# Churchfields Infants' School: Year Two curriculum information MATHS 

Outlined below is a summary of the skills children will work on during Year Two. Children take part in regular Maths sessions throughout the week and focus on building skills before applying them to a range of problems and different contexts. We develop children so they are fluent mathematicians who can reason about number and all other elements of the Maths curriculum. Children will learn about Number (number and place value, addition and subtraction, multiplication and division, fractions), Measurement, Geometry and Statistics across the year and develop their skills accordingly. Maths is also taught in a cross-curricular way as Maths skills are used and developed in a range of other subjects e.g. Science.

|  | Number | Measurement | Geometry | Statistics | How can you help at home? |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Autumn <br> 1: Are We Nearly There Yet? | - using the < and > symbols <br> - partitioning a number into tens and ones <br> - understanding the value of each digit in a 2 -digit number (e.g. in 24, the 2 is worth 20 and the 4 is worth 4 ones) <br> - counting Dienes apparatus in 10s and 1 s <br> - using part-whole models to model partitioning <br> - using information abou $\dagger$ partitioning to order numbers - counting in tens from any number, forwards and backwards <br> - adding 2 2-digit numbers using Dienes and by partitioning - addition on a number line Specific to reasoning | - developing language used when measuring length (e.g. length, height, width, how tall?, depth) <br> - using 10p and $1 p$ coins to apply understanding of place value <br> Revision - measuring lines accurately using a ruler <br> - value of coins | - labelling 2D shapes as regular or irregular depending on whether or not the sides are equal - developing language used to describe properties of shapes - sorting shapes using a Venn diagram - sorting shapes using a Carroll diagram <br> Revision <br> - naming 2D shapes | - simple graph work in Science | - play board games with your child whenever you can <br> - try teaching your child some strategy games, such as Connect 4 and noughts and crosses <br> - look for numbers everywhere you are and discuss their size, the value of the digits and the perhaps order some by their size (or in other ways you may choose!) - use coins, Lego pieces (10 piled together and single pieces) or straws (bundles of 10 and single |


|  | - explaining why opinions about numbers partitioned are correct or incorrect <br> - reasoning about possible answers to a part-whole model <br> - Always, sometimes, never scenarios <br> - differentiated problem solving selected by children <br> - 'Card Sharp' investigation <br> Revision <br> - number bonds to 10 <br> - adding a 2-digit number and ones <br> - subtracting ones from a 2-digit number <br> - adding 2 tens numbers <br> together speedily <br> - writing numbers in words |  | - counting sides and corners on 2D shapes <br> - discussing simple properties of 2D shapes |  | straws) to represent 2-digit numbers <br> - ask your child some addition questions and let them choose how to solve it (they may draw dienes or use equipment, partition the numbers or use a number line) <br> - practise counting in 10s from ANY number (17, 27, 37...) <br> - discuss and order lengths of objects you may see or have at home. If you have a rule, challenge your child to find something longer/shorter/the same length as a certain value of cm (remember: when we measure length horizontally we use the terms longer and shorter, and when measuring vertically we use the terms taller and shorter) <br> - name shapes you see in the environment and discuss their properties |
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| Autumn 2: Once Upon a Time... | - application of number skills to measure (see revision section and next column) <br> - doubling numbers larger than 10 by partitioning | - vocabulary used when measuring in different ways (e.g. to measure length, | - what shapes do you make when you fold 2D shapes in half? | - How many more? / How many less? questions across Maths and other | - play board games with your child whenever you can <br> - try teaching your child some strategy games, |

- halving even numbers larger than 20 by partitioning - subtracting 10s numbers from 2digit numbers
- subtraction on a number line ( $T U-U, T U-T, T U-T U$, including where regrouping is required) - solving more complex missing number calculations
- using the inverse (3 for free) - multiplication as repeated addition
- apply counting in $2 \mathrm{~s} / 5 \mathrm{~s} / 10 \mathrm{~s}$ to multiplication
- using arrays to solve multiplication calculations - solving multiplication calculations by drawing groups of $2 / 5 / 10$
- apply knowledge of multiplication to word problems - rehearsing 2,5 and 10 X tables Specific to reasoning
- reason about odd and even numbers
- working outside known facts and explaining reasoning for answers
- < and > using multiplication - open ended investigation applying reasoning about all operations and the inverse, finding as many possibilities as children are able
height, capacity, weight, cost, time) - comparative vocabulary (e.g. wide/ narrow, thick/thin, hold more/ holds less) - weighing items with a static (not balance) scale - predict and order weights
- measuring capacity using measuring jugs - reading a scale weight/capacity
- < and > symbols
applied to measure and money
- British coins and notes, equivalence of some of these - counting larger groups of coins in different denominations - 'paying' for items using coins - showing amounts of money using the least number of coins - £ and p notation
- counting faces,
edges and vertices on 3D shapes and thinking about their properties practically
Specific to
reasoning
- which shape is the odd one out? Why?


## Revision

- naming 2D shapes
- counting sides
and corners on 2D
shapes
- discussing simple
properties of 2D
shapes
- halving shapes by folding
- naming 3D shapes by looking at solids and pictures of them
- recognising 3D
shapes in the
environment
subjects across the curriculum as a precursor to work on statistics - simple problems involving data presented in simple tables/graphs


## Revision

- revise language such as 'How many more? / How many less?
such as Connect 4 and noughts and crosses
- practise counting backwards in 1s and 10s, especially across 10 s as this is often where children get stuck!
- ask your child a subtraction question and let them solve it in their own way (number lines most accurate here!) - rehearse quick recall of mental Maths covered this half term e.g. halving and doubling, $x$ tables - play a game: take it in turns to name an odd/even number. The first person who fails to name/write a different example in 5 seconds loses! How many will you come up with?
- look for some arrays at home and when you're out and about (top tip: Lego bricks and windows are a good place to start!) - do lots of measuring together: you can do this practically and it's always lots of fun! e.g. cooking for

| Revision | - money strategy |
| :--- | :--- |
| - using the < and > symbols, | games (BEAM |
| apply to measure and money | games 'Spending |
| (see next column) | Money' and |
| - ordering numbers (apply to | 'Pound' |
| prices) | - using different |
| - addition, apply to money using | combinations of |
| choice of strategy (see next | coins to make the |
| column) | same total |
| - doubling small numbers (to 10) | - finding totals with |
| - partitioning numbers (apply to | money (apply to |
| doubling and halving) | addition) |
| - counting backwards in 1s and | Specific to |
| los | reasoning |
| - subtracting a l-digit number | -reasoning about |
| from a 2-digit number | money; money |
| - odd and even numbers | challenges |
| - halving small numbers (even | -selecting a group |
| numbers to 20) | of coins from a |
| - counting forwards and | selection that make |
| backwards in 1s, 2s, 5s and 10s | a given amount, |
| - simple missing number | explaining why they |
| calculations | do/don't make the |
| - number bonds to 10/20 | right amount |
| (missing number) | - Always, |
| - basic understanding of | Sometimes, Never |
| multiplication | activities (e.g. The |
| - developing vocabulary related |  |
| to multiplication | smallest coin is |
|  | worth the least, Two |
| silver coins are |  |
|  | worth more than six |
| bronze coins) |  |
| -investigating |  |
| different |  |

weighing and capacity, use a ruler or a tape measure to measure items at home. Look at the scales on your measuring equipment and reason about what the divisions without numbers might represent (this is very tricky with most conventional scales so children will need some help!)

- if you're looking for little ideas for presents, a watch (analogue is best at this age!) or teaching clock may be a good idea in preparation for what is to come!)
- encourage your child to play with money and look at the different values of coins
- open a 'shop' and ask your child to pay for something with the right money. Can they buy two items?
- play money 'exchange' games. Give your child a set of mixed coins - give them say $£ 1$ and see if they can exchange some of their other coins for the

|  |  | combinations of coins from a selection - what totals could there be? <br> - part-whole model money reasoning Revision - measuring lines accurately using a ruler <br> - counting groups of coins in the same denomination/ smaller groups of different denominations - ordering amounts of money by size - developing language used when measuring weight (e.g. weight, heavy(ier), light(er), kg, kilogram, g, gram, scales) |  |  | £1. How many ways can they do it? <br> - ask you child to keep a running total of their pocket/birthday/tooth fairy(?!) money next to their piggy bank or purse/ wallet and alter it when they spend some! - look for 3D shapes when out and about (or at home!) |
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| Spring 1: It's Cold Outside! | - using prior knowledge to estimate where numbers belong on a more complex number line - counting in 3 s from 0 , forwards and backwards | - further develop vocabulary related to measurement of time - telling the time to the nearest 15 minutes (o'clock, | - finding a quarter of shapes by folding in half and then half again - recognising a whole, $1 / 2,1 / 4$ and $3 / 4$ of a shape | - How many more? / How many less? questions across Maths and other subjects across the curriculum as | - play board games with your child whenever you can <br> - try teaching your child some strategy games, such as Connect 4 and noughts and crosses |

- partitioning 2-digit numbers in different ways (e.g. $34=30+4$, $20+14,10+24,0+34)$
- introduce the $\div$ symbol and what it means
- further develop language round division
- learning that half is the same as $\div 2$
- learning that a quarter means
$\div 4$ (or half, and half again)
$-\div 2,5$ and 10 and begin to relate to x tables
- solving word problems related to halves and quarters
solving word problems related to division
- beginning to use the inverse to solve problems
- finding $1 / 2,1 / 4,3 / 4$ and a whole of a shape
- understanding the equivalence of $1 / 2$ and $2 / 4$
- finding a single fraction of a number ( $1 / 2,1 / 3,1 / 4$ )
- finding multiple fractions of a number ( $2 / 4,3 / 4$ )
- solving word problems related to fractions
- applying knowledge of all operations to word problems, thinking about vocabulary that gives us a clue about how to
half past, quarter past and quarter to) on an analogue clock ONLY
- stretch to telling the time to the nearest 5 minutes (analogue clock ONLY)
- solve problems related to time


## Revision

- time: o'clock and
half past
- vocabulary related to time e.g. earlier, later
- labelling and
showing fractions of a shape (whole, $1 / 2$, $1 / 3,1 / 4,2 / 4,3 / 4)$


## Revision

- folding shapes in half
a precursor to work on statistics (in particular related to finding the difference) - simple problems involving data presented in simple tables/graphs


## Revision

- revise language
such as 'How
many more? /
How many less?
- rehearse counting forwards and backwards in $3 s$ - this song might help and the children LOVE it! Can you count backwards too?
Counting by 3s - YouTube
- do lots of sharing at home - can your child share out toys/food etc. between everyone in the family? e.g. if there are 4 of you and you have 40 grapes, how many is that each? (half and half again!)
- rehearse halves of all even numbers to 20 and apply to larger numbers - look for fractions all around you! Of numbers, shapes, everything! Discuss what you see!
- if your child is keen to answer your Maths questions, try asking them as a word problem instead of simply a calculation! Your child's teacher will be able to explain the kind of problems your child is being challenged with at school at Parents' Evening:

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solve it (including 1- and 2-step
unfamiliar problems
- finding the difference between
2 numbers by counting in
1s/2s/10s
- finding the difference on a
number line by counting on (in
1s,10s, or both 1s and 10s)
- missing signs: which sign should
be in this calculation?
- more complex missing number
calculations, relating to inverse
- beginning to use inverse to
check answers to calculations
Specific to reasoning
- reasoning about number facts
and what else we 'know' from
just one fact
- Always, Sometimes, Never
activities e.g. When you add you
have to start with the biggest
number, Adding makes things
bigger, If you double a 1-digit
number you get a 2-digit
number, All the numbers in a
sequence made by adding 2 will
be even
- would you rather? problems
- odd number investigation to
find all possibilities to solve a
problem
Revision
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we think you'll be surprised!

- encourage your child to rehearse telling the time at home - you may like them to wear a watch, or use analogue clocks at home. maybe you could tell them it's snack time/screen time etc. at a certain time and wait for them to come to you at the right time?
- ask your child to tell you what time it will be in $\qquad$ minutes e.g. our dinner takes half an hour to cook - what time will it be ready? Or if you want to make it tricky: we walked to the park in 15 minutes! It's now half past 2 , so what time did we leave?

|  | - counting forwards and backwards in 10s from any number <br> - < and > symbols <br> - inverse operations (3 for free) <br> - finding half and quarter of a number <br> - practical sharing using counters <br> - simple addition and subtraction within 20; further building recall of these rather than ability to calculate <br> - recall of number bonds to 10 and 20 <br> - adding 3 1-digit numbers (relate to 'hiding helpers') <br> - counting in $2 \mathrm{~s}, 5 \mathrm{~s}$ and 10 s <br> - rehearsing 2,5 and $10 \times$ tables |  |  |  |  |
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| Spring 2: What the Eyes Don't See... | - using an efficient strategy to solve problems (e.g. if adding 34, adding 30 then 4 rather than 3 lots of ten and then 4 ones separately) <br> - apply knowledge of number bonds to 10 <br> - apply knowledge of all number taught this year to solve problems presented in a range of different contexts <br> - apply number knowledge to read number lines where not all divisions are labelled | - finding the change when buying an item, relate to finding the difference by counting on or subtracting <br> Specific to <br> reasoning <br> - money problem solving <br> Revision <br> - find the total when buying two items lusing the | - further develop understanding of symmetry <br> - find lines of <br> symmetry on 2D and 3D shapes <br> - listing properties of <br> 3D shapes <br> - discussing which <br> 2D shapes can be found on the faces of 3D shapes <br> Specific to <br> reasoning <br> - shape logic puzzle | - understanding what simple charts, tables, tallies and graphs are showing them - collecting own data by asking a question and creating a tally chart <br> - creating a block graph to show the results of their data collection | - play board games with your child whenever you can <br> - try teaching your child some strategy games, such as Connect 4 and noughts and crosses. What about Sudoku? <br> - ask your child to discuss strategies with you if they are working out answers to problems - how did they do it? Can they explain their thinking? Could there |

- apply number knowledge to creating graphs and problems involving statistics
- apply number knowledge to finding change (by counting on or subtracting)
- creating a fraction wall (link to equivalence)
- comparing fractions of numbers
- estimating the answers to calculations. Will it be more or less than 50 ? How do you know? - ever more complex word problems (2-step, unfamiliar) Specific to reasoning
- reasoning about strategies to use to solve a problem - more complex problem solving involving a great deal of reasoning
- use clues to find a given number (apply number knowledge)
- number pyramid reasoning
- reasoning about fractions to solve more complex < and > and missing number problems
- 'Multiple Madness' investigation
$-11+$ ? = 20: the missing number must be odd


## Revision

- identifying the number that
needs to be added to a 2-digit

> same unit, either only £ or only p - £ and p notation - simple change

## - Always,

Sometimes, Never:
A cube has 6 faces that are squares

## Revision

- folding shapes in half
- symmetry
- names of 3D
shapes, counting
faces, edges and vertices
(stretch to using
a scale)
- asking questions about simple charts, tables, tallies and graphs - interpreting and answering questions about simple charts, tables, tallies and graphs
Specific to
reasoning
- reasoning about graphs and charts etc.


## Revision

- revise language
such as 'How
many more? /
How many less?
be a better/ quicker/ more efficient way? - practise reading scales at home: on rulers, weighing scales, measuring jugs, other kitchen equipment... - if you fancy playing a game, draw your child an empty number line and put 0 and 100 at each end (or 0 and a smaller number). What can they tell you about where some numbers should go? What is halfway? Give them a number and see if they can accurately add it to their number line!
- if you take your child to the shops to buy little treats, pay in cash if you can (a£l coin is helpful for little items like sweets) and see if they can work out the change you should be given! Maybe you could set up a 'shop' at home and find the change (you can use more ageappropriate prices that way!)
- look for lines of symmetry wherever you go! Which

|  | number to reach the next multiple of 10 (relate to number bonds to 10) <br> - recall of the 2, 5 and 10 times tables <br> - quick, automatic counting in 3s from 0, forwards and backwards - revisit and rehearse strategies to solve,$+-x$ and $\div$ calculations in order to improve accuracy when problem solving - quick recall of doubles, including of 2-digit numbers e.g. 15 <br> finding multiple fractions of a number ( $2 / 4$ and $3 / 4$ ) equivalence of $1 / 2$ and $2 / 4$ |  |  |  | shapes have the most lines of symmetry? How do you know? <br> - continue discussing 3D shapes and their properties - see which you can find! <br> - look for simple charts, tables and graphs appropriate for your child and discuss with them <br> - if your child is keen, you could collect your own data and create a table or tally chart! They can choose their own question e.g. go for a walk and tally the colour of the cars you see, or ring all your family and friends to ask them their favourite food! Maybe you could turn it into a graph? |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Summer <br> 1: Out of the Ashes... | - building skills when using an efficient strategy to solve problems (e.g. if adding 34, adding 30 then 4 rather than 3 lots of ten and then 4 ones separately) <br> - range of 'Arithmetic tests', application of knowledge about | - reading a scale, including where not all divisions are numbered (for length - ruler, for weight - weighing scales, for capacity - measuring jugs, | - continuing shape patterns represented in different ways <br> - right angles: what are they and which shapes have one/some in them? | Revision <br> - understanding what simple charts, tables, tallies and graphs are showing them <br> - collecting own data by asking a | - play board games with your child whenever you can <br> - try teaching your child some strategy games, such as Connect 4 and noughts and crosses. What about Sudoku? |

number from across the whole year

- solving multiplication calculations using known facts
(e.g. solving $8 \times 7$ using $5 \times 8$ and $2 \times 8$ and adding together) - application of knowledge of $x$ tables
- using the inverse to check answers to calculations, including missing number calculations
- solving ever more complex problems (2-step, unfamiliar) Specific to reasoning
- using clues given to decide which number is being thought of!
- ice cream investigation - how many ways are there to make £1 with $2 / 5 / 10 \mathrm{ps}$ (relate to multiplication)
- 2-step missing number problems (e.g. $15+$ ? $=$ double 20)
- opportunities to apply
reasoning skills are consistently offered across all areas


## Revision

- using an efficient strategy to solve problems
- solving calculations using mixed operations and recalling correct
for temperature thermometers) - discussing the relative size of intervals of time (e.g. what is longer, a day or a fortnight)
- ordering intervals of time by their length
- application of knowledge of measuring to problems and investigation
(Angus Rides the Goods Train)
Specific to
reasoning
- reading a scale
- opportunities to apply reasoning skills are consistently offered across all areas


## Revision

- find the total when buying two items (using the same unit, either only £ or only p £ and p notation
- further develop mathematical vocabulary related to direction, oosition and movement
- distinguish between rotation as a turn and in terms of right angles (1/4, 1/2 and $3 / 4$ turns)
- clockwise and anti-clockwise turns (develop
understanding as this is revision from across the
curriculum)
Specific to
reasoning
- what's the same what's different? - opportunities to apply reasoning skills are consistently offered across all areas


## Revision

- folding shapes in half
- symmetry
question and creating a tally chart
- creating a
block graph to show the results
of their data collection (stretch to using a scale)
- asking questions about simple charts, tables, tallies and graphs - interpreting and answering questions about simple charts, tables, tallies and graphs
- discuss methods of problem solving
- ensure your child can recall facts for the 2,5 and $10 \times$ tables
- ensure your child can recall division facts for the 2,5 and $10 \times$ tables (e.g. if you know $3 \times 10=30$, you know $30 \div 10=3$ ). What about this: $30 \div ?=10$ ? - discuss intervals of time as these can be confusing for young children! (What is longer: a week or 6 days? 90 seconds or a minute? 50 weeks or a year?)
- continue to rehearse telling the time: we find this is completely developmental. but the more practice you get, the easier it will be! - discuss direction and movement, including turns both clockwise and anticlockwise - you may like to link this to work on Computing as the vocabulary used is similar. maybe you could have another go at
www.code.org and try

|  | strategies to solve each one from a selection - recall of times tables facts for the 2, 5 and $10 \times$ tables - recall of division facts related to the 2, 5 and $10 \times$ tables - counting in 3s from 0, forwards and backwards - using inverse relationship between operations - partitioning 2-digit numbers in different ways <br> - finding both single and multiple fractions of an amount - number bonds to 100 | - simple change <br> - telling the time to the nearest 5 minutes - estimating, measuring and ordering length, weight and capacity | - names of 3D shapes, counting faces, edges and vertices <br> - simple vocabulary related to direction, position and movement - clockwise and anti-clockwise turns |  | some more challenging levels? You could also set up an obstacle course at home, blindfold one of your family members and see if another can give accurate instructions to get them round safely! (under adult supervision of course!) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Summer } \\ & \text { 2: Lost } \\ & \text { at Sea } \end{aligned}$ | - odd number investigation <br> - name investigation: how much is your name worth? <br> - sum up investigation: how can we make different totals using the same numbers? <br> Specific to reasoning <br> - Maths strategy games <br> - opportunities to apply reasoning skills are consistently offered across all areas <br> Revision <br> - building skills when using an efficient strategy to solve problems (e.g. if adding 34, adding 30 then 4 rather than 3 | - estimating and measuring length, height and capacity <br> - does the shape of a container have an impact on the capacity - measuring items that are longer or taller than our measuring equipment! <br> - solving problems and following instructions to accurately create 'potions' from different liquids! | - tangrams! Specific to reasoning - opportunities to apply reasoning skills are consistently offered across all areas <br> Revision <br> - Venn and Carroll diagrams - as appropriate after teacher assessment of needs | - choosing own data to collect, from who, and how to collect it - choosing how to present own data! <br> - answering more challenging questions about own data and data presented in tables, charts, tallies and graphs that involve applying knowledge of other Maths concepts | - play board games with your child whenever you can <br> - try teaching your child some strategy games, such as Connect 4 and noughts and crosses. What about Sudoku? <br> - play some of the Maths strategy games sent home - they're tricky! <br> - discuss methods of problem solving - ensure your child can recall facts for the 2,5 and $10 \times$ tables - ensure your child can recall division facts for the |


| Iots of ten and then 4 ones |
| :--- | :--- |
| separately) |
| - range of 'Arithmetic tests', |
| application of knowledge about |
| number from across the whole |
| year |
| - solving ever more complex |
| problems (2-step, unfamiliar) |
| - as appropriate after teacher |
| assessment of needs |$\quad$| - creating a recipe |
| :--- |
| to create a fruit |
| juice and |
| measuring to 11 |
| Specific to |
| reasoning |
| - opportunities to |
| apply reasoning |
| skills are consistently |
| offered across all |
| areas |
| Revision |
| - finding change |
| - telling the time to |
| the nearest 5 |
| minutes |
| - as appropriate |
| after teacher |
| assessment of |
| needs |

## Specific to reasoning

- opportunities to apply reasoning skills are consistently offered across all areas


## Revision

- understanding what more complex charts, tables, tallies and graphs are showing them - collecting own data by asking a question and creating a tally chart
- creating a
block graph to show the results
of their data collection
(stretch to using a scale)
- asking more
complex
questions about simple charts, tables, tallies and graphs

2,5 and $10 \times$ tables (e.g. if you know $3 \times 10=30$, you know $30 \div 10=3$ ). What about this: $30 \div$ ? $=10$ ? - ensure your child has good recall for facts across the Maths curriculum (e.g. counting in $3 s$, doubling, halving, number bonds to 10,20 and 100 , addition and subtraction facts within 20) - it's helpful at this stage for you to allow children to 'go wild' with their Maths trying things out and experimenting within everything they have learned during Key Stage One ready for their next challenge in Key Stage 2! It is important that they are secure with everything in the Key Stage One curriculum so they are prepared for the next 'chapter'!

|  |  |  | -as appropriate <br> after teacher <br> assessment of <br> needs |
| :--- | :--- | :--- | :--- | :--- | :--- |

