Totley Primary School
Mathematics

A sequenced curriculum

## Maths Curriculum

## Intent, Implementation and Impact

## Intent

To develop a curriculum which:
$\checkmark$ Instils a love of maths and gives children the necessary knowledge and skills they need to be successful, confident and accurate mathematicians, so they are ready for their next stage in education and be confident mathematicians in life.
$\checkmark$ Is at least as demanding as the National Curriculum
$\checkmark$ Teaches children to be independent, resilient and creative thinkers, while transferring knowledge across curriculum areas.
$\checkmark$ Enables teachers to teach using the most effective strategies.
$\checkmark$ Tailors learning to meet children's individual needs and strengths.
$\checkmark$ To teach children know themselves as reflective learners, able to identify their own next steps in learning.

## Implementation

|  | Mathematics |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Retrieval Practice | Number Knowledge | Arithmetic |  |  |

Reasoning mathematically is the most important factor in a pupil's success in mathematics. Nunes (2009).
That is why, at every level of challenge, and whatever stage and age, every child is given the opportunity to reason and solve problems.

## Oracy

We use the language of problem solving in a clear progression. The Mead Trust (2019)
Noting < Describing < Explaining < Convincing < Justifying < Proving
The Oracy Framework, which is used across all curriculum areas, is applied in maths to teach children how to reason, explain, prove and justify. The Meta Mates are used to teach the strands of mathematical reasoning of proving, explain, pattern sniffing, predicting and concluding. Again, orcay is the vehicle through which we teach these important skills.

## Content and Sequence

- Long-term planning is deliberately spaced and interleaved for revision and over-learning of the content. School sequencing materials are used as the starting point for curriculum planning, which is structured into four cycles. In each cycle, all strands of maths are taught.
- We believe mastery is achieved over time and through practice; this is reflected in the design and implementation of our maths curriculum and maths lessons.
- Retrieval Practice allows children to become secure within their knowledge and skills. Activities are used to revise previous content. These are useful assessment opportunities: feedback is given to groups or the whole class as identified. Retrieval Practice starters are used to revise previous content and address misconceptions as identified through observing children's work and responses. Teachers have the freedom to determine the most useful learning to retrieve, and this is balanced alongside the Ebbinghous forgetting curve of sequenced retrieval.
- Every day, children count and practise essential number knowledge. This is sequenced in such a way as to equip children with the most useful knowledge for subsequent reasoning lessons. The Number Knowledge session is systematic and deliberate: teachers model, children practise through call and response
- Arithmetic is taught discretely from year 3. This is sequenced to equip children with the calculation methods they need to apply in subsequent reasoning lessons.
- In Foundation Stage Two, children build a secure foundation of mathematics. Learning is contextualised and given purpose within the continuous provision. Adults lead learning through direct teaching, group work and observations of independent learning. Subitisation, number sense and counting are a significant focus of the curriculum.
- From year 1, the Learning Journey model is used to sequence the reasoning learning of a given objective. Component steps on the learning journey are progressive. Within each step, children have the opportunity to acquire/refine, practise/apply, and extend/deepen their learning. Each level of challenge builds on prior learning and extends thinking. Problem solving and reasoning are inherent at every level of learning, and concrete manipulatives are used by all children to scaffold and deepen thinking.
- Component steps are intentionally planned so learning is cumulative and revisited across four week cycles, to give all children the opportunity for deliberate practice and the tools to reach a greater depth standard when appropriate.


## Teaching and Learning, Assessment and Feedback

- Starting points are identified through accurate teacher assessment and prior learning.
- Summative assessment is made towards the end of each cycle using assessment materials curated by us, including Maths No problem assessment resources, to match the content of our curriculum. Assessment checks what has been learnt (remembered) and analysis informs subsequent retrieval practice (teachers identify the things children need more opportunities to remember) and informs periods of consolidation. The curriculum model allows flexibility in order to respond to the strengths and needs of children.
- The intended learning is always the focus of actions in the classroom. Activities and resources are carefully chosen and deliberately designed to focus effort towards practising the learning intentions. Activities are rich in problem solving, reasoning and purposeful thinking. Children record their work with precision, care and pride.
- The working wall displays the steps of learning, and useful scaffolds and models for children to refer to in order to build independence.
- Reasoning is a right of all children at all stages of learning, not a privilege of the highest attaining.
- Concrete resources are the right of all children, not the crutch of the lowest attaining.
- Feedback is given is response to timely and continuous formative assessment in every lesson. Teachers use a range of formative assessment tools, including questions and observations to gauge children's level of understanding and knowledge. This is used to either offer support and scaffolds, or to give opportunities to deepen learning. Feedback is given in line with our feedback policy, including Yippee Yellow and Green Pen Work to check, consolidate or challenge.


## Impact

- No ceiling is placed on any learner: teaching groups are flexible and adapted according to emerging learning needs and the level of support that is needed to enable all children to access the right level of challenge and way of learning for their needs. Children speak positively about the ability to drive their learning through selfassessment and the opportunities they have for extra practice time or additional challenge that the learning journey affords them.
- Nearly all children leave Totley Primary School having achieved at least the expected standard and as confident mathematicians, ready to take on the next stage in their education. Many reach a greater depth standard.
- SEND children make at least expected progress and reach their attainment targets.
- Disadvantaged children make progress that is at least in line with their peers.
- Children leave Totley Primary School as confident, knowledgeable mathematicians and with a positive attitude towards mathematics.

| Early Years Foundation Stage 2 | 2022 | Key Stage One | 2022 |  | Key Stage Two | 2022 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Expected standard | High level |  | Expected standard | High level | KS1 to KS2 Progress Measure |
| Children reaching a GLD | 80\% |  | 85\% | 21\% |  | 88\% | 28\% | +2.4 |



| $\begin{aligned} & \text { Curriculu } \\ & m \\ & \text { Question } \\ & s \end{aligned}$ | World dround me? |  |  |  |  |  | What happens in the world around us? |  |  |  |  | How do we keep the world super? |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | utumn 1 |  |  | Autumn 2 |  |  | Spring 1 |  | Spring 2 |  |  | Summer 1 |  |  | Summer |  |  |
|  | at is it like school? | What does my family fookne | What is special to me? | What harve | What is my favourite story? | $\begin{aligned} & \text { How is } \\ & \text { Christmas } \\ & \text { celebrated? } \end{aligned}$ | Do bears live Totley? | How do people celebrate around the world? |  | Where does it live does it grow? | wis Eas |  | $\begin{aligned} & \text { keep } \\ & \text { worpop } \\ & \text { sup } \end{aligned}$ | at makes super? | How do |  | ow have I hanged in a year? |
| athematics |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $\begin{aligned} & \text { Principles } \\ & \text { of } \\ & \text { Counting } \end{aligned}$ |  <br>  <br> Cardinality: Understanding that the last number spoken in a counting sequence names the quantity for that set. During taught sessions, tidying up <br>  sounds, imaginary objects, etc. During taught sessions, tidying up, numbers of the week <br> Order Irrelevance: Knowledge that the order that items are counted in is irrelevant-left-to-right, right-to-left, in a random fashion-as long as every object in the set is given one count and only one count. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Number and Numerical <br> Patterns | Numbers of the week: $0,1,2,3,4,5$ <br> To be able to count orally and count with one-toone correspondence. <br> To be able to match amounts and compare numbers $0-5$ and $6-10$ using language of more less, fewer or the same as (using counters, dice, Numicon, dominoes, fingers, numeral, irregular arrangements and groups of objects). <br> To begin to able to form numbers 0-10 with growing accuracy. <br> To be able to order numbers 0-10 and say what one more or one less than a number is. <br> To be able to subitise - using dice, Numicon, dominoes, fingers, numerals, irregular arrangements. Recognising different amounts without counting. |  |  |  |  | 9,10 <br> and with one- <br> nts and nguage of , equal 0-10 dominoes egular <br> of objects). <br> $m$ numbers $0-10$ <br> ers and say what <br> counted and be sounds. <br> dice, Numicon iregular difierent <br> ing of and ns <br> ves combining cts. <br> e some addition ncrete objects. gets smaller way. <br> some <br> ces using <br> is the same <br> umbers using <br> mation is and stimates. | Number focus: Counting in 2's, 5's \& 10's <br> To be able to count a range of objects or pictures accurately with one-to-one correspondence. <br> To be able to match amounts and compare using mathematical language (counters, dice, Numicon, dominoes, fingers, money numerals, irregular arrangements) <br> To know and be able to form numbers 11-15 with growing accuracy. <br> To be able to order numbers and say what is one more or one less confidently. <br> To be able to count forwards and backwards on a number line and use the number line to find one more and one less. <br> To know the meaning of and recognise ' + ', '-' and ' $=$ ' signs. <br> To begin to be able to solve some addition number sentences using concrete objects. <br> To begin to be able to solve some subtraction number sentences using concrete objects. <br> To know the group gets smaller when something is taken away. <br> To begin to solve subtraction number sentences with concrete objects. <br> To be able to begin to recall double facts. <br> To be able to subitise different amounts. <br> To understand that ordinal numbers are used to describe. <br> To use ordinal numbers to explain where an animal came in a race. |  | Numbers of the week: $11,12,13,14,15$ <br> To recognise and be able to form numbers 11-15 confidently. <br> To be able to order numbers confidently and say what one more and one less is. <br> To be able to count forwards and backwards using a number line. <br> To know what halving means and be able to use halving language such as sharing, equal and even. <br> To be able to halve shapes and numbers. <br> To know that halves are equal. <br> To be able to find halves with concrete objects. <br> To be able to begin to recall halving number facts. <br> To be able to begin to recall double number facts. <br> To be able to share equally using part, part whole. Focus on odds and evens. <br> To know odd and even numbers to 10 then 20 <br> To be able to Subitise using dice, Numicon, dominoes, fingers numeral, irregular arrangements. <br> To be able to add using different addition methods. (Fingers, Numicon, manipulates, number lines and mentally). <br> To know and confidently recall number bonds to 5 . |  |  | Numbers 10, 11, 12, 13, 14, 15 <br> To know and be able to form Numbers 015 confidently. <br> To be able to solve addition and subtraction problems in a range of ways. <br> To be able to order numbers and count forwards and backwards <br> To be able to Share equally (part, part whole) <br> To be able to halve numbers. <br> To know number facts, focus on odds and even. <br> To be able to double numbers and recall doubling facts. <br> To be able to recall number bonds to 5 and 10 confidently. <br> To be able to subitise different amounts in different contexts <br> Have a strong sense of numbers to 12 recognising, writing, adding taking away counting back or on and recalling number facts. <br> To be able to count in $2 \mathrm{~s}, 5 \mathrm{~s}$ and 10 s |  |  | Numbers 16, 17, 18, 19, 20 <br> To know and be able to form Numbers 1620 <br> To be able to confidently order numbers 0 20 and say what one more or one less is <br> To be able to count forwards and backwards on a number line. <br> To independently solve subtraction calculations using a preferred method. <br> To independently solve addition calculations using a preferred method. <br> To be able to halve numbers and know and recall halving number facts. <br> To be able to double and know and recall double number facts. <br> To be able to count in $2 \mathrm{~s}, 5 \mathrm{~s}$ and 10 s with confidence. |  |  |


| Shape, <br> Space and <br> Measure | To know different times of the day, days of the | To know that we can measure how long or | To recognise and know the value of |  | To know and recognise coins and be able | To be able to recognise different coins |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | week and months of the year. | tall an object is and use this to compare. | 1p,2p, 5 p, 10p, 20p and £1. | measure and compare length and height. | to add amounts using coins. | and make amounts using them. |
|  | To show interest in 2D shapes and be able to use these to create a picture or repeating pattern. | To use non-standard units of measure to measure and compare length and height. | To know that coins are used in exchanging for things or services and use this in practical play, beginning | To confidently name common 2D shapes and shape properties. | To use a range of coins to make different amounts. | To be able to talk about their day, referring to different times of the day. |
|  | To name common 2D shapes and shape properties. | To know that we can measure how much something weighs and use this to compare. | to use the concept of 'giving change'. | To show interest in 2 D shapes and be able to use these to create a picture or repeating pattern. | To know different ways we tell and record the time. | To confidently recognise and name common 2D shapes using their properties. |
|  | To be able to select and rotate shapes building an awareness that a shape can have shapes within it. | To use balance scales to compare heavier/ lighter. | To begin to know that a clock is used to tell time. | Use positional language confidently to make comparisons and describe. | To be able to make comparisons with length, weight and capacity. | To confidently recognise and name 3D shapes using their properties. |
|  | To begin to use money in role play, beginning to recognise different coins. | To use non-standard units of measure to weigh and compare. | To be able to talk about patterns in events using language first, then, after before. | To confidently recall days of the week and months of the year. | To know and be able to talk about some 3D shapes and shape properties. | To be able to recognise, complete and create their own patterns. |
|  | To begin to know different times of the day, days of the week and months of the year. | To know that coins are used in exchanging for things or services and use this in practical play. | To begin to know and be able to talk about some 3D shapes and shape properties. |  | To recognise 3D shapes in the environment and in their play (e.g. building/ malleable) | To be able to make comparisons with length, weight and capacity using nonstandard units of measure. |
|  | themselves or others. | To be able to recognise some coins and begin to match amount to coin values 1p,2p,5p | To recognise 3D shapes in the environment. |  | To confidently recall days of the week and months of the year. | To confidently recall days of the week and months of the year. |
|  |  | To name common 2D shapes and shape properties. | To be able to talk about and identify patterns and create own patterns. |  |  |  |
|  |  | To show interest in 2D shapes and be able to use these to create a picture or repeating pattern. | To confidently recall days of the week and months of the year. |  |  |  |
|  |  | To know different times of the day, days of the week and months of the year. |  |  |  |  |


| Year One | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Autumn | Subitise to 5 Teen numbers | Reading numbers to 100 <br> Partition numbers | 1 more <br> 1 less <br> Count in 10s | Number bonds to <br> 10 <br> Teen numbers | 1 more 1 less Number bonds to 20 | Count in multiples of 10 up to 120 Odd/even (numicon) | Shape names \& properties (e.g. number of sides) Reading numbers to 100 | Subitise teen numbers (Numicon, bar model, array) Lots of 10 s | Doubles <br> Number bonds | Count in 2 s up to 24 <br> Subitise - teen <br> numbers |
|  | Place Value <br> Counting and understanding of numbers within 100. <br> WALT count and understand numbers within 100. <br> -sort objects -count objects -count objects from a larger group -represent objects | Place Value <br> 1 more, 1 less <br> Counting in 2 s . <br> WALT find 1 more. <br> -count on from any number <br> -1 more <br> -1 less <br> -compare groups by matching | Addition <br> _+_using the <br> part-whole <br> model. <br> WALT add <br> numbers <br> -Part-whole <br> model <br> -Addition- adding <br> together <br> -Addition- adding <br> more <br> -Addition <br> problems | Subtraction using a partwhole model WALT find a part. WALT subtract by finding a part. WALT find out how many are left. WALT find a part. | Multiplication Count in 2 s , 5 s and 10 s to add equal groups. WALT add equal groups <br> -Count in 2 s <br> -Count in 10s <br> -Count in 5s <br> -Recognise equal groups -Add equal groups | Shape Recognise common 2D shapes from their properties. WALT recognise common 2D shapes from their properties <br> -recognise and name 2 D shapes -Make patterns with 2 D shapes | Measure <br> Comparing <br> length. <br> WALT measure <br> and compare <br> length <br> -compare lengths <br> and heights <br> -measure length <br> using objects <br> -measure length <br> in centimetres | Time <br> Language of time, dates, days and months. <br> Read the time to o'clock <br> Understanding of half. <br> WALT use language of time, dates, days and months <br> WALT tell the time to o'clock <br> -days of the week -months of the year -hours, minutes and seconds -Tell the time to the hour | Conso | dation |
| Winter | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |  |
|  | 2 s sequence <br> Reading numbers to <br> 100 | Recognising diennes (2digit) <br> Place valuetens/ones | number bonds to 10 Doubles | Teen numbers | Place value <br> tens/ones <br> bonds 10 | Number bonds to 20 Subtraction (within 10) | Addition Count in 2s | 3D shapes Counting in 10s | $\begin{aligned} & +10 \\ & -10 \end{aligned}$ |  |
|  | Consolidation | Place Value Understand and compare 2 -digit numbers. <br> WALT compare numbers -Partition into tens and ones -Fewer, more and the same -Less than, greater than, equal to -Compare numbers -the number line to 50 <br> -1 more, 1 less | Money <br> Understand and compare value of coins <br> WALT understand and compare the value of coins <br> -unitising -recognise coinsrecognise notes -count in coins | Addition <br> __+ _ using a number line WALT add 1 digit and 2 digit numbers up to 30 -add by counting on -add one susing number bonds -find number bonds to 20 use doubles to 20 | Consolidation | Subtraction <br> __- _ using a number line WALT subtract 1 digit a 2 digit numbers up to 30 -subtract ones using number bonds -subtractioncounting back -subtractingfinding the difference | Multiplication <br> Count in $2 \mathrm{~s}, 5 \mathrm{~s}$ <br> and 10s to solve <br> 1-step <br> multiplication <br> problems. <br> -make arrays -make doubles | Shape <br> Recognise <br> common 3D shapes by their properties WALT identify, describe and sort 3D shapes. <br> -recognise and name 3D shapes -sort 3D shapes -make patterns with 2D and 3D shapes | Measure <br> Comparing weight. <br> WALT measure and compare the mass of objects -heavier and lighter -measuring mass -compare mass |  |


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| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Spring | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|  | Counting in 5 s up to 60 | Odd / even | doubles | Count in 2s up to 24 | Counting in 10s | Teen numbers | Read numbers up to 100 | $\begin{aligned} & +10 \\ & -10 \end{aligned}$ | Count in multiples of 5 up to 60 | Count in multiples of 10 up to 120 |
|  | Position and <br> Direction <br> Positional <br> language (half, <br> quarter turn of a circle). <br> WALT describe <br> position and <br> direction <br> -describe turns <br> -describe <br> position- left and <br> right <br> -describe <br> position- <br> forwards and <br> backwards <br> -describe <br> position- above <br> and below | Place Value <br> WALT compare 2- <br> digit numbers. <br> -1 more, 1 less <br> - Estimate a <br> number on a <br> number line <br> -Compare <br> numbers with the <br> same number of tens <br> -Compare any <br> two numbers | Addition and <br> Subtraction <br> Compare answers <br> WALT solve and compare addition and subtraction number sentences <br> -related facts -missing number problems | Multiplication Count in 2 s , 5 s and 10 s to solve 1-step multiplication problems. <br> WALT count in $2 \mathrm{~s}, 5 \mathrm{~s}$ and 10 s to solve 1-step multiplication problems. <br> -make arrays -make doubles | Division <br> Understand that division is sharing amounts into groups. <br> WALT solve 1 step division problems <br> -Make equal groups- groups -Make equal groups- sharing | Fractions <br> To understand the concept of a half (objects, shapes and quantities). WALT find half of objects, shapes and quantities. <br> -recognise a half of an object or a shape <br> -Find half of an object or a shape -recognise half of a quantity | Shape <br> Sort and compare shapes by their properties. <br> WALT sort and compare shapes by their properties | Measure <br> Comparing capacity. WALT measure and compare capacity. <br> -full and empty -compare volume -measure capacity -compare capacity | Time <br> Read and compare (earlier/later) times on a clock. WALT compare earlier and later times. <br> -before and after -tell the time to the half hour | Consolidation |
| Summer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|  | Count in multiples of 5 up to 60 Count in multiples of 10 up to 120 | +1 and -1 | +10 and -10 | Subitise teen numbers <br> (Numicon) | Count in multiples of 5 up to 60 Count in multiples of 10 up to 120 | Odd or even | Bonds to 10 | Read numbers to $100$ | Count in multiples of 5 up to 60 Count in multiples of 10 up to 120 | Count in multiples of 5 up to 60 Count in multiples of 10 up to 120 |
|  | Consolidation | Place Value <br> WALT compare the answers to calculations using all four operations. <br> -Recognise equal groups <br> -Add equal groups <br> -Make equal groups- grouping -Make equal groups-sharing | Addition and Subtraction Solve problems using money and measures. <br> WALT use addition and subtraction to solve money and measure problems. <br> -related facts -missing number problems | Multiplication Count in 2 s , 5 s and 10 s to solve problems, and compare answers. WALT compare multiplication answers. <br> -make arrays -make doubles | Division <br> Understand division is sharing an amount into groups. WALT share and group to divide. | Fractions Half and quarter of shape, amount and objects. WALT use half and quarter. <br> -Recognise a quarter of an object or shape -Find a quarter of an object or shape -Find a quarter of a quantity | Shape <br> Sort and compare shapes by their properties. <br> WALT compare and sort shapes by their properties. | Measure <br> Understand and use cm and m to measure and compare. WALT measure length to the nearest cm and m . | Time <br> Read clock to quarter past the hour. Record time using hours, minutes and seconds by reading a digital stopwatch. WALT read and compare the time to o'clock, half past and quarter past. | Consolidation |



|  |  | WALT compare amounts of money. WALT make a pound. |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Spring | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|  | Coins, notes and amounts | Coins, notes and amounts | $\begin{gathered} \text { Reading } 101102 \\ \text { etc } \end{gathered}$ | Missing number | Draw dienes to solve + | +-x $\div<>=$ | Recall facts to 10 +- | Scales - metre stick | Count in 2 s up to 24 | Count in multiples of 10 up to 120 |
|  | Place Value <br> Apply to moneygiving change. <br> WALT compare objects. <br> WALT compare numbers. <br> WALT order objects and numbers. | Addition <br> Solve problems with numbers, quantities and measures. <br> Subtraction <br> Solve problems with numbers, quantities and measures. WALT add two 2-digit numbers (across a 10) <br> WALT solve mixed addition and subtraction problems. <br> WALT compare number sentences. WALT complete missing number problems. |  | Multiplication <br> Solve problems in context and apply mental strategies/known facts. <br> Division <br> Solve problems using mental methods (times table facts) and problems in contexts. <br> WALT use the 5 and 10 times-table WALT use odd and even numbers. WALT divide by 10 . <br> WALT divide by 5 |  | Shape <br> Identify 2D shapes as the face of 3D shapes. <br> Compare and sort 2D and 3D shapes <br> WALT sort 2D shapes. <br> WALT sort 3D shapes. | Measure <br> Choose, estimate and use measures- cm, m, ${ }^{\circ} \mathrm{C}, \mathrm{ml}$ and I . <br> WALT use temperature. <br> Position <br> Order and arrange into patterns and sequences (objects and numbers). <br> WALT use the language of position and movement. WALT describe turns. WALT use shape patterns with turns. | Time <br> Tell and write the time to five minutes including quarter to/past. <br> WALT tell the time to quarter hour intervals. WALT use the hours in a day. | Data <br> Ask and answer questions by counting objects in categories or sorting objects into given categories. WALT make tally charts. <br> WALT read information in dates. <br> WALT use block diagrams. <br> WALT draw and interpret pictograms. | Consolidation Week |
| Summer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|  | Count in multiples of 5 up to 60 | $\text { Recall facts to } 10$ $+-$ |  |  | Mixed multiples | Odd/ Even | Time | +9 | -9 | Review |
|  | Place Value <br> Compare numbers <br> using < = and > <br> Plot, with <br> increasing <br> accuracy, <br> numbers on a <br> blank number <br> line. <br> WALT compare objects. <br> WALT compare numbers. <br> WALT order objects and numbers. | Addition and <br> Subtraction <br> Recognise addition and subtraction as inverse operations. WALT add two 2digit numbers (across a 10) WALT solve mixed addition and subtraction problems. | SATs | SATs | Multiplication and division Recognise multiplication and division as inverse operations. <br> Use Estimation | Time <br> Tell and write the time to five minutes including quarter to/past. WALT tell the time to 5 minutes. WALT use minutes in an hour. | Data <br> Ask and answer questions by counting objects in categories or sorting objects into given categories. <br> WALT make tally charts. <br> WALT read information in dates. WALT use block diagrams. <br> WALT draw and interpret pictograms. | Shape <br> properties of 2-D and 3D shapes (symmetry, sides, vertices, faces etc) <br> WALT describe 2D and 3 D shapes. WALT compare 2D and 3 D shapes. WALT make patterns with 2D and 3 D shapes. | Contingency weeks to give space for longer than a week for some areas or single session recall of taught topics. Year 3 ready. |  |


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| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |



| Arithmetic | Fluent in 5 |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number Knowledge |  | Bonds to 100 | $9,11,12$ more and 12 less (24 clocks) | Mixed Times Tables |  |  |  |  |  |
| Maths | Place <br> Value <br> (GAP <br> ANALYS <br> IS) | Addition and <br> Subtraction (money and giving change) WALT convert between pounds and pence WALT add miney WALT subtract money WALT find change | Multiplication and division WALT multiply a 2-digit number by a 1 -digit numbe (no exchange) WALT multiply a 2-digit number by a 1-digit number - with exchange WALT link division and multipolciatoin WALT divide a 2-digit number by a 1-digit number (no exchange) WALT divide a 2-digiti number by a 1-digit number - with remainders | Time - digital - 12 and 24 hour <br> WALT read 24 hour time WALT convert between 12 and 24 hour time WALT convert between analogue and digital time | Fractions <br> Add, order or compare <br> WALT add fraction WALT subtract fractions WALT partition the whole WALT find non-unit fractions of a set of objects WALT reason with fractions of amounts | Statistics <br> Tables, Pictograms and Bar charts <br> WALT interpret pictograms WALT interpret bar charts WALT draw bar charts WALT read and use two-way tables | Consolidation |  |  |


| Year 4 <br> Autumn |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Numb er Knowl edge | ARITH |  |  | 3 | 6 |  |  |  |  | 7 |  | 12 |  |  |  |
|  | Count ing | 2,5,10 | 4 | 3 | 6 | 8 | 9 | 9 | 4,8 | 7 | 7 | 12 | 12 | 6,9 | 8 |
|  | Retrie val | Baseline | 2,5,10 | 4 | 3 | 6 | 8 | Baseline | 9 | 4,8 | 6,7 | 9 | 12 | 12 | Baseline |
| Maths |  | Place Value Read, write, order and compare <br> Tth Th.H.T.O <br> WALT: represent numbers in different ways. <br> WALT: read, write and identify numbers up to 10,000 in numerals and words. <br> WALT: find 1000 more or less than a given number. WALT: order and compare 4 digit numbers. |  |  | Place value Rounding <br> WALT: round numbers to the nearest 10 <br> WALT: round numbers to the nearest 100 WALT: round numbers to the nearest 1,000 TTRS DAY |  | Addition and subtraction + numbers with up to 4 digits using formal methods Inverse and estimation (rounding) <br> WALT: subtract 4 digit numbers using formal column subtraction. WALT: add 4 digit numbers using formal column addition. <br> WALT: use inverse as a checking strategy for addition and subtraction calculations. <br> WALT: use rounding to estimate answers as a checking strategy. |  | Multiplicati on <br> WALT: <br> multiply 2 digit numbers by 1 digit number. <br> WALT: <br> multiply 3 digit numbers by 1 digit number. | Decimals ordering and comparing decimals \& integers <br> Fractions and decimals equivalence Use and apply decimal number <br> WALT: read and recognise tenths and hundredths as a fraction of a whole. <br> WALT: <br> understand fraction and decimal equivalence. WALT: compare and order decimals and fractions WALT: round decimals | Dec cont. <br> Place value <br> Multiply and divide by 10 , <br> 100 and 1,000 <br> WALT: multiply <br> by $0,1,10,100$ <br> and <br> 1,000WALT: <br> divide by 1,10 , <br> 100 and 1,000. | Measure <br> Convert, compare and calculate units of length, capacity and mass <br> WALT: convert between cm and mm. WALT: convert between $m$ and cm. <br> WALT: convert between m and $\mathrm{km}, \mathrm{kg}$ and g , I and ml . |  | Place Value <br> WALT: read, write and compare integers and decimals. WALT: understand negative numbers. WALT: use negative numbers. | Contingency, consolidation and gap analysis |
| Spring |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |  |  |
| Numb er Knowl edge | ARITH |  | 11 |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Count ing | 7 | 11 | 11,12 | 9 | 6 | 2,3,4,5,10 | 6 | 7 | 9 | 11 | 12 | chant all |  |  |
|  | Retrie val | 6,9 | 7 | 11 | 12 | 8,9 | Baseline | 6 | 7 | 9 | 11 | 12 | Baseli ne |  |  |



|  | on a grid. <br> WALT <br> describe <br> translation <br> on a grid. |  |  |
| :--- | :--- | :--- | :--- | :--- |


| Year Five | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Autumn | Recall multiplies of 2-12 up to $12 x$ in any order |  | Recall multiplies of 2-12 up to $12 x$ in any order | Bonds to 100 | $\begin{aligned} & \mathrm{X} 10 \text { and } \times 100 \\ & \text { any 2-digit } \\ & \text { number and } 1 \text { or } \\ & 2 \text { d.p. number } \\ & \text { (and divide) } \end{aligned}$ | $\begin{aligned} & \text { Round to nearest } \\ & 100 \end{aligned}$ | Read any 7-digit number <br> State place value of a digit in any number up to 1 million | Count forwards/back ward in powers of 10 from any number up to 1million | Count forwards and backwards in quarters/0.25 | Bonds to 100 |
|  | Addition | Subtraction | Multiplication | Multiplication | Division | Division | Consolidate 4 operations | Equivalent Fractions | Compare Fractions |  |
|  | Place Value <br> Use numbers to at least 1000000 and 3dp Place Value WALT ouunt forwards or backwards in powers of 10 up to 1000000 Place Value <br> WALT use numbers to at least 1000000 and round numbers |  | Addition <br> Add whole numbers with more than 4 digits WALT solve addition multi-step problems deciding which method to and why <br> Subtraction <br> Subtract whole numbers with more than 4 digits <br> WALT solve subtraction multi-step problems deciding which method to and why |  | Multiplication Multiply numbers up to 4 digits by a one- or two-digit numbers WALT Multiply numbers up to 4 digits by a one- or two-digit numbers | Division Divide numbers up to 4 digits by a one-digit number WALT Divide numbers up to 4 digits by a onedigit number | Fractions Recognise and use the per cent symbol \% and compare and compare and order fractions, decimals and percentages WALT apply knowledge of tenths and hundredths to fractions, decimals and percentages | Shape <br> Perimeter of composite rectilinear shapes <br> WALT find the perimeter of polygons and compound shapes Calculate and compare the area of rectangles WALT find the area of rectilinear and compound shapes |  | Contingency, consolidation and gap analysis |
| Winter | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |  |
|  | X 10 and x 100 any 2-digit number and 1 or 2 d.p. number (and divide) | Negative numbers (counting forwards and backwards across zero) | Recall multiplies of 2-12 up to $12 x$ in any order | Roman numerals and reading years written in Roman numerals? | Consolidation of number knowledge | Recall multiplies of 2-12 up to $12 x$ in any order |  | Recall multiplies of 2-12 up to $12 x$ in any order | Mixed and Improper Fractions |  |
|  | Multiply \& Divide (1 \& 10 \& 100) | Equivalent <br>  <br> Compare <br> Fractions | Mixed and Improper Fractions | Inverse + - | Inverse x - | Add and Subtract Fractions | Consolidation of arithmetic | Multiply \& Divide (1 \& 10 \& 100) | Mixed and Improper Fractions |  |


|  | Place Value WALT Read Roman numerals to 1000 (M) and recognise years written in Roman numerals. | Properties of Number <br> Multiples, factors, factor pairs and common factors, prime, square, cube WALT understand the properties of prime numbers <br> WALT understand the properties of square and cubed numbers |  | Fractions <br> Identify, name and write equivalent fractions of a given fraction. Compare and order fractions WALT identify and convert improper and mixed fractions WALT compare and order equivalent fractions including improper and mixed |  | Shape <br> Draw and measure angles <br> Identify. Know and use angles rules on a line and round a point <br> WALT estimate and calculate angles on a straight line <br> WALT estimate and calculate angles round a point |  | Place Value WALT Interpret and use negative numbers in a variety of worded problems | FDP <br> Solve <br> problems <br> which require <br> knowing <br> percentage <br> and decimal <br> equivalents <br> WALT <br> compare and convert between FDP |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Spring | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|  | X 10 and x 100 any 2-digit number and 1 or 2 d.p. number (and divide) | $\begin{aligned} & \text { Round to nearest } \\ & 100 \end{aligned}$ | Read any 7-digit number State place value of a digit in any number up to 1 million | Count <br> forwards/backward in powers of 10 from any number up to 1 million | Count forwards and backwards in quarters/0.25 | Bonds to 100 | X 10 and $\times 100$ any 2-digit number and 1 or 2 d.p. number (and divide) | Negative numbers (counting forwards and backwards across zero) | Recall multiplies of 2-12 up to $12 x$ in any order | Roman numerals and reading years written in Roman numerals? |
|  | Multiply fractions by a whole number | Multiply by known facts | Divide by known facts | Square and cube numbers | Square and cube numbers | Equivalent <br> Fractions | Decimals as fractions | Consolidatio n | Add and Subtract fractions | Multiply fractions by a whole number |
|  | FDP <br> Solve problems which require knowing percentage and decimal equivalents WALT compare and convert between FDP | Shape <br> Properties of 2D shapes. Know angles are measured in degrees: estimate and compare angles WALT calculate the interior angles of a range of triangle types WALT properties of quadrilaterals including regular, irregular, parallel and perpendicular <br> WALT calculate the interior angles of various quadrilaterals |  | Measure <br> Use, read, write and convert between standard units of length, mass and volume WALT estimate and compare different units of measure <br> WALT I can multiply and divide by 10,100 and 1000 to convert units of measure WALT estimate and calculate volume |  | Time <br> WALT convert different units of time WALT solve problems involving times including timetables | FDP <br> WALT find percentages (multiple of 10s) of a given amount WALT find any percentage of a given amount |  | Shape <br> WALT know the properties of 3D shapes WALT identify 3D shapes by 2 D representation (nets) |  |
| Summer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|  | Consolidation of number knowledge | Recall multiplies of 2-12 up to $12 x$ in any order |  | Recall multiplies of 212 up to $12 x$ in any order | Bonds to 100 | $\begin{aligned} & \text { X } 10 \text { and } \times 100 \\ & \text { any 2-digit } \\ & \text { number and } 1 \text { or } \\ & 2 \text { d.p. number } \\ & \text { (and divide) } \end{aligned}$ | $\begin{aligned} & \text { Round to nearest } \\ & 100 \end{aligned}$ | Read any 7-digit number <br> State place value of a digit in any number up to 1 million | Count forwards/bac kward in powers of 10 from any number up to 1million | Count forwards and backwards in quarters/0.25 |

## Consolidation and in response to gap analysis

Identify, describe and represent the position of a shape following a reflection or translation
WALT plot shapes using co-ordinates in all 4 quadrants
WALT translate a shape across
quadrants
WALT reflect 2D shapes on a mirror line

WALT estimate and compare different units of
WALT Complete read and interpret
WALT Use all four operations to solve problems involving measures.
information in tables, including timetables. WALT Solve problems using information presented in a line graph

WALT Solv
WALT Solve problems involving multiplication and division, including scaling by simple fractions and problems




| Week |  | Reasoning | Stretch |
| :---: | :---: | :---: | :---: |
| $1$ <br> Place Value |  | Compares two groups of objects, saying when they have the same numbers. <br> Shows an interest in representing numbers. <br> Counts objects to 10 , and beginning to count beyond 10 . <br> Matches numerals and quantity correctly. |  |
|  |  | Count to and across 100, forwards from any given number. | - Fill in the missing numbers... _ 5 _ 17 _ , 16 $\qquad$ 1 etc. <br> - Pick a starting and finish number. Roll a dice to generate a 2 -digit number (or from a third pile of cards in a different colour- consider the numbers in this pile carefully). If you count from your starting number and finish at your final number, will you say the number you rolled? |
|  |  | Understand and partition numbers to 30. | - Which number is the odd one out from $34,43,37,39,31$ etc. Consider the sets of numbers carefully. Is there more than one number that could be the odd one out? |
|  |  | Can read and write numbers up to 100. | - Use two sets of number cards. 1 set with numerals 1-20. 1 set with words 1-20. <br> - Play in groups or a pair. Take in turns to pick a numeral card and a word card. Say the number on each card. If they match, you win the pair of cards. If they don't match, you put them back. <br> - I can make all the numbers from 11-20 using the digits 1-9. True or false? Prove it. <br> - Correct the mistake in each sequence: <br> - $34,35,36,38,39$ <br> - $98,97,96,95,93$ <br> - 78, 79, 18, 81, 82 |
| $2$ <br> Place Value | 产 | Says the number that is one more than a given number. Count reliably with numbers from 1 to 20 and place them in order. |  |
|  |  | Identify 1 more and one less. | - One more than my number is 16 . What's my number? <br> - One less than my number is 11 . What's my number? <br> - _ is one more than 12. <br> - 12 is one less than _. |
|  |  | Count to and across the tenth multiple in 2 s . | - Gary takes 13 socks out of washing machine. How many pairs can he make? <br> - In the second load of washing, he washes 17 socks. How many pairs does he have altogether? <br> - If I start on 9 and count in 2 s , will I say 14 ? Explain why. |
| $3$ <br> Addition |  | Uses the language of 'more' and 'fewer' to compare two sets of objects. <br> Finds the total number of items in two groups by counting all of them. In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. |  |
|  | 京 | Read, write and interpret mathematical statements involving addition and equals. | - Using the number $0-9$, how many ways can you complete the number sentence: <br> - _+ ${ }_{-}=$ <br> - How many different calculations are there? <br> - What do you notice? |

\begin{tabular}{|c|c|c|c|}
\hline \multirow[t]{3}{*}{} \& \& Add 1－digit and 2 digit numbers up to 30 practically． \& \begin{tabular}{l}
\(O+\triangle-\) \\
\(\triangle+O=\) \\
＊－O＋\(\triangle\) \\
－\(\quad \triangle \triangle \cdot \bigcirc\) Questions such as this，but consider the answer carefully so children are working with the size of numbers most appropriate for their stage of learning．
\end{tabular} \\
\hline \& \& Add 1－digit numbers and 2－digit numbers using a number line． \& － \\
\hline \& \& Represent and use number bond additions to 20. \& \begin{tabular}{l}
－Which one is the odd one out？ \\
－Present children with a range of bonds to \(12,14,16,18\) and 20 ．
\end{tabular} \\
\hline \multirow{5}{*}{\begin{tabular}{l}
\[
4
\] \\
Subtraction
\end{tabular}} \&  \& \begin{tabular}{l}
Finds one more or one less from a group of up to five objects，then ten objects． \\
In practical activities and discussion，beginning to use the vocabulary involved in adding and subtracting．
\end{tabular} \& \\
\hline \& \multirow{4}{*}{} \& Read，write and interpret mathematical statements involving subtraction and equals． \& \begin{tabular}{l}
－＿＝ 7 －＿．How many calculations can you complete？Why can＇t the digits 8 or 9 be used？ \\
－－There are no more than 10 counters in a bag． \\
－How many counters could be in the bag？Why can＇t it be six？
\end{tabular} \\
\hline \& \& Subtract 1－digit and 2 digit numbers up to 30 practically． \& \begin{tabular}{l}
－Amir has 5 counters in total．Each of his counters are either in a bag or a cup．How many different ways could the counters be split between the bag and the cup？ \\
－Write 8 number sentences to go with each．Are there any sets of number sentences the same？ Why？
\end{tabular} \\
\hline \& \& Subtract 1－digit numbers and 2－digit numbers using a number line． \& \begin{tabular}{l}
－Race to zero． \\
－Start on 20．Take turns to roll a dice and subtract this amount．The first person to land on zero wins． \\
－What would you like to roll？Why？Why would you not want to roll a 1 ？
\end{tabular} \\
\hline \& \& Represent and use number bond subtractions to 20. \& \begin{tabular}{l}
－Compare two bar model and pictorial subtractions using＜and＞．

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\end{tabular} <br>

\hline \multirow{4}{*}{| $5$ |
| :--- |
| Multiplication |} \& 人 \& | Estimates how many objects they can see and checks by counting them． |
| :--- |
| Finds the total number of items in two groups by counting all of them． | \& <br>

\hline \& \multirow{3}{*}{} \& Count in multiples of 2 s ． \& － <br>

\hline \& \& Solve mathematical statements using repeated addition． \& | －Complete the array and write two different number sentences to describe the finished array． |
| :--- |
|  | <br>

\hline \& \& Solve 1 step multiplication problems． \& －Rosie and Eva have equal groups of either 2， 5 or 10. <br>
\hline
\end{tabular}

|  |  |  | - Each of their totals is less than 40. <br> - Rosie has 5 equal groups and Eva has 3 equal groups. Eva's total is more than Rosie's. What could they be counting in? |
| :---: | :---: | :---: | :---: |
| $6$ <br> Shape | ¢ | Selects a particular named shape. <br> Uses familiar objects and common shapes to create and recreate patterns and build models. |  |
|  |  | Shows awareness of similarities of shapes in the environment Recognise and name common 2D shapes (circle, triangle, square, rectangle, pentagon, hexagon) in regular and irregular forms. Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2-D shapes, and mathematical terms to describe shapes | - Part of a 2 D shape is hidden. What could it be? Present different shapes with different parts covered. Ensure there is more than one possible answer for each to encourage children to create possible answers and explain their reasoning. |
|  |  | Identify properties of 2D shapes (number of sides, vertices). | - Present children with a range of 3D shapes. Children identify the odd one out and explain how they know based on its properties. <br> - Present children with a range of shapes. How many ways can you sort the shapes into groups What do they have in common? Base criteria on the accurate shape properties. <br> - Present children with a pair of perpendicular lines. How many ways can you complete the shape using one or more straight lines. What are the names of shapes you've drawn? What are their properties? |
| $7$ <br> Measurement |  | Orders two or three items by length or height. |  |
|  |  | Understand the language of length (longer shorter). | - I think these two pencils are the same length. How could you convince me that I'm incorrect? |
|  |  | Describe and compare 2 items using language of length. | - In the classroom, can you find an object that is shorter than your pencil but longer than your rubber? |
|  |  | Begin to measure length using non-standard measurements. | - Give children pictures of objects next to unifix cubes showing their length/height. Sort into true or false by the statement below each or longer than 8 cubes or shorter than 8 cubes. |
| $\begin{gathered} 8 \\ \text { Time } \end{gathered}$ |  | Uses everyday language related to time. Orders and sequences familiar events. Measures short periods of time in simple ways. |  |
|  |  | Understand the language of time (dates, days of the week, months of the year). | - Sort the days of the week into different categories e.g. schools days and non-school days. $\qquad$ $\qquad$ weeks. Alter with different units of time to consolidate how many days in a week, weeks in a month and months in a year. |
|  |  | Read a clock to O'clock. | - True or False? <br> - When it is 11 o'clock, both hands point to 11. |
|  |  | Understand positional language (half, whole turn of a circle). | - Variations of... <br> - I was facing $\qquad$ , then I turn one and a half turns. Which way am I facing now? <br> - Describe the turns taken from before and after pictures presented in plan view. |

Year One Winter Cycle

| Week |  | Reasoning | Stretch |
| :---: | :---: | :---: | :---: |
| 1 <br> Place Value |  | Compares two groups of objects, saying when they have the same numbers. <br> Shows an interest in representing numbers. <br> Counts objects to 10 , and beginning to count beyond 10 . <br> Says the number that is one more than a given number. <br> Uses the language of more and fewer to compare two sets of objects. |  |
|  |  | Understand the value of the digits in 2-digit numbers. | - Listen to a number sequence. Predict the next number to be said. <br> - Listen to a number sequence and identify any missed numbers. <br> - Listen to a number sequence. Which number came one before the number I started on? If I counted five more numbers, which would the last number I say? Convince me $\qquad$ is in this number sequence (without writing the entire sequence). |
|  |  | Compare 2- digit numbers. | - Partition numbers in different ways using concrete resources. E.g. 32 could be 3 tens and 2 ones, or a combination of tens and ones of equal value, represented with Denes. $\square$ <br> $<$ How many different ways can you complete the table to make an accurate statement? |
|  |  | Read and write numbers to 100. | - Identify the missing digits in a written number compared to a concrete representation/pictorial representation. |
| $2$ <br> Money |  | Use money in various contexts to establish that goods must be paid for. Talk about things they would like to spend money on. Become familiar with coins in everyday use. Use number skills in shopping activities. |  |
|  |  | Recognise and use the symbols of pounds ( $£$ ) and pence (p) when combining coins to make a given amount. | Use coins to make mathematical statements true. E.g. |
|  |  | To compare the value of notes and coins. | What is the smallest number of coins you need to make __? <br> Which coins must be added to ___ to make __ ? <br> The higher the value of the coin, the more sides it has. Is this true or false? |
| $3$ <br> Addition |  | Uses the language of 'more' and 'fewer' to compare two sets of objects. Finds the total number of items in two groups by counting all of them. In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. |  |



|  |  | Solve multiplication problems using repeated addition. | In a shop, grapes come in bunches of 10. Max wants to buy forty grapes. Are there enough grapes here? <br> 8\% 8 <br> \% 8 <br> Rosie and Eva each have equal groups of either 2, 5 or 10. <br> Each of their totals is less than 40 . Rosie has 5 equal groups, and Eva as 3 equal groups. <br> How many could be in each of their groups? How do you know? Can you show me using concrete resources? |
| :---: | :---: | :---: | :---: |
|  |  | Solve 1 step multiplication problems. | True or false: $2+2+2=2 \times 2$ and similar statements to prove true or false. Encourage children to persuade whether true or false. |
| $7$ <br> Shape |  | Shows awareness of similarities of shapes in the environment Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2-D shapes, and mathematical terms to describe shapes Selects a particular named shape. |  |
|  | $\begin{aligned} & \stackrel{\rightharpoonup}{6} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{\rightharpoonup}{\circ} \\ & \stackrel{\rightharpoonup}{\overleftarrow{~}} \\ & \stackrel{\rightharpoonup}{\bullet} \end{aligned}$ | Recognise and name common 3D shapes (sphere, cuboid, cube, cone, cylinder, square based pyramid, triangular based pyramid). | The bottom of a 3D shape is covered. What could it be? Can you explain to me how you know? <br> Use 3D shapes to build a tower. Which ones are best for the bottom of the tower? Which should only go at the top? Which shapes can only be used in one way? |
|  |  | Identify properties of 3D shapes (number of edges, vertices, faces). | How many ways can you sort and group these shapes? Present children with concrete shapes with similarities and differences in their properties. <br> How have these shapes been sorted? What could I call each group? Present children with 3D shapes sorted into two groups by a specific property. How else could they be sorted? Is there a way to sort them so there is only one shape in one of the groups, and all the rest are in the other group? What if we had three groups? |
| $8$ <br> Measurement |  | Orders two items by weight or capacity. |  |
|  |  | Understand the language of weight (lighter/ heavier). | I am thinking of an object. It is lighter than a dictionary, but heavier than a pencil. What could I be thinking of? Allow children to check using balancing scales, but encourage them to move to abstract thinking when possible and make a prediction before testing it. Which object from the ones you've found is nearest in weight to the pencil? What about the dictionary? |
|  |  | Describe and compare 2 items using language of weight. | Can you sort these objects into two groups of the same weight? Provide children with balancing scales and a range of everyday objects. They may not balance perfectly, but the discussion around this will deepen understanding of lighter and heavier. |
|  |  | Begin to measure weight using non-standard measurements. | The ____ weighs the same as ___ cubes. |


|  |  |  | How many cubes does the teddy bear weigh? <br> True or false: the apple and the peach weigh the same. <br> True or false? <br> The car is heavier than the van. <br> The van is heavier than the car. <br> The car is lighter than the van. <br> The can is lighter than the car. <br> The car and van weight the same amount. |
| :---: | :---: | :---: | :---: |
| $\begin{gathered} 9 \\ \text { Time } \end{gathered}$ |  | Uses everyday language related to time. <br> Orders and sequences familiar events. <br> Measures short periods of time in simple ways. |  |
|  | $\begin{aligned} & \stackrel{\rightharpoonup}{\overleftarrow{0}} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{\rightharpoonup}{\overleftarrow{\omega}} \\ & \stackrel{\rightharpoonup}{4} \end{aligned}$ | Compare units of time in days, weeks, months of the year). | Sort given lengths of time from shortest to longest (e.g. 13days, 2 weeks, 1 week and 2 days....). |
|  |  | Read a clock to half past the hour. | "It's 6 past 1." What's wrong with this? |
|  |  | Understand positional language (half, whole, quarter turn of a circle). | If I was facing $\qquad$ and turned $\qquad$ , which way would I be facing? Repeat with objects, including hands on a blank clock. Link to time if appropriate (e.g. one and a half turns = one and a half hours). |

Year One Spring Term

| Week |  | Reasoning | Stretch |
| :---: | :---: | :---: | :---: |
| 1 <br> Place Value |  | Compares two groups of objects, saying when they have the same numbers. Shows an interest in representing numbers. <br> Count reliably with numbers from 1 to 20 , place them in order. Says the number that is one more than a given number. |  |
|  |  | To be able to explain the value of digits in a 2-digit number. | What happens to a number when we swap the digits over? How much more/much less valuable is it now? |
|  |  | Compare two-digit numbers using < > = | Pick three sets of base ten and arrange them accurately into the statement to make it accurate. $\begin{aligned} & ->-> \\ & -_{-}^{>} \end{aligned}$ $<_{-}>{ }_{-}$ |
| $2$ <br> Addition and Subtraction |  | Finds one more or one less from a group of up to five objects, then ten objects. <br> In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. <br> Uses the language of 'more' and 'fewer' to compare two sets of objects. Finds the total number of items in two groups by counting all of them. In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. |  |
|  |  | Solve 1 step addition and subtraction problems. | Explore the different ways you can add using a number line. E.g. adding 17 in a jump of ten then 7 ones, or 10,5 and $2 \ldots$... Explore which methods are the most straightforward and put to the test. |
|  |  | Compare the answers of addition and subtraction problems (using < > =). | $\begin{aligned} & -_{-}^{+}=-+ \\ & -_{-}^{+} \\ & -_{-}^{-} \\ & ---- \end{aligned}$ <br> $\bar{U}$ Using the digits 2, 3, 4and 5, compete the number sentences. |
| $3$ <br> Multiplication | 言 | Estimates how many objects they can see and checks by counting them. Finds the total number of items in two groups by counting all of them. |  |
|  |  | Count in $2 \mathrm{~s}, 5 \mathrm{~s}$ and 10 s to solve 1-step multiplication problems. | Compare counting a group of objects in $2 \mathrm{~s}, 5 \mathrm{~s}$ and 10 s (group neds to be a multiple of 10). What number sentence represents each method? Why do we always reach the same answer? |


| $4$ <br> Division |  | Some children will solve practical problems that involve combining groups of 2,5 or 10 , or sharing into equal groups. |  |
| :---: | :---: | :---: | :---: |
|  |  | Understand that division is sharing an amount into equal groups of the same amount. | I am thinking of a number between 20 and 30 . I can only make equal groups of 5 . What must my number be? <br> What happens when I try to make groups of 2 with it? What about groups of 10? |
|  |  | Separates a group of objects in different ways, beginning to recognise that the total is still the same. | Using 24 counters, how many groups can you make if each group needs at least 3 counters in it? |
| $5$ <br> Fractions |  | Counts out up to 6 objects form a larger group. <br> Estimates how many objects they can see and checks by counting them. Finds the total number of items in two groups by counting all of them. Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same. |  |
|  |  | To understand the concept of a half (objects, shapes and quantities). | I am thinking of a number less than 20. When I halve it, there are 9 in each group. What's my number? Repeat with other numbers. |
| $6$ <br> Shape |  | Shows awareness of similarities of shapes in the environment. <br> Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2-D shapes, and mathematical terms to describe shapes. <br> Selects a particular named shape. <br> Selects a particular names shape. |  |
|  |  | Identify 2D shapes in uncommon views. | Present children with shapes in uncommon views that have been wrongly labelled. Why might someone have made this mistake? What's the correct answer? How could you convince them your answer is correct? <br> Cover part of a picture of a 2D shape. What could it be? What question would you ask me to find out for sure which shape it is? <br> E.g. when presented with a partly hidden rectangle, children could ask if its sides are all the same length. |
|  |  | Comparison of the properties of shapes Sort shapes by their properties | Group shapes by their properties for children to establish how they have been sorted. <br> Give children shapes to group. How many different ways can they be grouped? |


| $7$ <br> Measurement |  | Children use everyday language to talk about capacity to compare quantities/solve problems. |  |
| :---: | :---: | :---: | :---: |
|  |  | Understand the language of capacity (full, empty, half full, more, less). | Which combination of containers has an equal capacity to $\qquad$ ? <br> Which container has a capacity equal to half the capacity of container A? |
|  |  | Describe and compare 2 items using language of capacity. |  |
|  |  | Begin to measure capacity using non-standard measurements. | Deepen children's understanding of the language of capacity by encouraging accurate estimations for how many cups it will take to fill a given container. Encourage vocabulary of half to improve accuracy. $\square$ $\square$ |
| $8$ <br> Time |  | Uses everyday language related to time. <br> Orders and sequences familiar events. <br> Measures short periods of time in simple ways. |  |
|  | $\begin{aligned} & \stackrel{\rightharpoonup}{0} \\ & \stackrel{y}{0} \\ & \stackrel{\rightharpoonup}{\circ} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{0}{0} \end{aligned}$ | Compare units of time in days weeks, months of the year). |  |
|  |  | Read and compare (earlier/later) of o'clock and half past. |  |
|  |  | Understand positional language (half, whole, quarter and three quarter turns of a circle). |  |
| 9-10 | Revisit and consolidation in response to specific identified needs for individuals, groups and whole class. |  |  |

Year One Summer Cycle

| Week |  | Reasoning | Stretch |
| :---: | :---: | :---: | :---: |
| $1$ <br> Place Value |  | Compares two groups of objects, saying when they have the same numbers. <br> Shows an interest in representing numbers. <br> Count reliably with numbers from 1 to 20 , place them in order. <br> Says the number that is one more than a given number. |  |
|  | $\begin{aligned} & \stackrel{\rightharpoonup}{0} \\ & \stackrel{y}{0} \\ & \stackrel{\rightharpoonup}{\circ} \\ & \stackrel{\rightharpoonup}{\overleftarrow{0}} \\ & \stackrel{\rightharpoonup}{\circ} \end{aligned}$ | Compare the answers of calculations (addition and subtraction). | Children make a set of balancing scales balance equally by placing number sentences of equal value in each side. Stretch to include 3 or more number sentences in each side. |
|  |  | Compare answers of calculations (multiplication). | ${ }_{-} x_{-}$is_more/less than_ $x_{-}$Children prove how much larger or smaller the value of the calculation is. |
| $2$ <br> Addition and Subtraction |  | Finds one more or one less from a group of up to five objects, then ten objects. <br> In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. <br> Uses the language of 'more' and 'fewer' to compare two sets of objects. Finds the total number of items in two groups by counting all of them. In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting. |  |
|  |  | Solve 1 step addition and subtraction problems (using money, length). | If I had $\qquad$ , how much more would I need to have $£ \ldots$ ? $\qquad$ cm of ribbon, but used $\qquad$ cm to wrap a present. How much did I have left? How many more presents could I wrap? |
|  |  | Compare the answers of addition and subtraction problems (using < > =) in context of money and measures. | __cm + $\qquad$ cm + $\qquad$ cm > $\qquad$ $\qquad$ cm + $\qquad$ cm <br> How many different ways can you complete the number sentence using the numbers $4,5,6,7,8$, and 9 ? |
| $3$ <br> Multiplication |  | Estimates how many objects they can see and checks by counting them. Finds the total number of items in two groups by counting all of them. |  |
|  |  | Solve 1 step multiplication problems using 2 s , 5 s and 10 s . | If I count in 2 s , then 5 s and then 10 s from zero to 50 , which numbers will I never say? Which numbers will I always say? Which numbers will I say the least? What can you tell me about the numbers you say most and never? |
|  |  | Compare answers of calculations (multiplication). | $\begin{aligned} & 2 \times 2 \times 2-5 \times 5 \\ & 10 \times 2-5 \times 10 \text { etc. } \end{aligned}$ <br> Fill in the gap using < = or >. |



|  |  | Identify 2D shapes in uncommon views. | Present children with a pair of perpendicular lines. How many ways can you complete the shape using only straight lines? Which shapes is it possible to draw? <br> Present children with three sides of a quadrilateral in view, but the rest of the shape is hidden. Persuade me it could be a rectangle. Persuade me it could be a square. |
| :---: | :---: | :---: | :---: |
| $7$ <br> Measurement |  | Uses everyday language to talk about size to compare objects and solve problems. |  |
|  |  | Understand the language of standard measurements (centimetres and metres). | Prove which is longer,_cm or _m. <br> Can you find a group of 5 objects that are closest to 1 m when placed end-to-end? <br> Who, in your group, is closest to 1 m tall? <br> Which objects in this group would we measure in cm ? Which would we measure in m ? Why? |
|  |  | Measure length of an object to the nearest centimetre. | Which object is closest to 20 cm in length? Which two objects are closest to 30 cm in length when placed end-to-end? |
|  |  | Compare objects using language of standard measurement (cm and m). | Present children with pairs of objects in irregular orientations. Prove which is longest. <br> The red / yellow/ green / blue etc. pencil is _cm long. The____is 12 cm long. |
|  |  | Uses everyday language related to time. Orders and sequences familiar events. Measures short periods of time in simple ways. |  |
|  |  | Read and compare (earlier/later) of o'clock and half past. | How much later is $\qquad$ than ? $\qquad$ <br> Present times on clock faces and written in words. <br> Which comes first, $\qquad$ or _? <br> Three planes are flying to Paris. These are the times they arrive: <br> Plane $A$ is $\qquad$ than plane $B$ <br> Plane $B$ is $\qquad$ than plane $C$ <br> Plane $C$ is $\qquad$ than plane $A$. <br> Fill in the gaps using earlier or later. |
|  |  | Read a clock to quarter past the hour. | At quarter past three, both hands point at the 3 on a clock. True or false? |
|  |  | Record time using hours, minutes and seconds, including reading a digital stopwatch. | A stopwatch is more accurate than a clock for measuring the time it takes to run a race. Do you agree or disagree? Why? How could you test it? <br> Estimate the time for each event, then test to check how accurate you were: <br> Assembly, saying the alphabet, filling your water bottle, walking form FS2 to the hall.... |
| 9-10 | Revisit and consolidation in response to specific identified needs for individuals, groups and whole class. |  |  |

Year Two Autumn Cycle

| Week |  | Reasoning | Stretch |
| :---: | :---: | :---: | :---: |
| 1 <br> Place Value |  | Understand and be able to explain the value of the digits in 2-digit numbers. <br> Count in multiples of $2 s, 5 s$ and $10 s$. |  |
|  |  | Count in steps of 2, 3 and 5 from 0 and in 10s from any number, forwards and backwards. <br> $A / R$ Pick two digit cards. What number would we say if we counted on $\qquad$ jumps of 2,5 or 10 ? <br> P/A Pick two digit cards. How many jumps would it take to cross 100 from your number if $I$ counted in 2,5 or 10 ? <br> E/D Pick two digit cards. You need to get to zero by jumping backwards in 2,5 or 10 . Counting in which number will get you closest to zero? | If I count in 2 s , 3 s and 5 s to 50 , which numbers will I say the most? The least? What do you notice about the numbers that I will never say? |
|  |  | Recognise the place value of each digit in 2-digit numbers (10s and 1s). <br> A/R: Use a part-part-whole model to partition given numbers using base 10 resources. <br> P/A: Pick two digit cards to make a random number between 10 and 100. Use base 10 to represent the number in two different ways. <br> $\mathrm{E} / \mathrm{D}$ : How many numbers can you make with more tens than ones? <br> How about more ones than tens? | Matching activities whereby children match numbers written in digits to descriptions of numbers based on their place value. Stretch children by designing some descriptions to have more than one possible answer from the selection. Is there more than one way of matching the cards? Could also present as loop cards / dominoes. |
| $2$ <br> Place Value | 言 | Start to compare 2-digit numbers using < = > |  |
|  |  | Identify, represent and estimate numbers using different representations, including the number line. <br> A/R: Represent two-digit numbers using base ten, part-part-whole model, bar model and on a number line. <br> P/A: <br> E/D: Present children with partially completed representations of twodigit numbers. What could the number be? How many different solutions can you find that are reasonable and accurate? | Give children a description of a number that could have more than one answer. Using the sentence starters, children describe what that number could be. E.g. The tens digit is double the ones digit. The number is less than 50 . The number is even. <br> The number must be.... <br> The number could be... <br> The number can't be... |
|  |  | Compare and order numbers from 0 up to 100; use < > and = signs. | From this set of numbers, which pair is closest in value? Which pair have the greatest difference? Children prove by plotting on a number line. Can you create a number that would fit between each pair of numbers? |


| $3$ <br> Addition |  | Add a 1-digit number to a 2-digit number using concrete resources and on a number line. |  |
| :---: | :---: | :---: | :---: |
|  |  | Recall and use addition facts to 20 fluently and derive and use related facts up to 100 . |  |
|  |  | Add a 2-digit and a 1-digit number. | Which 2 pairs of numbers could you add together to make the same answer? |
|  |  | Add a 2-digit number and a multiple of 10. | When adding a tens number, only the tens digit changes. From these examples, which calculations prove it true and which prove it false? Children sort the calculations accurately and recognise that when we cross the hundreds, then not just the tens digit changes. |
| $4$ <br> Subtraction | ( | Subtract a 1-digit number from a 2-digit number using concrete resources and on a number line. |  |
|  |  | Recall and use subtraction facts to 20 fluently and derive and use related facts up to 100 . | If I know 20-17, 70-17 is a lot easier. Why is this true? Model partitioning 70 into 50 and 20. Apply to other examples. |
|  |  | Subtract a 1-digit number from a 2-digit number. | $55]_{-}=65-$ <br> What do you notice about the two numbers you use to make this number sentence correct? |
|  |  | Subtract a multiple of 10 from 2-digit number. | When subtracting a tens number, I only need to move up or down on the hundred square, and never side to side. Do you agree? Why? Does it work for every calculation? |
| $5$ <br> Multiplication |  | Count in $2 \mathrm{~s}, 5 \mathrm{~s}$ and 10 s . <br> Solve multiplication problems using repeated addition. |  |
|  |  | Recall and use multiplication facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. | When I multiply a number by 2 , the answer is always even. When I multiply a number by 5 , the answer is always even. When I multiply a number by 10 , the answer is always even. Which statements are true and which are false? Convince me you're correct. |
|  |  | Solve multiplication problems using concrete materials. |  |
|  |  | Solve multiplication problems using repeated addition. | If $5 \times 3=15$, which number sentences would find the answer to $6 \times 3$ ? <br> - $5 \times 3+6$ <br> - $5 \times 3+3$ <br> - $15+3$ <br> - $15+6$ <br> - $3 \times 6$ <br> Explain how you know. |


| $6$ <br> Division |  | Understand that division is sharing an amount into equal groups of the same amount. |  |
| :---: | :---: | :---: | :---: |
|  |  | Recall and use division facts for the 2,5 and 10 multiplication tables, including recognising odd and even numbers. | I can divide any number by 2 . <br> Why isn't this true? Show me using counters and other examples. |
| $\begin{gathered} 7 \\ \text { Fractions } \end{gathered}$ |  | Understand the concept of a half (objects, shape and quantities). |  |
|  |  | Recognise, find, name and write fractions $\frac{1}{3}, \frac{1}{4}$ $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity. | $\frac{1}{4} \text { is bigger than } \frac{1}{3}$ <br> Experiment with 24 counters to find out if this is true or false. <br> Can you predict which is bigger from $\frac{2}{4}$ and $\underset{3}{\frac{1}{3}}$ Find out if you're correct. |
| Measure |  | Understand and use the language of capacity, length and mass. Full, empty, half-full, more, less, lighter, heavier, longer, shorter and taller. | The $\qquad$ is taller than the $\qquad$ but shorter than the $\qquad$ Which objects could you use to make this statement true? Repeat with mass and capacity. |
|  |  | Compare and order lengths, mass, volume/capacity and record the results using <, = and >. | Chn create sentences using < = and > to compare combinations of objects in terms of their length, mass and capacity. |
| $\begin{gathered} 8 \\ \text { Shape } \end{gathered}$ |  | Comparison of the properties of shapes <br> Sort shapes by their properties. <br> Identify 2D shapes in uncommon views. Recognise and name common 3D shapes (sphere, cuboid, cube, cone, cylinder, square based pyramid, triangular based pyramid). <br> Identify properties of 3D shapes (number of edges, vertices, faces). <br> Identify properties of 2D shapes (number of sides, vertices). |  |
|  | ¢ | Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. | Focus on symmetry as a tool to reinforce the properties of 2 D shapes. |



## Year Two Winter Cycle

| Week |  | Reasoning | Stretch |
| :---: | :---: | :---: | :---: |
| $1$ <br> Place Value |  | Explain the value of digits in a 2-digit number. |  |
|  |  | Identify, represent and estimate numbers using different representations, including on a number line. | Estimating number activities-read descriptions of numbers. How many different possibilities can you find that match the description (e.g. This three digit number has a digit sum of 11. The hundreds digit is twice the ones digit). |
|  |  | Read and write numbers to at least 100 in numerals and in words. | Error spotting in numbers written in words. Match written number with those written in partitioned numerals (e.g. three-hundred and twenty-two $=100+100+100+10+10+1+1$ ). |
| $2$ <br> Money and Place Value |  | To compare the value of notes and coins. |  |
|  |  | Recognise and use symbols for pounds ( $£$ ) and pence (p); combine amounts to make a given amount. | Match amounts of money of equal value (e.g. $£ 1.20+35 p+£ 0.20=£ 0.50+£ 1.10+5 p$ ). Could stretch to gap fill, potentially with a gap on both sides of the $=$ sign to find more than one possibility and open-ended. |
|  |  | Find different combinations of coins that equal the same amounts of money. | Give chn a target amount. Using specific coins, how many different ways can you find to make the target? Consider carefully the coins made available and the targets. My Grandpa gives me 50p a week. How long until I have enough to buy $\qquad$ ? |
| $3$ <br> Addition |  | Add 1-digit and 2-digit numbers to 30 practically and on a number line. |  |
|  | $\begin{aligned} & N \\ & \stackrel{N}{0} \\ & \stackrel{y}{0} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{\rightharpoonup}{0} \end{aligned}$ | Add 2 2-digit numbers. | $Z_{\text {_ }}^{+}$_ = 37. How many different ways can you make this number sentence correct? What do you notice about the numbers you've used? Stretch to include knowledge of odd-even rules. |
|  |  | Add 3 1-digit numbers. | ${ }_{-}^{+}+{ }_{-}=18$. How many different ways can you make this number sentence correct using only 1 -digit numbers? |


| $4$ <br> Subtraction |  | Subtract 1-digit and 2 digit numbers up to 30 practically and on a number line. |  | $\qquad$ even rules. Even - even = odd. Prove this is true or false. |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Subtract 2 2-digit numbers. |  |  |
|  |  | Subtract 3 1-digit numbers. |  | How could these numbers be arranged to make the largest answer? How about the smallest answer? |
| 5 |  |  |  |  |
| $6$ <br> Multiplication |  | Solve 1-step multiplication problems using repeated addition. |  |  |
|  | ¢ | Solve problems involving multiplication and division using concrete resources and arrays. <br> (Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot) |  | Present children with arrays, parts of which are hidden. The answer is less than 24. What could the array be? |
| $7$ <br> Division | ¢ | Understand tha the same amou Separates a gro to recognise th | sion is sharing an amount into equal groups of three or four objects in different ways, beginning total is still the same. |  |
|  |  | Solve problems involving division, using materials and arrays. (Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot) |  | Two friends are sharing grapes equally. They each receive less than 40 grapes. Complete the sentences to describe how many grapes they must have started with: <br> They must have started with... <br> They could have started with... <br> They can't have started with.... |
|  |  | Arithmetic | Reasoning |  |
| Fractions |  | Addition and Subtraction | To understand the concept of a half (objects, shapes and quantities). |  |


|  |  | - _ _ ${ }^{+}$= ? / _ $^{+}$_ = ? <br> - $?+_{-}={ }_{-}$ <br> - $\overline{\text { ? }}^{+}+0=$ ? <br> - 100-? ? = _ | Write simple fractions, for example $1 / 2$ of $6=3$ and recognise the equivalence of $2 / 4$ and $1 / 2$. | I have shaded a third of my shape. Why might someone think that's right? What's the accurate answer? <br> Using red and blue counters, build a tower to convince the class $\frac{1}{2}$ is the same as $\frac{2}{4}$ |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Multiplication and division | Understand and use the language of capacity, length and mass. Full, empty, half-full, more, less, lighter, heavier, longer, shorter and taller. |  |
| $9$ <br> Measure |  | - ${ }_{10} \times 2,5$ or <br> - __ $\div 2,4,5$ <br> or 10 | Choose and use appropriate standard units to estimate and measure length/height in any direction ( $\mathrm{m} / \mathrm{cm}$ ); mass ( $\mathrm{kg} / \mathrm{g}$ ). | Start at different points in the hall (could use coloured markers). Estimate, then measure the distance to other markers/feature of the hall. Could use the MUGA, or features in the landscape? |

Year Two Spring Cycle

| Week | Reasoning |  | Stretch |
| :---: | :---: | :---: | :---: |
| $1$ <br> Place Value |  | Compare the answers of calculations <br> To be able to explain the value of digits in a 2-digit number. Compare 2- digit numbers |  |
|  |  | Use place value and number facts to solve comparison and ordering problems. | Children order a set of given number cards accurately on a number line, then find the number that would fit exactly halfway between each pair of numbers. <br> Children create the scores to match given descriptions (e.g. A scores more than B, but B scored more than C. D scored more than A dn B altogether, and E came first with the highest score). |
|  |  | Calculation and money: <br> Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. | How much did the pencils cost if I got __change and paid with a $£ 2$ coin? |
| $2$ <br> Addition |  | Read, write and interpret mathematical statements involving addition and equals. <br> Add 1-digit and 2-digit numbers to 30 practically and on a number line. <br> Solve 1 step addition and subtraction problems (using money, length). <br> Compare the answers of addition and subtraction problems (using < > =) in context of money and measures. |  |
|  | $\stackrel{\stackrel{\rightharpoonup}{\otimes}}{\stackrel{\rightharpoonup}{0}}$ | Solve problems with addition using concrete objects and pictorial representations, including those involving numbers, quantities and measures. | Find combinations of objects that have a total length to match a given target/greater than 100 cm , less than... etc. <br> Which three objects would have a total length between 15 and 20 cm ? How many different solutions are there? |
|  |  | Solve problems with addition applying increasing knowledge of mental and written methods. | Sort given problems into mental strategies and written strategies as the most efficient method to reach an answer. |
|  |  | Show that addition of 2 numbers can be done in any order (commutative) and subtraction of one number from another cannot. | Test hypotheses, such as sorting statements into always, sometime and never true. E.g. I can add pairs of numbers in answer order and get the same answer. I can't swap the position of numbers in a subtraction calculation and get the same answer. |
| $3$ <br> Subtraction |  | Read, write and interpret mathematical statements involving subtraction and equals. <br> Compare the answers of addition and subtraction problems (using < > =). |  |


|  |  | Subtract 1-digit and 2 digit numbers up to 30 practically and on a number line. <br> Represent and use number bond subtractions to 20. Solve 1 step addition and subtraction problems (using money, length). |  |
| :---: | :---: | :---: | :---: |
|  |  | Solve problems using concrete objects and pictorial representations, including those involving numbers, quantities and measures. | Match pictorial and concrete representations to written number sentences. Create the number sentences for those that are missing/concrete resources to represent given number sentences. Stretch to multi-part (e.g. 39-27-3= $\qquad$ ). |
|  |  | Solve problems applying increasing knowledge of mental and written methods. | Choose four numbers from this list: $1,2,3,4,5,6,7,8,9$ to put in the squares so that the difference between joined squares is odd. <br> Only one number is allowed in each square. You must use four different numbers. What can you say about the sum of each pair of joined squares? |
| 4 <br> Addition and Subtraction |  | Solve 1 step addition and subtraction problems (using money, length). <br> Compare the answers of addition and subtraction problems (using < > =) in context of money and measures. |  |
|  | $\underset{\pi}{\sim}$ | Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. | _ $^{+}=37$. What is the largest number you could put in the first gap? What about the smallest? Can you use two even numbers to make this statement true? Can both numbers be odd? Is this true for every addition answer? <br> Number pyramids with more than one solution. <br> $\ldots_{-}^{+}{ }_{-}=\ldots$ Can you arrange the digits 1, 2, 3, 4, 5 and 6 to make an accurate calculation? |
| $5$ <br> Multiplication | ¢ | Solve 1 step multiplication problems using 2 s , 5 s and 10 s . Compare answers of calculations (multiplication). |  |
|  |  | Solve problems involving multiplication using mental methods and multiplication facts. | On Friday at 9am, a magic plant was only 2 cm tall. Every 24 hours, it doubled in height. How tall was it 7 days later? |
|  |  | Solve multiplication problems in context. | Balancing scales so calculations are of equal value. |


| $6$ <br> Division |  | Understand division is sharing an amount into groups. |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Solve problems involving division using mental methods and division facts. |  |  |
|  |  | Solve division problems in context. |  | Jack wants to buy a bike that costs $£ 107$. He saves $£ 10$ each week. How many weeks will it take him? <br> Write a number in each gap to make an accurate statement: $\qquad$ <br> $\overline{\text { Double }}=$ half of <br> Double $\qquad$ half of $\qquad$ How many solutions can you find to this problem? |
| $\begin{gathered} 7 \\ \text { Shape } \end{gathered}$ | Arithmetic Reasoning |  |  |  |
|  |  | Addition <br> Solve one step addition problems using concrete resources and on a number line. | Comparison of the properties of shapes Sort shapes by their properties. Identify 2D shapes in uncommon views. Recognise and name common 3D shapes (sphere, cuboid, cube, cone, cylinder, square based pyramid, triangular based pyramid). Identify properties of 3D shapes (number of edges, vertices, faces). <br> Identify properties of 2D shapes (number of sides, vertices). |  |
|  |  | Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers. | Identify 2D shapes as the faces of 3D shapes. | Possible or impossible? Children test whether a 3D shape can be constructed using the 2 D shapes given. What would the shape be called? |
|  |  |  | Compare and sort common 2D and 3D shapes and everyday objects based on their properties (vertices, edges, faces, sides, curved, flat), including using sorting diagrams. | Children identify the common characteristics in groups of shapes. How many ways can these shapes be sorted into two groups? What do they have in common? What if there were three groups? How many different ways can they be sorted? <br> Present shapes sorted into two groups. One of them is wrongly placed. Which is it and why? |


| $8$ <br> Measure |  | Subtraction <br> Solve one step <br> subtraction <br> problems using concrete resources and on a number line. | Understand the language of length (longer, shorter), weight (Lighter, heavier), and capacity (full, empty, half-full, more, less). <br> Understand the language of standard units of measurement (cm and m). <br> Measure the length of an object to the nearest cm. |  |
| :---: | :---: | :---: | :---: | :---: |
|  | $\begin{aligned} & \bar{\circ} \\ & \stackrel{\rightharpoonup}{\overleftarrow{0}} \\ & \stackrel{\otimes}{\approx} \end{aligned}$ | $\begin{aligned} & 100-? ?= \\ & --_{-}^{-}=? ? \end{aligned}$ <br> Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers. | Understand and use temperature measurements in ${ }^{\circ} \mathrm{C}$ to measure, estimate and compare temperature. | Molly measured the temperature at 12 noon and again at 7 pm . The difference was 7 degrees. What could the temperatures have been? What are they likely to have been if she measured them in December? What about July? |
|  |  |  | Understand and use measurements in litres and ml to measure, estimate and compare capacity, both in concrete resources and pictorial representations on a scale. | Estimate then accurately measure the amount of water in given containers. Compare the difference between your estimate and the actual capacity. Closest wins a point: first to 5 points wins. <br> A $\qquad$ holds 5 ml of water, so how many $\qquad$ of water are there in these containers (present children with pictures of containers holding liquid with a scale in different increments- needs to be a multiple of 5 in the container). |
| Position |  |  | Understand positional language (half, whole, quarter and three quarter turns of a circle). |  |
|  |  |  | Order and arrange combinations of mathematical objects in patterns and sequences. | Present children with a pattern/sequence of shapes with larger areas covered. What must the pattern be? How could you test to see if you're right? |
|  |  |  | Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise). | Here is a piece of Numicon after it has been rotated. What could its starting position have been? Describe the rotation that must have happened to get it to this position using right angles for quarter, half and three-quarter turns, clockwise and anti-clockwise to make sure you're accurate. |
| $\begin{gathered} 9 \\ \text { Time } \end{gathered}$ |  | Multiplication Count in 2 s , 5 s and 10 s to solve 1-step multiplication problems. | Read a clock to o'clock, half-past and quarter past the hour. <br> Read and compare (earlier/later) of o'clock and half past. |  |
|  |  | - Recall multiplication | Tell and write the time to quarter past and quarter to the hour (written in words and drawn on a clock). | Present problems involving start and finish time. E.g. I started writing a story at $\qquad$ and it took me an hour and a half. I finished at 1.15 pm . Which time must I have started to write? |




Year Two Summer Cycle

| Week | Reasoning |  | Stretch |
| :---: | :---: | :---: | :---: |
| $1$ <br> Place Value |  | Compare the answers of calculations. <br> To be able to explain the value of digits in a 2-digit number. Compare 2- digit numbers. |  |
|  |  | Compare numbers using < = and $>$. | Chn are given cards with different descriptions of numbers or numbers written in numerals or words. They need to find the pair with the smallest difference, the pair with the greatest difference, any equal pairs and the card closest to given targets. Design the cards and target numbers carefully so as to challenge children when finding the number closest to a given target- sometimes it may be less than the target (e.g. 98 is closer to 100 than 103). |
|  |  | Plot, with increasing accuracy, numbers on a blank number line (varying increments of scale). | Prove children a range of numbers of increasing complexity to plot on a number line. Present the number line as a spiral. <br> Game- Children take turn to plot a number from a shared list on a number line. The first person to get three in a row wins a point. First to 5 points wins. Encourage strategic play through modelling. Share best ways of winning and tactics. Play again, predetermining who will win and who win lose. This is one way to reinforce the place value of the numbers children are using. <br> Stretch opportunity- instead of number cards, give children calculation cards to play with (e.g. 2, 5 and $10 \times$ table, addition and subtraction cards that could be answered mentally). |
| $2$ <br> Addition and Subtraction |  | Solve 1 step addition and subtraction problems (using money, length). <br> Compare the answers of addition and subtraction problems (using < > =) in context of money and measures. <br> Subtract and add 1-digit and 2 digit numbers up to 30 practically and on a number line. |  |
|  |  | Recognise and use the inverse relationship between addition and subtraction to solve contextualised problems. | Sort number sentences into 'families'. Chn describe what the family has in common (e.g. inverse, number of tens...). |
|  |  | Use addition and subtraction to solve missing number problems. | 36 - $\qquad$ $=17+$ $\qquad$ How many different ways can you solve this using the digits $1,2,3$, 4,5 , and 6 . Test and prove your examples work. <br> What are the possible answers? What could the answer never be? Why? |
| $3$ <br> Multiplication and Division |  | Solve 1 step multiplication problems using 2 s , 5 s and 10 s . Compare answers of calculations (multiplication). Understand division is sharing an amount into groups. |  |


|  |  | Recognise and use the inverse relationship between multiplication and division to solve contextualised problems. | $\begin{aligned} 6 \times 5=30 & \square \div \square \\ & \square \div \square \end{aligned}$ <br> Based on the structure above, present children with a range of number cards. How many different ways can you complete the same number sentence structure using the numbers I've given you. $40,5,8,30,6,30,3,10,4,20,2,10$ |
| :---: | :---: | :---: | :---: |
|  |  | Use multiplication and division to solve missing number problems. | ${ }_{-} \mathrm{X}_{-}={ }_{-} \div$ <br> How many different ways can you solve the number sentences? Prove your examples work. |
| $\begin{gathered} 4 \\ \text { Time } \end{gathered}$ | ¢ | Read a clock to o'clock, half-past and quarter past the hour. Record time using hours minutes and seconds, including reading a digital stopwatch. |  |
|  |  | Tell and write the time to quarter past and quarter to the hour (written in words and drawn on a clock). | Matching written times and times represented on the clock. Written times should be presented in different, usual ways. E.g. ten-to-three could be written as one hour and fifty minutes after 1 o'clock. |
|  |  | Tell and write the time to 5 minutes (written in words and drawn on a clock). |  |
|  |  | Compare times (earlier and later) and start to calculate the duration between two given times (multiples of 5 minutes $<1$ hour). | Give children a start time or end time, and a duration. What would the start/end time be? |

