Reception Class: Mathematics - We follow the White Rose Scheme of Learning in line with the whole school (identified in purple below)



 patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Skills \& Knowledge

- Develop the key skills of counting objects including saying the numbers in order and matching one number name to each item.
- Say how many there are after counting - for example, "...6, 7, 8 . There are 8 balls" - to help children appreciate that the last number of the count indicates the total number of the group. This is the cardinal counting principle.
- Say how many there might be before you count to give a purpose to counting: "I think there are about 8 . Shall we count to see?"
- Count out a smaller number from a larger group: "Give me seven..." Knowing when to stop shows that children understand the cardinal principle.
- Build counting into everyday routines such as register time, tidying up, lining up or counting out pieces of fruit at snack time.
- Sing counting songs and number rhymes and read stories that involve counting.
- Play games which involve counting
- Identify children who have had less prior experience of counting and provide additional opportunities for counting practice.
- Show small quantities in familiar patterns (for example, dice) and random arrangements.
- Play games which involve quickly revealing and hiding numbers of objects
- Put objects into five frames and then ten frames to begin to familiarise children with the tens structure of the number system.
- Prompt children to subitise first when enumerating groups of up to 4 or 5 objects: "I don't think we need to count those. They are in a square shape so there must be 4." Count to check.
- Encourage children to show a number of fingers 'all at once', without counting.
- Display numerals in order alongside dot quantities or tens frame arrangements.
- Play card games such as snap or matching pairs with cards where some have numerals, and some have dot arrangements
- Discuss the different ways children might record quantities (for example, scores in games), such as tallies, dots and using numeral cards
- Count verbally beyond 20 , pausing at each multiple of 10 to draw out the structure, for instance when playing hide and seek, or to time children getting ready.
- Provide images such as number tracks, calendars and hundred squares indoors and out, including painted on the ground, so children become familiar with two-digit numbers and can start to spot patterns within them.
- Provide collections to compare, starting with a very different number of things. Include more small things and fewer large things, spread them out and bunch them up, to draw attention to the number not the size of things or the space they take up. Include groups where the number of items is the same. - Use vocabulary: 'more than', 'less than', 'fewer', 'the same as', 'equal to'. Encourage children to use these words as well.
- Distribute items evenly, for example: "Put 3 in each bag," or give the same number of pieces of fruit to each child. Make deliberate mistakes to provoke discussion.
- Tell a story about a character distributing snacks unfairly and invite children to make sure everyone has the same.
- Make predictions about what the outcome will be in stories, rhymes and songs if one is added, or if one is taken away.
- Provide 'staircase' patterns which show that the next counting number includes the previous number plus one.
- Focus on composition of 2,3,4 and 5 before moving onto larger numbers
- Provide a range of visual models of numbers: for example, six as double three on dice, or the fingers on one hand and one more, or as four and two with ten frame images
- Model conceptual subitising: "Well, there are three here and three here, so there must be six."
- Emphasise the parts within the whole: "There were 8 eggs in the incubator. Two have hatched and 6 have not yet hatched."
- Plan games which involve partitioning and recombining sets. For example, throw 5 beanbags, aiming for a hoop. How many go in and how many don't
- Have a sustained focus on each number to and within 5 . Make visual and practical displays in the classroom showing the different ways of making numbers to 5 so that children can refer to these.
- Help children to learn number bonds through lots of hands-on experiences of partitioning and combining numbers in different contexts, and seeing subitising patterns.
- Introduce and use Stem sentences which will support current and future learning.

\section*{| Development | $\bullet$ Count objects, actions and sounds. |
| :--- | :--- | \\ Matters}

- Provide high-quality pattern and building sets, including pattern blocks, tangrams, building blocks and magnetic construction tiles, as well as found materials.
- Challenge children to copy increasingly complex 2D pictures and patterns with these 3D resources, guided by knowledge of learning trajectories: "I bet you can't add an arch to that," or "Maybe tomorrow someone will build a staircase."
Teach children to solve a range of jigsaws of increasing challenge.
- Investigate how shapes can be combined to make new shapes: for example, two triangles can be put together to make a square. Encourage children to predict what shapes they will make when paper is folded. Wonder aloud how many ways there are to make a hexagon with pattern blocks.
- Find 2D shapes within 3D shapes, including through printing or shadow play.
Make patterns with varying rules (including AB, ABB and ABBC) and objects and invite children to continue the pattern
- Make a deliberate mistake and discuss how to fix it
- Model comparative language using 'than' and encourage children to use this vocabulary. For example: "This is heavier than that."
Ask children to make and test predictions. "What if we pour the jugful into the teapot? Which holds more?"
- Link the number symbol (numeral) with its cardinal number value.
- Count beyond ten.
- Compare numbers.
- Understand the 'one more than/one less than' relationship between consecutive numbers.
- Automatically recall number bonds for numbers 0-5 and some to 10.
- Select, rotate and manipulate shapes to develop spatial reasoning skills.
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
- Continue, copy and create repeating patterns.
- Compare length, weight and capacity.

| Number | Numerical Patterns |
| :--- | :--- |
| • Count verbally beyond 5. / Count verbally beyond 10. / Count verbally | $\bullet$ Understand the odd and even pattern of numbers up <br> beyond 20. |

- Accurately count items to 5 with one-to-one correspondence. / Accurately count items to 10 with one-to-one correspondence.
- Correctly count sounds and actions, as well as objects.
- Show a secure understanding of the 'cardinal principle' (knows the last number reached when counting tells you the total).
- Subitise up to 3 . / Subitise up to 5 .
- Show 'finger numbers' up to 5
- Link numeral to amounts up to 5. / Link numeral to amounts up to 10
- Can use 'more than' and 'fewer than' to compare quantities.
- Can compare quantities up to 10 and say whether one is greater than, less
than or the same as the other.
- Understand 'one more than/one less than'.
- Solve real-life maths problems with numbers up to 5 .
- Know the total of a larger set by subitising the groups within it and immediately combining them to find the total (conceptual subitising).
- Demonstrate an understanding of the composition of numbers to 5. / Demonstrate an understanding of the composition of numbers to 10.
- Automatically recall number bonds to 5 . / Automatically recall some number bonds to 10
- Apply knowledge of number bonds to recall some subtraction facts to 5 .


## Vocabulary - See White Rose Maths scheme

## Number - Children at $\quad \bullet$ Have a deep understanding of number to 10, including the composition of each number

| Number - Chidren at | - Have a deep understanding of number to 10 , including the |
| :--- | :--- |
| the expected level of | - Subitise (recognise quantities without counting) up to 5 ; |

development will:

## Numerical Patterns

Children at the
expected level of
development will:

- Verbally count beyond 20, recognising the pattern of the counting system
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- Explore and represent patterns within numbers up to 10 , including evens and odds, double facts and how quantities can be distributed equally.

| Term 1 |  | Term 2 |  |
| :---: | :---: | :---: | :---: |
| Week 1/2/3 <br> Getting to know you <br> Opportunities for settling in and getting to know the children. <br> Key times of the day, class routines. Exploring CP. Where do things belong? Positional language. <br> - Baseline Assessments | Week 4/5/6 <br> Just like me! <br> Match and sort <br> Compare amounts <br> Compare size, mass and capacity <br> Exploring pattern <br> - Subitising by showing small quantities in familiar patterns, such as on a dice when playing games \& showing number on fingers without counting. (on going ) <br> - Comparing numbers using vocab more than and fewer than, the same as, equal to by providing collections.(on going) <br> - Continue, copy and create repeating patterns using the rule $A B$ and $A B B$. .(on going) | Week 1/2/3 <br> It's me 12 3! <br> Representing 12 and 3 <br> Comparing 12 and 3 <br> Composition of 12 and 3 <br> Circles and Triangles <br> Positional Language <br> - Count objects, actions and sounds through singing songs and rhymes, playing counting games \& counting a smaller number from a larger group of objects. (on going) <br> - Subitising through recognition of amounts in a Numicon piece and on a 5 frame (on going) <br> - Link the number symbol (numeral) with its cardinal number value through observation of class displays, math's games \& recording in different ways.(on going) <br> - Compare numbers using vocab more than and fewer than, the same as, equal to by providing collections. (on going ) <br> - Select, rotate and manipulate shapes to develop spatial reasoning skills through construction and puzzles. (CP) <br> - Explore the composition of numbers, focus on 2 \& 3 using visual models on a dice, fingers, Numicon pieces etc.(on going) | Week 4/5/6 <br> Light and dark <br> Representing numbers to 5 <br> One more and less <br> Shapes with 4 sides <br> Time <br> - Count objects, actions and sounds through building counting into the daily routine <br> - Subitising (on going) <br> - Link the number symbol (numeral) with its cardinal number value.(on going) <br> - Compare numbers (on going) <br> - Understand the 'one more than/one less than' relationship between consecutive numbers through making predictions in stories, rhymes \& songs if one is added or taken away. (on going) <br> - Explore the composition of numbers to 10.- focus on 2,3,4,\& 5 using visual models on a dice, fingers, Numicon pieces etc. (on going) <br> - Select, rotate and manipulate shapes to develop spatial reasoning skills through construction and puzzles. .(on going) |
| Term 3 |  |  | Term 4 |
| Week 1/2/3 <br> Alive in 5! <br> Introducing zero <br> Comparing numbers to 5 <br> Composition of 4 and 5 <br> Compare mass <br> Compare capacity <br> - Count objects, actions and sounds, saying how many there are after counting to show last number indicates the total.(on going) <br> - Subitising (on going ) <br> - Link the number symbol (numeral) with its cardinal number value. (on going) <br> - Compare numbers (on going) <br> - Understand the 'one more than/one less than' relationship between consecutive numbers. (on going) <br> - Explore the composition of numbers to 10.(on goingP) <br> - Automatically recall number bonds for numbers 0-5 through lots of hands on experiences of partitioning and combining | Week 4/5/6 <br> Growing 678 <br> 678 <br> Making pairs <br> Combining 2 groups <br> Length and Height <br> Time <br> - Count objects, actions and sounds, say how many there might be before counting , giving purpose to counting.(on going) <br> - Subitising (on going) <br> - Link the number symbol (numeral) with its cardinal number value. (on going) <br> - Compare numbers (on going) <br> - Understand the 'one more than/one less than' relationship between consecutive numbers.(on going) <br> - Explore the composition of numbers to 10 introducing a tens frame and beginning to notice how many spaces there are left when placing $6,7 \& 8$ counters (on going) | Week 1/2/3 <br> Building 9 and 10 <br> 9 and 10 <br> Comparing numbers to 10 <br> Bonds to 10 <br> 3D Shape <br> Pattern <br> - Count objects, actions and sounds (on going) <br> - Subitising (on going) <br> - Link the number symbol (numeral) with its cardinal number value .(on going ) <br> - Compare numbers .(on going) <br> - Understand the 'one more than/one less than' relationship between consecutive numbers (on going) <br> - Explore the composition of numbers to 10 .(on going) <br> - Automatically recall number bonds for numbers 0-5 and some to 10.through spotting and using opportunities for children to apply their number bonds | Week 4/5/6/ <br> (Suggested Consolidation) <br> To 20 and beyond <br> Building numbers beyond 10 <br> Counting patterns beyond 10 <br> Spatial Reasoning <br> Match, Rotate, Manipulate <br> - Count objects, actions and sounds. (on going) <br> - Link the number symbol (numeral) with its cardinal number value. (on going) <br> - Count beyond 10 - verbally to 20 and beyond pausing at each 10. Provide images such as number tracks and 100 square .(on going) <br> - Compare numbers (on going) <br> - Understand the 'one more than/one less than' relationship between consecutive numbers. (on going) <br> - Automatically recall number bonds for numbers 0-5 and some to 10 . (on going) <br> - Continue, copy and create repeating patterns. (on going) <br> - Select, rotate and manipulate shapes to develop spatial reasoning skills. (on going) |

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using 5 frames to notice the $\quad$ • Automatically recall number bonds for spaces. numbers 0-5 and some to 10 through lots

Compare weight and capacity through modelling comparative language (on going)
of hands on experiences of partitioning and of hands on experiences.

- Compare length through modelling comparative language (on going)

Continue, copy and create repeating patterns
ABB \& ABBC, making deliberate mistakes for the children to spot

- Select, rotate and manipulate shapes to develop spatial reasoning skills through copying increasingly complex "pictures and patterns with 3D resources.


Term 5

Week 1/2/3
First, then, now
Adding more
Taking away
Spatial Reasoning
Compose and Decompose

- Count objects, actions and sounds. (on going)
- Link the number symbol (numeral) with its cardinal number value. (on going)
- Count beyond 10 (on going)
- Compare numbers (on going)
- Understand the 'one more than/one less than' relationship between consecutive numbers. (on going )
- Automatically recall number bonds for numbers 0-5 and some to 10 . (on going)
- Continue, copy and create repeating patterns. (on going)
- Select, rotate and manipulate shapes to develop spatial reasoning skills. (on going)
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. .(on going)

On the move
Deepening understanding
Patterns and relationships
Spatial Reasoning
Mapping

## - ELG Number

Have a deep understanding of number to 10
including the composition of each number.

- Subitise (recognise quantities without counting) up to 5 .
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10 , including double facts.
ELG Numerical Patterns
- Verbally count beyond 20, recognising the pattern of the counting system
- Compare quantities up to 10 in different
contexts, recognising when one quantity is
greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10 , including evens and odds, double facts and how quantities can be distributed equally.

