers are odd and which are even? How do you know? - [Show number cards for 19 and 91.] Which of these numbers is nineteen? How do you know? - What does the other one say? How are they the same/different? - How many tens are there in 60? Use this to partition the number 67. Show me two other ways you might partition this number.

	Calculation	5. a range of strategies for combining, partitioning, grouping and sharing (including doubling and halving) and increasing and decreasing numbers, to solve practical problems 6. to use number bonds to ten to add and subtract mentally whole numbers with one or two significant figures 7. to represent addition and subtraction as number sentences including finding missing numbers and understanding the equals sign 8. to use coins of different values and recognise the equivalence of different combinations of coins 9. to compare and order costs of different items	• read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including zero • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = - 9. • solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. • recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	• solve problems with addition and subtraction: • using concrete objects and pictorial representations, including those involving numbers, quantities and measures • applying their increasing knowledge of mental and written methods • recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems. • recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. • recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity • write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	- What information did you use to solve the problem? - How did you decide which calculations to do? - Could you have solved it in a different way? - How is your method different from Judi's method? - What is 48 + 5? How did you work it out? What is 48 + 50? How did you work this out? How do you know that the answer is not 53? Could you write something or use apparatus to help you explain? - What number goes in the box to make this calculation correct? ▪▪ ÷ 2 = 7 How do you know? - Can you make three different number sentences using 16, 7 and 23 with = and any of the four operation symbols? - Can you change the three numbers to make this into a different problem for someone else to solve? How will you know if their answer is correct?

	Measures	10. to compare and order objects and events 11. to create and use whole number scales to measure	• compare, describe and solve practical problems for: • lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half) • mass or weight (e.g. heavy/light, heavier than, lighter than) • capacity/volume (full/empty, more than, less than, quarter) • time (quicker, slower, earlier, later) • measure and begin to record the following: lengths and heights mass/weight capacity and volume time (hours, minutes, seconds) • recognise and know the value of different denominations of coins and notes • sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	• choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = • recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • find different combinations of coins that equal the same amounts of money • solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change • compare and sequence intervals of time • tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.	Point out something that you think is about two metres high/tall/long. What can you see that you think is just shorter/longer than a metre? Which containers do you think will hold just a little more than a litre? On the graph, how do you work out the numbers between the labels? Which way of getting to school was used by 7 children? These labels show only 0, 2, 4, 6, 8 and 10. How could you find 7? If this scale carried on, what other numbers do you think would be shown? Would the number 34 be shown? How can you tell?
	Shape	12. to identify, group, match, sort and compare common shapes using geometric properties 13. to identify, reproduce and generate geometric patterns including the use of practical resources and ICT 14. to generate instructions for straight and turning movement	• recognise and name common 2-D and 3-D shapes, including: • 2-D shapes (e.g. rectangles (including squares), circles and triangles) • 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres). • describe position, directions and movements, including half, quarter and three-quarter turns.	• identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid • compare and sort common 2-D and 3-D shapes and everyday objects. • order and arrange combinations of mathematical objects in patterns • use mathematical vocabulary to describe position, direction and movement including distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise), and movement in a straight line.	- Describe the shape or solid in the cloth bag as you feel it. What might it be? Why? How do you know this shape is a ...? How do you know this shape isn't a ...? - Imagine a cube. Four faces are yellow; the rest are blue. How many faces are blue? - Describe this shape/solid to a friend. Can they guess what it is? - Sort these 2-D shapes. Put all the pentagons in this circle. Now choose another way to sort them. What do all the shapes that you have put in the circle have in common? - Two of these shapes have no lines of symmetry. Which are they?
	Data	15. to generate and explore questions that require the collection and analysis of information 16. to collect, group, match, sort, record and represent information (i) for a purpose and store it using ICT 17. to interpret and draw conclusions from information they have collected	• Answer a question by recording information in lists and tables; present outcomes using practical resources, pictures, block graphs or pictograms • Use lists, tables and diagrams to sort objects; explain choices using appropriate language, including 'not'	• interpret and construct simple pictograms, tally charts, block diagrams and simple tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data.	How could you make the table? What headings do you need? How could you make the list? Would it help to put the information in order? Which of these ways of presenting the information helps us best to answer the question? Why is a block graph a good way of showing your results? What does the tallest column of blocks mean? How did the block graph help you to answer the question?
How will the children be enabled to do this? 'Breadth of Learning'					

During the year, pupils should be taught the knowledge, skills and understanding through:
a. practical activity, exploration and discussion
b. using mathematical ideas in practical activities, then recording these using objects, pictures, diagrams, words, numbers and symbols
c. using mental images of numbers and their relationships to support the development of mental calculation strategies
d. estimating, drawing and measuring in a range of practical contexts
e. drawing inferences from data in practical activities
f. exploring and using a variety of resources and materials, including ICT
g. activities that encourage them to make connections between number work and other aspects of their work in mathematics.

These are the skills that children need to learn to make progress:

a. generate and explore ideas and strategies, pursue lines of mathematical enquiry and apply logic and reasoning to mathematical problems
b. make and test generalisations, identify patterns and appreciate equivalences and relationships
c. develop, select and apply a range of mental, written and ICT-based methods and models to estimate, approximate, calculate, classify, quantify, order and compare
d. communicate ideas and justify arguments using mathematical symbols, diagrams, images and language
e. interpret findings, evaluate methods and check outcomes.

		Which skills are the children learning?	What Core Knowledge will the children acquire? Y3	What Core Knowledge will the children acquire? Y4	How will we know if this has been successful?
LKS2	Number	1. to use decimals up to three decimal places in measurement contexts 2. to understand and use the equivalence of families of fractions and their decimal representation when ordering and comparing 3. to explore number patterns and properties, and represent them using graphs, simple formulae and ICT 4. about the development of the number system 5. to interpret computer and calculator displays and round to an appropriate level of accuracy	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • compare and order numbers up to 1000 • identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words • solve number problems and practical problems involving these ideas.	• count in multiples of 6, 7, 9, 25 and 1000 • find 1000 more or less than a given number • count backwards through zero to include negative numbers • recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • order and compare numbers beyond 1000 • identify, represent and estimate numbers using different representations • round any number to the nearest 10, 100 or 1000 • solve number and practical problems that involve all of the above and with increasingly large positive numbers • 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.	- Count back in twos from six. - Show me seven hops of two forwards from negative five on the number line. - What numbers could go in the boxes to make these correct? □ + ◇ < 20 30 > □ - ◇ - Write a statement using two negative numbers and the 'greater than' symbol. Write a statement using a positive number and a negative number and the 'less than' symbol. - What does the digit 7 represent in each of these numbers: 3.7, 7.3, 0.37, 3.07? - What if I put a pound sign in front of each of these numbers? - What if they are all lengths given in metres? Write these lengths in order: 47 cm, 1.14 m, 3.6 m, 250 cm, 0.85 m. Which is the shortest? How do you know? Which is the longest? How do you know? - Enter 5.3 on to your calculator display. How can you change this to 5.9 in one step (operation)? - A CD costs between £5.50 and £5.65. How much could it cost? I am nearly 1.65 m tall. How tall could I be? - Roughly, what answer do you expect to get? How did you arrive at that estimate? - Is this calculation correct? How do you know?

	Calculation	6. to compare two numbers by finding the difference between them 7. to use the relationship between addition and subtraction and addition and multiplication to understand and generate equivalent expressions 8. to use simple fractions to find fractional parts and express proportions 9. to select from a range of mental strategies for the addition and subtraction of numbers with two significant figures 10. to understand division as grouping and as sharing and solve division problems using multiplication facts 11. to visualise and understand multiplication represented as an array, record multiplication as number sentences and solve problems using multiplication facts 12. to use estimation to find approximate answers to calculations, to record calculations and check answers and methods 13. to record amounts of money using pounds and/or pence, converting between them as appropriate 14. how to handle amounts of money in the contexts of shopping, saving up and enterprise activities	• add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction • estimate the answer to a calculation and use inverse operations to check answers • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. • recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods • solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects. • count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • recognise and show, using diagrams, equivalent fractions with small denominators • add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7 = 6/7) • compare and order unit fractions, and fractions with the same denominators • solve problems that involve all of the above.	• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • estimate and use inverse operations to check answers to a calculation • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. • recall multiplication and division facts for multiplication tables up to 12 × 12 • 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 • recognise and use factor pairs and commutativity in mental calculations • multiply two-digit and three-digit numbers by a one-digit number using formal written layout • 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. • recognise and show, using diagrams, families of common equivalent fractions • count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. • solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number • add and subtract fractions with the same denominator • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to 1/4; 1/2; ¾ • find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths • round decimals with one decimal place to the nearest whole number • compare numbers with the same number of decimal places up to two decimal places • solve simple measure and money problems involving fractions and decimals to two decimal places.	- What are the important things to remember when you solve a word problem? - Explain what you did to get your answer. - How did you know whether to add, subtract, multiply or divide? What clues did you look for in the problem? - Show me how you recorded any calculations you needed to do to solve the problem. - Did you have to do anything to your answer to make it fit with the problem? Tell me what you did. - Work out 56 + 27. Explain what you did. What did you notice about the numbers that helped you choose how to do it? Repeat with other calculations. - The product is 36. What two numbers have been multiplied together? - If 7 × 8 = 56, what is 7 × 9? - Give me an example of a two-digit by one-digit multiplication you could do mentally. Give me an example of a similar multiplication where you would use a written method. - Describe a problem that will give you a remainder that you will need to round up. - What is the largest remainder you can have when you divide by 6? - Two of these shapes have three quarters shaded. Point to them. Explain how you know. - Tell me some fractions that are greater than 1/2. How do you know? What about fractions that are greater than 1?

	Measures	15 to recognise when length and capacity are conserved 16. to use standard units to estimate measures and to measure with appropriate accuracy 17. to recognise and use equivalent representations of time 18. to measure angles using fractions of turn and right angles 19. to explore the development of different measuring systems, including metric and imperial measures	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical contexts • tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, year and leap year • compare durations of events, for example to calculate the time taken by particular events or tasks.	• Convert between different units of measure (e.g. kilometre to metre; hour to minute) • measure and calculate the perimeter of a rectilinear figure(including squares) in centimetres and metres • find the area of rectilinear shapes by counting squares • estimate, compare and calculate different measures, including money in pounds and pence • read, write and convert time between analogue and digital 12 and 24-hour clocks • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	- Estimate the capacity of this washing-up bowl. And of this bottle. - Choose the correct answer. A drinking glass holds about… 0.2 litres 2 litres 20 litres 200 litres - What unit would you use to measure the capacity of a watering can? Of an oil tank? Of a coffee cup? - Can you tell me another way to say or write 6 litres? What about 750 millilitres? - Look at these cards. They have weights in grams or kilograms. 5 kg, 500 g, 1/4 kg, 1.5 kg, 750 g Put the cards in order from the lightest to the heaviest. How did you order the cards? Why did you put this measurement here? - Harry, Eve and Khalid measured the same objects. Here are Harry's measurements. pencil length – 16 cm computer screen width – 33 cm door width – 77 cm cube length – 1.9 cm ruler width – 3.8 cm room length – 830 cm Eve wrote her measurements in millimetres. What did she write? Khalid wrote his measurements in metres. What did he write? What would you use? Would you use different units for different measurements? Why or why not?
	Shape/Geometry/Position	20. to recognise symmetry properties of 2D shapes and patterns 21. to make simple scalings of objects and drawings 22. to understand and use angle as the measure of turn 23. to understand perimeter as a length and to find the perimeter of rectangles and other shapes 24. to create sequences of instructions using ICT, including generating symmetric and repeating geometric patterns	• draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them • recognise that angles are a property of shape or a description of a turn • identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • identify acute and obtuse angles and compare and order angles up to two right angles by size • identify lines of symmetry in 2-D shapes presented in different orientations • complete a simple symmetric figure with respect to a specific line of symmetry. • describe positions on a 2-D grid as coordinates in the first quadrant • describe movements between positions as translations of a given unit to the left/right and up/down • plot specified points and draw sides to complete a given polygon.	- Match these 3-D shapes to these pictures of them. - There are three shapes in a row. What order are they in and what colour are they? Clues: • The cube is in the middle. • The pink shape is not on the right. • The red shape is next to the pyramid. • The cone is not blue. - A shape has four right angles. It has four sides which are not all the same length. What is the name of this shape?

	Data/Statistics	25. to collect and structure information using ICT so that it can be searched and analysed, including using appropriate field headings and data types 26. to use frequency diagrams and bar charts to represent and record information 27. to interpret their own and others' data	• interpret and present data using bar charts, pictograms and tables • solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.	• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs • solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	- What are you trying to find out? What information are you aiming to collect? How? - Why have you chosen to collect that information? What will it tell you? - Imagine that the class is going to organise a tea party for parents. What information would you need to find out? What are the simplest ways that you can find the information? - What information will you need to collect to answer your question? How will you collect it?

How will the children be enabled to do this? 'Breadth of Learning'

During the year, pupils should be taught the knowledge, skills and understanding through:
a. practical activity, exploration and discussion
b. using mathematical ideas in practical activities, then recording these using objects, pictures, diagrams, words, numbers and symbols
c. using mental images of numbers and their relationships to support the development of mental calculation strategies
d. estimating, drawing and measuring in a range of practical contexts
e. drawing inferences from data in practical activities
f. exploring and using a variety of resources and materials, including ICT
g. activities that encourage them to make connections between number work and other aspects of their work in mathematics.

These are the skills that children need to learn to make progress:

a. generate and explore ideas and strategies, pursue lines of mathematical enquiry and apply logic and reasoning to mathematical problems
b. make and test generalisations, identify patterns and appreciate equivalences and relationships
c. develop, select and apply a range of mental, written and ICT-based methods and models to estimate, approximate, calculate, classify, quantify, order and compare
d. communicate ideas and justify arguments using mathematical symbols, diagrams, images and language
e. interpret findings, evaluate methods and check outcomes.

		Which skills are the children learning?	**What Core Knowledge will the children acquire? Y5**	**What Core Knowledge will the children acquire? Y6**	**How will we know if this has been successful?**
UKS2	Number	1. to understand and interpret negative numbers, simple fractions, large numbers and tenths, written as decimals, in practical and everyday contexts 2. to generate and explore a range of number patterns, including multiples 3. to make and test general statements about numbers, sort and classify numbers and explain methods and findings 4. to approximate numbers, including rounding, and understand when that can be useful 5. about the representation of number in different contemporary cultures	• read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	• read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above.	- The rule for this sequence of numbers is 'add 3 each time'. 1, 4, 7, 10, 13, 16 … The sequence continues in the same way. I think that no matter how far you go there will never be a multiple of 3 in the sequence. Am I correct? Explain how you know. What is the value of 4X + 7 when X = 5? Explain how you know. - Write a number in the box to make this correct. 0.627 = 0.6 + 0.02 + ☐ - What number is exactly halfway between 1.1 and 1.2? - Which of these numbers is closest in value to 0.1? 0.01 0.05 0.11 0.2 0.9 How can you tell? - Tell me a number with two/three decimal places that rounds to 5.0 when rounded to the nearest tenth. - I added three odd numbers and my answer was 50. Explain why I cannot be correct. - Roughly, what answer do you expect to get? How did you arrive at that estimate? - Is this calculation correct? How do you know? What inverse operation could you use to check this result? - Should the answer be a multiple of 3? How could you check?

	Calculation	6. to use proportional reasoning to compare numbers and quantities and solve problems 7. to extend their knowledge of multiplication facts to 10×10 and use them to solve multiplication and division problems 8. to understand and use different models of division, including interpreting the outcome of a division calculation, in relation to the context, where the answer is not a whole number 9. to recognise and use the relationship between fractions and division and represent division as number sentences 10. to recognise and use the relationships between addition, subtraction, multiplication and division 11. to develop a range of strategies including mental and written ones, for calculating and checking, including using a calculator or computer efficiently 12. to solve multi-step problems involving more than one operation 13. to solve problems related to borrowing, spending and saving 14. to understand and convert between different currencies 15. how to manage money and prepare budgets for events, including using spreadsheets	• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. • identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. • solve problems involving multiplication and division where larger numbers are used by decomposing them into their factors • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • multiply and divide numbers mentally drawing upon known facts • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 • recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. • compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. 2/5 + 4/5 = 6/5 = 11/5) • add and subtract fractions with the same denominator and multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • read and write decimal numbers as fractions (e.g. 0.71 = 71/100) • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places • solve problems involving number up to three decimal places • recognise the per cent symbol (%) and understand that	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • perform mental calculations, including with mixed operations and large numbers. • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions >1 • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. 1/4 × 1/2 = 1/8) • divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6) • associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8) • identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places • multiply one-digit numbers with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	- Look at these calculations with two-digit decimals. Tell me how you could work them out in your head. What other method could you use? - Two numbers have a difference of 1.583 and one of the numbers is 4.728. What is the other? Is this the only answer? - Look at these calculations. Which of them is incorrect? Why? 12.4 × 6.6 = 71.23 48.6 ÷ 3 = 16.2 - Work out 32.75 – 1.837. Explain each step to me. - What tips would you give to someone to help with long multiplication of HTU × TU? - What are important things to remember when you solve word problems? - What clues do you look for in the wording of questions? What words mean you need to add, subtract, multiply or divide? - Make up two different word problems for each of these calculations. Try to use a variety of words. (17 + 5) × 6 12.5 ÷ 5 – 0.25 - Make up a question involving addition that has the answer 1.35. Now try subtraction. What about multiplication? Division? - How can you use factors to multiply 17 by 12? - Which of these subtractions can you do without writing anything down? Why is it possible to solve this one mentally? What clues did you look for? What is the answer to the one that can be solved mentally? - Printing charges for a book are 3p per page and 75p for the cover. I paid £4.35 to get this book printed. Work out on your calculator how many pages there are in the book. Write down the calculations that you did. - Seeds are £1.45 for a packet. I have £10 to spend on seeds. What is the greatest number of packets I can buy? Show me how you used your calculator to find the answer.

				RATIO AND PROPORTION • solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. **ALGEBRA** • express missing number problems algebraically • use simple formulae expressed in words • generate and describe linear number sequences • find pairs of numbers that satisfy number sentences involving two unknowns • enumerate all possibilities of combinations of two variables.	- Six cakes cost one pound eighty. How much do ten cakes cost? - Here is part of a number line. Write the two missing numbers in the boxes. - In a country dance there are 3 boys and 2 girls in every line. 42 boys take part in the dance. How many girls take part? For a different dance there are 45 children. How many boys are there? - How would you change an amount of money from pounds sterling to euros? Record it for me, using symbols.
	Measures	16. to recognise when area, volume and mass are conserved 17. to convert between units within the metric system 18. to use an angle measurer to measure angles in degrees 19. to solve problems involving time and time intervals, including time represented by the 24-hour clock 20. to use decimal calculations to solve problems with measures	• convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) • understand and use equivalences between metric units and common imperial units such as inches, pounds and pints • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes • estimate volume (e.g. using 1 cm3 blocks to build cubes and cuboids) and capacity (e.g. using water) • solve problems involving converting between units of time • use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places • convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm3) and cubic metres (m3), and extending to other units such as mm3 and km3.	- Solve this problem: A bottle holds 1 litre of lemonade. Rachel fills 5 glasses with lemonade. She puts 150 millilitres in each glass. How much lemonade is left in the bottle? - Now write a question of your own that would involve converting units. - This graph converts miles to kilometres. Use it to estimate a distance of 95 miles in kilometres. - Give me an example of when: you would need an accurate measure of length; you would be able to use a less-accurate recording. - What is the most accurate measure of length you can make with the equipment in our classroom? Explain why.

	Shape/Geometry/Position	21. to use and make maps, scale models and diagrams for a purpose 22. to understand area as the space enclosed by a perimeter on a plane, and find areas of rectangles and related shapes 23. to solve practical problems involving 3D objects 24. to visualise geometric objects38 and to recognise and make 2D representations of 3D shapes 25. to create and refine sequences of instructions, using ICT to construct and explore geometric patterns and problems 26. to explore aspects of geometry to find out about its origins, and its use in different cultures, religions, art and architecture	• identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees (o) • identify: angles at a point and one whole turn (total 360o) angles at a point on a straight line and ½ a turn (total 180o) other multiples of 90o • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	• draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets • compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. • describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	- Imagine a triangular prism. How many faces does it have? Are any of the faces parallel to each other? - How many pairs of parallel edges has a square-based pyramid? How many perpendicular edges? - Look at these 3-D shapes (e.g. a cuboid, tetrahedron, square-based pyramid and octahedron). Show me a face that is parallel to this one. Which face is perpendicular to this one? - What can you tell me about the faces of a cuboid? Why are so many packing boxes made in the shape of a cuboid? - Which of these shapes is incorrectly placed on this Carroll diagram? Change the criteria so the shapes are correctly sorted according to their properties. - Use your ruler and protractor. Draw the net of a regular tetrahedron with edges of 6 cm. - Use compasses to draw a circle. Use a ruler and protractor to draw a regular pentagon with its vertices on the circumference of the circle. - Tell me an example of a circular object that would have a radius of about 5 cm. What about 50 cm? 500 cm?

	Data/Statistics	27. how statistics are used in society today 28. to use different kinds of averages and range to summarise and compare data sets 29. to use data to assess likelihood and risk and develop an understanding of probability through computer simulations, games and consideration of outcomes of everyday situations 30. to discuss, sort and order events according to their likelihood of occurring 31. to answer questions or test hypotheses by using ICT to collect, store, analyse and present data 32. to use ICT to represent data on a scattergraph, and proportional data in a pie chart in order to explore possible relationships and interpret the findings	• solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables.	• interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average.	- Give children some statements to consider: - It is hotter now than it was 30 years ago. The local high street should be made pedestrian only. The tombola makes the most money at the summer fete. - Turn these statements into questions that you could investigate. Suggest a plan for finding out whether the statements are true or false. - [Show graphs with the title, labels on the axes and intervals hidden.] What could this graph represent? If so, what would these labels be? How would this scale be numbered? State three conclusions you can draw from the information in this graph. - Here is a bar chart showing rainfall. Kim says: 'The dotted line on the chart shows the mean rainfall for the four months.' Use the chart to explain why Kim cannot be correct. - Use the information in the graph below and a calculator to work out how many pounds (£) you would get for 24.80 euros.

How will the children be enabled to do this? 'Breadth of Learning'

During the year, pupils should be taught the knowledge, skills and understanding through:
a. practical activity, exploration and discussion
b. using mathematical ideas in practical activities, then recording these using objects, pictures, diagrams, words, numbers and symbols
c. using mental images of numbers and their relationships to support the development of mental calculation strategies
d. estimating, drawing and measuring in a range of practical contexts
e. drawing inferences from data in practical activities
f. exploring and using a variety of resources and materials, including ICT
g. activities that encourage them to make connections between number work and other aspects of their work in mathematics.