

All Saints Catholic Primary School Reception Progression in Mathematics

	Autumn Term	Spring Term	Summer Term
Six Key Areas Early Mathematics Learning			
Counting and Cardinality	<p style="text-align: center;"><u>Counting – Saying number words in sequence.</u></p> <p>Children need to say number names in order, initially to five then 10. (Through counting forwards and backwards in songs and rhymes and counting from different starting points)</p> <p style="text-align: center;"><u>Counting – Tagging each object with one number.</u></p>	<p style="text-align: center;"><u>Counting – Saying number words in sequence.</u></p> <p>Extend saying number names in order forwards and backwards to 20 including crossing the boundary 19/20. (Playing games such as number tennis and counting forwards and backwards from different points)</p>	<p style="text-align: center;"><u>Counting – Saying number words in sequence.</u></p> <p>Extend saying number names in order to 20 including crossing the boundary 29/30. (Playing games such as number tennis and counting forwards and backwards from different points)</p> <p style="text-align: center;"><u>Counting – Tagging each object with one number.</u></p>

Children need lots of opportunities to count things in irregular arrangements. Build on counting with one number each week (or every couple of weeks as numbers progress) up to number 6.

(Ensure children have the opportunity to – Count things of different sizes, count things that can't be seen, count things that cannot be moved).

Counting – Knowing that the last number given is the total so far.

Give children the opportunity to 'count out' the correct amount of objects from a larger group. **(Only ask children to count out the number that you are up to).** (Through collecting / number track games).

Counting – Tagging each object with one number.

Continue to give children the opportunity to count things in irregular arrangements. Build on counting with one number every 2-3 weeks, up to number 10.

(Ensure children have the opportunity to – Count things of different sizes, count things that can't be seen, count things that cannot be moved).

Counting – Knowing that the last number given is the total so far.

Give children the opportunity to 'count out' the correct amount of objects from a larger group. **(Only ask children to count out the number that you are up to).** (Through collecting / number track games).

Continue to give children the opportunity to count things in irregular arrangements up to 10.

(Ensure children have the opportunity to – Count things of different sizes, count things that can't be seen, count things that cannot be moved.)

Counting – Knowing that the last number given is the total so far.

Continue to give children the opportunity to 'count out' the correct amount of objects from a larger group. **(Only ask children to count out the number that you are up to).** (Through collecting / number track games).

Subitising – Recognising a small number without having to count them all.

Continue to give children opportunities to see regular

Subitising – Recognising a small number without having to count them all.

Give children opportunities to see regular arrangements of small quantities and encourage them to say the quantity represented. (Only ask children to subitise to the number you are up to)

Give children the opportunity to recognise small amounts (up to five) when they are not in the 'regular' arrangement.

(using dot cards, dominoes and dice, playing hidden object games, all at once fingers)

Numeral Meanings

Give children the opportunity to match a number symbol to a number of things **up to 6**. (Using numeral dice, tidy up labels, reading number books, matching numbers to objects).

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Continue to give children opportunities to see regular arrangements of small quantities and encourage them to say the quantity represented. (Only ask children to subitise to the number you are up to)

Give children the opportunity to recognise small amounts (up to five and **then 10**)

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(using dot cards, dominoes and dice, playing hidden object games, all at once fingers)

Numeral Meanings

Give children the opportunity to match a number symbol to a number of things up to 10, **then 20** (Using numeral dice, tidy up labels, reading number books, matching numbers to objects).

Conservation

Teach children that the number does not change if things are

	<p style="text-align: center;"><u>Conservation</u></p> <p>Teach children that the number does not change if things are rearranged. Rearrange amounts up to 6 and encourage children to recognise the total does not change.</p> <p>(Correcting a puppet who may say a number that is more or fewer, grouping things in different ways, making different patterns with the same group of objects).</p>	<p>labels, reading number books, matching numbers to objects).</p> <p style="text-align: center;"><u>Conservation</u></p> <p>Teach children that the number does not change if things are rearranged. Rearrange amounts up to 10 and encourage children to recognise the total does not change.</p> <p>(Correcting a puppet who may say a number that is more or fewer, grouping things in different ways, making different patterns with the same group of objects).</p>	<p>rearranged. Rearrange amounts up to 10, then 20 and encourage children to recognise the total does not change.</p> <p>(Correcting a puppet who may say a number that is more or fewer, grouping things in different ways, making different patterns with the same group of objects).</p>
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<p>Comparison</p>	<p><u>More than / less than</u></p> <p>Give children the opportunity to explore groups of objects which have a widely different number of things. (Use amounts of objects only up to the number you are working on)</p> <p>(Through having collections available for children to sort and compare)</p> <p><u>Identifying groups with the same number of things.</u></p> <p>Children should be given the opportunity to see that two groups may have the same amount. Children should check that groups are equal by matching objects on a one-to-one basis.</p> <p>(Use amounts of objects only up to the number you are working on)</p> <p>(Through ensuring that when comparing objects that some groups are equal)</p>	<p><u>More than / less than</u></p> <p>When comparing groups of objects, collections should offer challenges including more small things and fewer large things, to draw attention to the numerosity of comparison. ie. The number of things, not the size of them.</p> <p>(Use amounts of objects only up to the number you are working on)</p> <p>(Through having collections available for children to sort and compare)</p> <p><u>Identifying groups with the same number of things.</u></p> <p>Children should be given the opportunity to see that two groups may have the same amount. Children should check that groups are equal by matching objects on a one-to-one basis. (Use amounts of objects only up to the number you are working on)</p>	<p><u>More than / less than</u></p> <p>When comparing groups of objects, collections should offer challenges including more small things and fewer large things, to draw attention to the numerosity of comparison. ie. The number of things, not the size of them. (Use amounts of objects only up to the number you are working on)</p> <p>(Through having collections available for children to sort and compare)</p> <p><u>Identifying groups with the same number of things.</u></p> <p>Children should be given the opportunity to see that two groups may have the same amount. Children should check that groups are equal by matching objects on a one-to-one basis. (Use amounts of objects only up to the number you are working on)</p> <p>(Through ensuring that when comparing objects that some groups are equal)</p>
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Knowing the one more than /one less than relationship between counting numbers

Give children the opportunity to see the 'one more than, one less than' relationship between sequential numbers and recognise when the quantity does not match the number, e.g labelling a pot with 5 but only putting 4 pencils in, ask the children why it is incorrect and what they need to do.

(Through ensuring that there is a focus on numerosity of a group and making predictions about what an outcome will be if one more is added or taken away from a group in stories, songs and rhymes).

(Through ensuring that when comparing objects that some groups are equal)

Comparing numbers and reasoning

Give children the opportunity to apply their understanding through comparing actual numbers and explaining which is more. For example if one box has 5 sweets and the other has 3, which one would you pick and why. (Through explaining unfair sharing)

Knowing the one more than /one less than relationship between counting numbers

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Comparing numbers and reasoning

Children are to compare numbers that are far apart, near to and next to each other. For example 8 is a lot bigger than 2 but 3 is only a little bit bigger than 2. (Through noticing numbers that are far apart, near to, and next to each other)

		<p>the children why it is incorrect and what they need to do.</p> <p>(Through ensuring that there is a focus on numerosity of a group and making predications about what an outcome will be if one more is added or taken away from a group in stories, songs and rhymes).</p>	
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<p>Composition</p>	<p><u>Part-whole – Identifying smaller numbers within a number.</u></p> <p>Through subitising give children to opportunity to see smaller numbers within a larger collection.- i.e up to 6 this term.</p> <p>Explore all of the ways that a particular number can look. Do this with each new number learnt. i.e up to 6 this term. (Through looking at and making arrangements with objects and</p>	<p><u>Part-whole – Identifying smaller numbers within a number.</u></p> <p>Through subitising give children to opportunity to see smaller numbers within a larger collection.-i.e up to 10 this term.</p> <p>Explore all of the ways that a particular number can look. Do this with each new number learnt. i.e up to 10 this term. (Through looking at and making arrangements with</p>	<p><u>Part-whole – Identifying smaller numbers within a number.</u></p> <p>Through subitising give children to opportunity to see smaller numbers within a larger collection.</p> <p>Explore all of the ways that a particular number can look. Do this with each new number learnt. i.e up to 10 this term. (Through looking at and making arrangements with objects and talking about different</p>
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talking about different arrangement they see within the whole).

Inverse Operations

Give children the opportunity to partition a number of things (**Only up to the number you are working on**) into two groups, and to recognise that those groups can be recombined to make the same total.- **progressively up to 6 this half term**

(Though exploring number songs explaining that the whole is still 5 but some can be taken away, playing skittles)

Numbers can be partitioned into different pairs of numbers

Give children the opportunity to explore a range of ways to partition a whole number **up to 6**. Children need to identify the pairs of numbers that make a total through physically separating a group or constructing a group from two kinds of things.

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A Number can be partitioned into different pairs of numbers

Give children the opportunity to explore a range of ways to partition a whole number **up to 10**. Children need to identify the pairs of numbers that make a total through physically separating a group or

arrangement they see within the whole).

Inverse Operations

Give children the opportunity to partition a number of things (**Only up to the number you are working on**) into two groups, and to recognise that those groups can be recombined to make the same total.- **progressively up to 20 this half term**

(Though exploring number songs explaining that the whole is still 5 but some can be taken away, playing skittles, ppw models)

A Number can be partitioned into different pairs of numbers

		constructing a group from two kinds of things.	
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<p>Pattern</p>	<p><u>Continuing an AB pattern</u></p> <p>Children need the opportunity to see a pattern, to talk about what they can see, and to continue a pattern.</p> <p>(Through looking at an AB pattern and continuing it, saying colour names out loud)</p> <p>Copying an AB pattern</p> <p>Children should be given the opportunity to copy an AB pattern by comparing item by item.</p> <p>(Patterns could include natural objects, shapes of different orientation, actions, varying colour or size).</p> <p>Making an AB pattern.</p> <p>Children should be challenged to change a sample pattern or create their own. (Children might find it start with repeating the same colour but a different object.)</p>	<p><u>Continuing an ABC pattern</u></p> <p>Children should be exposed to and given the opportunity to tackle more complex pattern structure such as ABC, ABB, ABBC, AABB. C</p> <p>(Though continuing a pattern using coloured cubes to build a tower or continuing a pattern on a bead string).</p> <p>Continuing a pattern which ends mid unit</p> <p>Children should be challenged to continue patterns which do not end after a whole unit of repeat.</p> <p>(Through providing a range of patterns both physically and on cards.</p> <p><u>Making their own ABB, ABBC patterns</u></p>	<p><u>Symbolising the unit of structure</u></p> <p>Children should be encouraged to record the patterns that they make. Initially this might be straightforward representations, but over time these recordings may become more iconic, e.g. a red dot representing the red dinosaur, a squiggle or the letter R for red dinosaur.</p> <p>(Including the following phrasing in discussion and dialogue: 'This is a red blue pattern; this/that; I call it an A (one of these) then a B (one of those).' Constructing patterns with actions and developing symbols to show that pattern and to provide 'instructions' for someone else to follow the pattern)</p> <p><u>Generalising structures to another content or mode.</u></p>
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Spotting an error in an AB pattern

Children need opportunities to spot and correct errors.
(Through adding an extra item, missing an item or swapping items around).

Identifying the unit of repeat
Children need the opportunity to identify the smallest part of the pattern, or the 'unit of repeat'.

(Through picking up a unit at a time, e.g. a blue block and a red block together, and describing this as a 'red-blue pattern', rather than a red, blue, red, blue, red, blue pattern).

Children should be provided with a range of objects to make their own repeated pattern. Children should be given the opportunity to repeat the unit at least 3 times, make a specified pattern, choose their own rule and choose their own actions or sounds.

(Through utilising a range of items in the environments and creating patterns on peg boards).

Spotting an error in an ABB pattern

Children need opportunities to spot and correct errors.
(Through adding an extra item, missing an item or swapping items around).

Children should use their previous knowledge of patterns to create a pattern in a different medium, which follows the same structure.

(Through providing a range of experiences where children can create a pattern using a coding structure. Ensuring children can follow the patterns they have coded).

Making a pattern which repeats around a circle.

Children should be given the opportunity to investigate if patterns can continue indefinitely in a circle.

(Through making circular patterns such as necklaces or linking elephants, give children a circular shape such as a paper plate to create a border)

Making a pattern around a border with a fixed number of spaces.

Children should be given the opportunity to explore creating a pattern around a given space. In

			<p>these sorts of activities, children have the additional challenge of recognising if their pattern can ‘work’ – fit into the given space. (Through creating borders around defined spaces in the learning environment).</p> <p>Pattern spotting around us Look for opportunities to spot and study patterns in the environment. (Through looking at wallpaper patterns and patterns on fabric, looking out for patterns in stories, songs and rhymes and where possible, representing these diagrammatically).</p>
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Shape and Space	<p><u>Developing special awareness: developing different viewpoints.</u></p> <p>Children need opportunities to move both themselves and objects around, so they see things from</p>	<p><u>Developing special awareness: developing different viewpoints.</u></p>	<p><u>Developing spatial vocabulary.</u></p> <p>Continue to expose children to and use the language of</p>
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different perspectives. This will support them in visualising how things will appear when turned around and imagining how things might fit together.

(Through play with contraction , jigsaws, making a person with shapes, making a pattern with shapes, directing a remote controlled vehicle along a route)

Developing spatial vocabulary.

Continue to expose children to and use the language of position and direction:

position: 'in', 'on', 'under'
direction: 'up', 'down', 'across'.

(Through hunting for objects with prompts, developing and talking about small world scenarios)

Shape Awareness: developing shape awareness through construction.

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Developing spatial vocabulary.

Continue to expose children to and use the language of position and direction and give opportunities to use terms which are relevant to view point e.g forwards, backwards, in front, behind'.

(Through negotiating routes and directing robots)

position and direction and give opportunities to use terms which are relevant to view point e. forwards, backwards, in front, behind' and introduce left and right.

(Through negotiating routes and directing robots)

Representing spatial relationships.

Children should be challenged with drawing representations of these relationships. These drawings may include a simple representations of a three-dimensional object from a different viewpoint.

(Through drawing or making a simple map of a route with landmarks or designing a plan for a garden or play area).

Shape Awareness: developing shape awareness through construction.

attributes of particular shapes, and to select shapes to fulfil a particular need.

(Through construction with structured and unstructured materials, making dens with various materials outdoors).

Identifying similarities between shapes

Continue to opportunities to construct and create things that represent objects in their environment.

(Through using stories as prompt for creating representations, making pictures with found materials as well as structured shapes and blocks).

Describing properties of shape

When constructing with or exploring shapes, children should be informally asked about their constructions and representations. Encouraging them to describe the properties of shape.

Shape Awareness: developing shape awareness through construction.

Continue to provide opportunities for children explore shapes, the attributes of particular shapes, and to select shapes to fulfil a particular need.

(Through construction with structured and unstructured materials, making dens with various materials outdoors).

Showing awareness of properties of shape

Children should show increasing intentionality in their selection of shapes, for example using cylinders to represent wheels because they can roll. Draw children's attention to specific properties by using specific language in everyday situations.

(Through referring to properties such as curvedness,

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(Through referring to properties such as curvedness, numbers of sides, corners (2D) or edges, faces and vertices (3D), equal sides, parallel sides, angle size, including right angles, 2D shapes as faces of 3D shapes

	<p>Introduce shapes more formally for each number or the week eg. 1- circle, 2- half circle, 3- triangle, 4 square etc.</p>	<p>numbers of sides, corners (2D) or edges, faces and vertices (3D), equal sides, parallel sides, angle size, including right angles, 2D shapes as faces of 3D shapes when children are choosing items for construction)</p> <p><u>Describing properties of shape</u></p> <p>When constructing with or exploring shapes, children should be informally asked about their constructions and representations. Encouraging them to describe the properties of shape.</p> <p>Introduce shapes more formally for each number or the week eg. 1- circle, 2- half circle, 3- triangle, 4 square etc.</p>	<p>when children are choosing items for construction)</p> <p><u>Developing an awareness of relationships between shapes.</u></p> <p>Encourage children to spot shapes within shapes. You might talk about small triangles making a bigger triangle or identifying 2D faces of 3D shapes.</p> <p>(Through use of pattern blocks, using 2D shapes to make 3D models, making decorations by folding and cutting).</p>
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Measures

Recognising attributes

Continue to recognise the specific attributes of (for example) length – that a stick is long; adults are tall. Adults can seek opportunities to extend and refine conversations about things that are long, tall, high, heavy, full, etc. rather than just 'big'.

(Through ensuring adults model specific language, dough modelling which gives opportunity to discuss lengths and weights, water and sand play which give opportunities to talk about capacity)

Comparing amounts of continuous quantities

Children compare sizes, lengths, weights and capacities verbally and begin to use more specific terms, such as 'taller than', 'heavier than', 'lighter than', and 'holds more than', as well as more general comparative

Showing awareness of comparison in estimating and predicting

Children should begin to estimate and to predict. For instance, they can start to consider which container would be best to store a specific item in: 'Which box should Teddy have?', 'What will fit in here?'

(Through activities such as making the correct sized bed for a teddy using block, finding objects that would fit inside a match box).

Comparing indirectly

Children should move onto using one thing to compare with two others, if, for example, asked to put things in order of height, weight or capacity.

(Through posing problems such as 'Do you think this table will fit through the door?', Packing a shopping bag making sure the lightest items don't get crushed by heavier things).

Beginning to use units to compare things

Children should be provided with the opportunity use units to 'measure' and compare. It is better to provide identical bricks, centimetre cubes or metre sticks so they can count physical units. (up to 10)

(Through setting up a 'filling station', using a metre stick to see if a dinosaur would fit in the room, using cubes to measure the height of a sunflower).

Beginning to use time to sequence events

Children's attention should be drawn to sequencing of activities, important times in their day, and some sequences of time that are significant to them. Vocabulary that supports the understanding of this concept includes the positional

phrases, such as 'not enough', 'too much', and 'a lot more'.

(Through encouraging children to compare different attributes in everyday situations, cutting a piece of ribbon and asking children to find items that are longer or shorter, finding the odd one out, posing see saw problems).

Recognising the relationship between the size and number of units

Continue to compare units of different sizes in practical contexts. One example may be in the water tray, where children realise it will take them longer to fill a bucket using teaspoons than bottles. Another example would be to fill identical containers with different-sized objects, e.g. small cubes or large cubes.

(Making an estimation station, deciding which cutters will make the most biscuits, choosing a selection of spoons and ladles to see who can fill a container the quickest).

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language of 'before', 'after', 'next', and the relative terms 'yesterday' and 'tomorrow'.

Knowing days of the week also helps children to keep track of time. Direct children's attention to the short hand, pointing to a number on a clockface, and identify what we are doing at that time.

(Through drawing children's attention to the day during calendar time and also to the day, month and time (o'clock) when introducing each new number wall, looking at our daily timetable).

Beginning to experience specific time durations

Children need to experience specific time spans in order to start to develop an overall sense of time. Initially, this may be based on familiar activities such as the number of 'sleeps' before an event.

(Through counting down to events on the class calendar,

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