Reception Maths Medium Term Plan – Summer 2

How is Maths taught in Reception?

Self registration – children add picture to tens frames. How many children are here? How many children are away?

Date – days of the week song, count up to the date number.

Daily nursery rhymes – number links

Daily Maths lesson – Review, Teach, Practise in groups, Apply
3x Number
2x Shape, Space, Measures

Number Sense – 5 mins daily

Maths opportunities within the environment as part of continuous and enhanced provision

Mathematics

Number

Have a deep understanding of number to 10, including the composition of each number.	Subitise (recognise quantities without counting) up to 5. 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.		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.

Numerical Patterns

	Making a pattern which repeats around a circle Making a pattern around a border with a fixed number of spaces Continue, copy and create repeating patterns		Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	

Spatial Awareness

Reception Maths Medium Term Plan – Summer 2

I can understand and use positional language. Use time to sequence events		Beginning to use non-standard units of measure to measure and compare things	Beginning to use non-standard units of measure to measure and compare things	Name and describe some familiar 2D and 3D shapes. 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.

Week	Focus Skills and Knowledge	Link to End of Year Objectives	Possible activities	Enhancements	Key vocabulary
1	Have a deep understanding of number to 10, including the composition of each number. I can understand and use positional language. Use time to sequence events	Have a deep understanding of number to 10, including the composition of each number.			one, two, three, four, five, six, seven, eight, nine, ten 1,2,3,4,5,6,7,8,9,10 ten frame count how many? total altogether count forwards/backwards same, different odd one out more, fewer group in, on, below, under up, down, across difference left, right above in front of, behind, next to, forwards, backwards

			Spatial Reasoning (4)		

Spatial Reasoning (4)

Guidance

The children understand that we can make maps and plans to represent places and use these to see where things are in relation to other things.
Provide a range of maps and plans for the children to look at and discuss. What can they see on the map? Where would we put the carpet area on a map of our classroom? Provide opportunities for them to create their own maps to represent the models they build, familiar places and places in stories.

Other Resources

The Secret Path – Nick Butterworth
Me on the Map – Joan Sweeney
Little Red Riding Hood – Traditional
If I Built a House – Chris Van Dusen
In Every House on Every Street – Jess Hitchman
Once Upon a Time Map Book – B.G. Hennessy

Prompts for Learning

Show the children some different maps, lots of books have maps of the story settings. What can they see on the maps? Which map do they like best? Why do we need maps? Can they draw their own map of the places in the story? Could they change the story and design a new map? What if Little Red Riding Hood didn't go to Grandma's house?

Ask the children what they pass on the way to school. Can they draw a simple linear map to show their home, their street, the school and some of the landmarks they pass on the way? What do they pass first, next etc.

Provide a large piece of paper in the shape of the classroom with the doors and windows already marked on. Explain that you are going make a map of the classroom. Have some simple pictures to represent the classroom items. Ask the children to discuss where to place them on the map.

2

Subitise (recognise quantities without counting) up to 5.

Verbally count beyond 20, recognising the pattern of the counting system.

Making a pattern which repeats around a circle
Making a pattern around a border with a fixed number of spaces
Continue, copy and create repeating patterns

Subitise (recognise quantities without counting) up to 5.

Verbally count beyond 20, recognising the pattern of the counting system.

Counting Patterns Beyond 10

Guidance

Provide regular opportunities for children to count on and back beyond 10. Representations and numerals can support children to count on and back and notice the repeating 1-9 patterns. Provide representations which clearly show the full 10s and the part of 10, for example 14 is one full ten and four. Encourage the children to count on or back from different starting points, to say what comes before or after a given number and to place sequences of numbers in order. You can also challenge them to find larger numbers on number tracks and 100 squares.
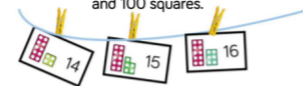
Other Resources

Numberblocks Series 3 Tween Scenes
A Dozen Ducklings Lost and Found – Harriet Ziefert
20 Big Trucks in the Middle of the Street – Mark Lee
1 is a Snail, 10 is a Crab – April Sayre & Jeff Sayre
Peg + Cat – The Teens

Prompts for Learning

Daily counting routines and games provide many opportunities to count regularly beyond 10. The children love to correct puppets who make counting errors.
I Count, You Count is a game which can be used to practise counting on from different starting points. Begin by counting as you point to yourself. When you point to the children they continue the count. This is great for creating rhythmic patterns and can be extended to more than one group of children:
4 5 6,   7, 8, 9,   10, 11, 12,   13, 14, 15
3, 4, 5, 6,   7, 8, 9, 10,   11, 12, 13, 14
12, 11, 10,   9, 8, 7,   6, 5, 4,   3, 2, 1

Provide a set of towers to 20 with one tower missing. Ask the children to order the towers to identify which one is missing. Can they make the missing tower?

Counting Patterns Beyond 10

Maths Area
Provide a set of birthday cards for different ages. Ask the children to peg the cards onto a washing line in ascending and descending order. Ask them to close their eyes whilst you make one change. Can they spot what is wrong?

Race to 20 (and Beyond)
Provide a number track for each child. Children take turns to roll a dice. If they roll 1-5, they collect the corresponding counters to fill their track. If they roll a 6 they miss a turn.

Enhancements to areas of learning

Snakes and Ladders
Show the children how to play the game. Encourage them to count on using the numbers on the board. For example, if they start on 23 and roll a 4, they count 24, 25, 26, 27. They can also use the board to race to find a given number.
E.g. Who can be first to find 72?

Bingo
Have sets of numerals from 11 to 20 and corresponding pictorial representations. Ask the children to choose 4 picture cards each. Hold up the numeral cards one by one. If the children have a matching picture they place a counter on their card. The first player to cover all their cards wins.

Pattern (2)

Art
Show examples of objects, wallpaper or fabric showing patterns from different cultures or traditions. Encourage the children to discuss and recreate the patterns and then to design their own patterns in a similar style.

Enhancements to areas of learning
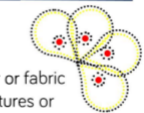
Loose Parts
Provide the children with a range of loose parts such as buttons, beads, pebbles, shells, or seeds. They can use these to create a variety of different patterns. You can add variety by providing wavy lines, spirals and zig-zags for them to build their patterns along.

Outdoors
Go on a walk around the school grounds and ask the children to hunt for natural objects to make their patterns such as long sticks, short sticks, dandelions, daisies, leaves, pebbles etc. They could arrange their patterns in straight lines or around the edge of a hoop to create a circular pattern.

Dough
Use 3-D shapes to press patterns into the dough. Can their friends tell which shapes they used and copy the patterns?
They can also make patterns on the dough using loose parts such as shells, stones, beads or buttons.

eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty
11,12,13,14,15,16,17,18,19,20
count/count on/count back
forwards, backwards
represent/show
more, less, fewer
how many?
altogether
largest/smallest

next
continue
repeat
unit of repeat
cube
round
pattern
size
shape

Digging Deeper

How Many is 100?

Prepare collections of objects, some with exactly 100, some with fewer and some with more.
Challenge the children to guess which sets have exactly 100 items.
Once they have made their guess, they can check by arranging the objects onto ten 10 frames. Are they surprised?
They might also like to make their own collections of 100

Encourage the children to investigate 100 in different ways:
How far can you travel in 100 steps?
How long would a paper chain with 100 links be?
How tall is a tower of 100 linking cubes?

(Building the paper chain and tower in 10s, changing the colour after each set of 10, makes it easier to keep track of the ten 10s)

Pattern (2)

Guidance

Build on the children's earlier AB pattern work by introducing more complex patterns. The children explore patterns which use items more than once in each repeat for example ABB, AAB, AABB, AABBB.
Again it is important that each pattern you model has at least three full units of repeat. The more units of repeat, the easier it is to identify and continue the pattern.
Encourage the children to say each pattern aloud and to create patterns around the edge of shapes as well as in straight lines.

Other Resources

Pattern Bugs – Trudy Harris
Pattern Fish – Trudy Harris
Busy Busy Busy – Haneul Ddang
We Will Rock You – Queen (clapping pattern)
Go Noodle – Banana Banana Meatball

Which Holds the Most?

Provide a set of containers in a range of different sizes and shapes. Ask the children to predict how many cubes each container will hold. Fill the containers using cubes and then tip them out to find how many.
Instead of counting in ones, encourage the children to arrange the cubes into ten frames to see how many full tens they have and how many ones.

Key Questions

How many cubes do you think will fit inside this container?
Do you think this one will hold more or this one?
Do tall containers always hold more cubes?
What could we do to help us remember how many cubes each container held?
Which container holds the most cubes?
Can you arrange the containers in order from smallest to largest?

Prompts for Learning

Provide opportunities for the children to describe, continue and copy patterns including movement patterns along a line or around a circle: stand, sit, stand, sit, stand, sit
Hands on head, hands down, hands on head, hands down
Arms up, arms out, arms down, up, out, down etc.

Show the children an AB pattern and a similar AAB pattern and ask them to tell you what they notice.
What is the same and what is different?

Repeat with a similar ABB pattern. What is different this time?

Introduce patterns with a deliberate error. This could include an extra item, a missing item or a muddled unit of repeat. Can the children identify the mistake and put it right?

colour
bigger
smaller
same
different
tall
short
stripes
squares

Reception Maths Medium Term Plan – Summer 2

| 3 | Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.

Beginning to use non-standard units of measure to measure and compare things | Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. | **Power Maths Unit 19 – Sorting (use in the context of sorting numbers)** | | sort
group
same
different
odd one out
size, shape, colour, pattern
how many?
more than
describe
explain

full, nearly full, not full, half full
empty, nearly empty, half empty
more, most
less, least
nothing, none
same, equal
fill, pour, empty
measure
check
compare
long, longer, longest
short, shorter, shortest
length, height
heavy, heavier, heaviest
light, lighter, lightest
weight |

Digging Deeper

How Many Did I Add?

Count out 5 cubes. Ask the children to check how many there are and ensure everyone knows that there are 5
Cover the cubes with a cloth. Then, add a hidden amount of cubes to the cubes under the cloth.

Show the children how many cubes there are now. Challenge them to work out how many cubes you added. Encourage them to represent the cubes with their fingers, counters or a picture.

This activity can also be used for subtraction. Ensure the children know how many cubes there are at the start. Cover them up and this time take some cubes out. Uncover the remaining cubes and ask them to work out how many cubes you removed.

Compare Size, Mass & Capacity

Guidance
The children learn that objects can be compared and ordered according to their size.
Encourage the children to use language such as big and little, large and small to describe a range of objects in the classroom. More specific language such as tall, long and short could also be introduced. Encourage children to compare and order objects by size in the different areas of provision and to use the vocabulary to explain what they notice.

Other Resources
Where's My Teddy - Jez Alborough
It's The Bear - Jez Alborough
Dear Zoo - Rod Campbell
A New House for Mouse - Petr Horacek
Mr Big - Ed Vere
My Cat Likes to Hide in Boxes – Eve Sutton

Key Questions

How many cubes did we have at the start?
How many cubes do we have now?
Do we have more cubes or fewer cubes now?
How many cubes did I add/takeaway?
How did you work it out?
Can you represent what we did using the counters?
Can you draw a picture to show what we did?

Pirate Treasure

Pick a number card and count out the corresponding number of gold coins. One player covers their eyes whilst the second 'steals' some of the coins, hiding them in their hand.
The first player then has to work out how many coins have been stolen.

Prompts for Learning
Start by showing the children a mystery box. This could be very small or very large or very tall and thin.
Ask the children to predict what could be inside.
Could they fit inside the box? Why not?
What else could or could not fit into the box?
Compare to a contrasting shaped/sized box.

Prepare a picnic basket for a teddy bear's picnic. Include plates, cups, spoons, hats, napkins etc. of two different sizes. You will also need 2 bears - a big bear and a little bear. Unpack the basket and discuss which size item would be best for which size bear.

Hide a selection of large balls and small balls around the outside area. Ask the children to go on a ball hunt and collect all the balls they find. What do they notice? Can they sort the balls into 2 buckets – large balls and small balls? Which balls are easier to catch and which are harder?

Deepening Understanding

Construction Area
Show the children some photographs of bridges and talk about what they notice. Encourage the children to work together to build the longest bridge they can. How will they measure it? What about the strongest bridge? How could they measure it's strength?

Water Area
Provide a range of different sized and shaped containers and some pebbles. Ask the children to half-fill their containers with water. What happens to the water if they add pebbles to their container? How many pebbles will they need to add to make the container overflow like Mr Archimedes' bath?

Compare Size, Mass & Capacity

Modelling
Ask the children to create homes or containers for different sized soft toys or small world creatures. What size and shape will they need for an elephant? A giraffe? A mouse? Can their friends guess who is inside?

Sand and Water
Provide equipment in 2 distinct sizes. For example, a big bucket and a little bucket, a tall jug and a short jug.
Encourage the children to compare the objects and to explore how many scoops each will hold. They could also count how many large scoops and how many small scoops a container will hold.

Water Area
Ask the children to make boats out of a given material such as tin foil or modelling clay. How many marbles will their boat hold whilst staying afloat? Whose boat will hold the most marbles? Could they adapt their design so their boat holds more marbles?

Outdoors
Challenge the children to solve problems on a large scale: The playground is a crocodile-infested swamp! How could we rescue teddy without putting our feet on the ground? Can you build a shelter to keep everyone dry? How could we fill the bucket with water when all of our containers have holes? Which team can fill their bucket first?

Outside
Set up an area where the children can dig and provide large and small spades and garden trowels. You can also provide different sized containers for the children to fill and empty. Which containers are the easiest to carry? Wheelbarrows might also prove popular!

Enhancements to areas of learning

Construction
Encourage the children to build using long and short blocks. Which type of blocks will they choose for their models? Is it easier to build a road using long or short blocks? Can they build a long road and a short road, a tall tower and a short tower. Which type of block will balance on its end most easily?

| 4 | Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

Beginning to use non-standard units of measure to measure and compare things | Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally | | | double, equal doubling more, same, different, continue, pattern, next how many? altogether count more, less, fewer amount half, halving, share unequal, unfair odd, even pair

full, nearly full, not full, half full empty, nearly empty, half empty more, most less, least nothing, none same, equal fill, pour, empty measure check compare long, longer, longest short, shorter, shortest length, height heavy, heavier, heaviest light, lighter, lightest weight |

Even and Odd

Guidance

The children begin to understand that some quantities will share equally into 2 groups and some won't. They may also notice that some quantities can be grouped into pairs and some will have one left over. Provide opportunities for them to explore these ideas in different contexts as they play and to talk about what they notice.

Encourage the children to notice the odd and even structure on the number shapes and by building pair-wise patterns on the 10 frames.

Other Resources

Numberblocks Series 2 Episode 11 Odds and Evens
One Odd Day – Doris Fisher
Pete the Cat and the Missing Cupcakes – James Dean
Underwater Counting – Jerry Pallotta
10 Fat Sausages song

Digging Deeper

Odd and Even

Ask all the children to collect an odd number of cubes.
Ask them to check each others and compare the different quantities.
Are all the quantities odd? How could you check?

Now ask the children to collect one more cube and add it to their set.
How many do you have now?
Do you still have an odd number of cubes?

Ask the children to continue adding one more cube and to discuss what they notice.

What is the largest odd number you can build?
How can you check that it is odd?

Compare Size, Mass & Capacity

Guidance

The children learn that objects can be compared and ordered according to their size.
Encourage the children to use language such as big and little, large and small to describe a range of objects in the classroom. More specific language such as tall, long and short could also be introduced.
Encourage children to compare and order objects by size in the different areas of provision and to use the vocabulary to explain what they notice.

Other Resources

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It's The Bear - Jez Alborough
Dear Zoo - Rod Campbell
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Prompts for Learning

Ask 5 children to come to the front. Can we group the children into pairs? Does everyone have a partner? Why not? What could we do to solve this problem?

Investigate with other quantities of children. Encourage the children to notice that sometimes we can make even pairs and sometimes there is an odd one left out.

Encourage the children to investigate whether small quantities are odd or even by sharing into 2 groups and by making pairs. Prompt them to recognise that sometimes there is one left over.

6 in 2 equal groups   6 in groups of 2 (pairs)

Ask the children to build pair-wise patterns on the 10 frames and sort them into those which have two equal groups (even numbers) and those which have two unequal groups (odd numbers).
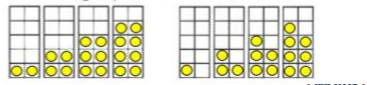
Find Half

Provide 2 teddies and plates and a selection of items for halving. Ask the children to explore which quantities will halve exactly into 2 equal groups and which will have one left over.
If you have 6, can you give both teddies the same? What about if you start with 5?
Are these even or odd numbers? How do you know?
Encourage the children to draw pictures to record their findings.

Make Equal Groups

This time keep 12 items to share each time but vary the number of teddies and plates.
Ask the children to explore sharing the 12 items into equal groups so that each teddy gets the same.
If there are 2 teddies will they each get the same?
How many are in each group?
Are there any items left over?
What about 3 teddies? 4 teddies? 5 teddies?

Compare Size, Mass & Capacity

Prompts for Learning

Start by showing the children a mystery box. This could be very small or very large or very tall and thin.
Ask the children to predict what could be inside.
Could they fit inside the box? Why not?
What else could or could not fit into the box?
Compare to a contrasting shaped/sized box.

Prepare a picnic basket for a teddy bear's picnic. Include plates, cups, spoons, hats, napkins etc. of two different sizes. You will also need 2 bears - a big bear and a little bear. Unpack the basket and discuss which size item would be best for which size bear.

Hide a selection of large balls and small balls around the outside area. Ask the children to go on a ball hunt and collect all the balls they find. What do they notice? Can they sort the balls into 2 buckets – large balls and small balls? Which balls are easier to catch and which are harder?

Even and Odd

Maths Area

Provide pots of items containing quantities from 1 to 10 Ask the children to count the items in each pot and decide if there is an odd or an even quantity. How could they check? They could also make odd and even collections of their own.

Feely Bag

Place the number shapes into a bag. Ask the children to feel inside the bag and find an odd number. How did they know it was odd? Can they find an even number? Can they sort the number shapes into odd and even? Can we line them up to see the odd, even, odd, even pattern as we count?

Enhancements to areas of learning

Outdoors

Ask the children to get into pairs ready for a game. Are they able to do this?
Does that mean that there are an even number or an odd number of players?
If there are an odd number of players, how could the problem be solved?

Art Area

After reading One Odd Day, encourage the children to create their own odd and even pictures. Look at the pictures together. Is this an odd or an even picture? How do you know? Encourage the children to talk about the pictures. How many odd or even features can they spot?

Compare Size, Mass & Capacity

Modelling

Ask the children to create homes or containers for different sized soft toys or small world creatures. What size and shape will they need for an elephant? A giraffe? A mouse? Can their friends guess who is inside?
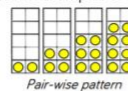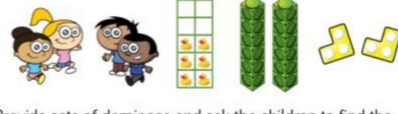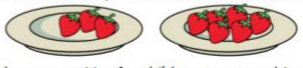
Enhancements to areas of learning

Outside

Set up an area where the children can dig and provide large and small spades and garden trowels. You can also provide different sized containers for the children to fill and empty. Which containers are the easiest to carry? Wheelbarrows might also prove popular!

Sand and Water

Provide equipment in 2 distinct sizes. For example, a big bucket and a little bucket, a tall jug and a short jug.
Encourage the children to compare the objects and to explore how many scoops each will hold. They could also count how many large scoops and how many small scoops a container will hold.

Construction

Encourage the children to build using long and short blocks. Which type of blocks will they choose for their models? Is it easier to build a road using long or short blocks? Can they build a long road and a short road, a tall tower and a short tower. Which type of block will balance on its end most easily?

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. Name and describe some familiar 2D and 3D shapes. 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.	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.			double, equal doubling more, same, different, continue, pattern, next how many? altogether count more, less, fewer amount half, halving, share unequal, unfair odd, even pair roll, stack curved, straight, round corners, face, edge, sides square, rectangle, triangle, circle sphere, cube, cuboid, cylinder, cone big, little, flat, pointy fold, cut compose, decompose, make

Doubling

Guidance

The children will learn that double means 'twice as many'. They should be given opportunities to build doubles using real objects and mathematical equipment. Building numbers using the pair-wise patterns on 10 frames helps the children to see the doubles. Mirrors and barrier games are a fun way for children to see doubles as they build and to explore early symmetry. Encourage children to say the doubles as they build them, e.g. Double 2 is 4. Provide examples of doubles and non-doubles for the children to sort and explain why.

Pair-wise pattern

Other Resources

Double Trouble - Nrich
This is the Story of Alison Hubble - Allan Ahlberg
Two of Everything – Lilly Hong
Double Dave - Sue Hendra
Double the Ducks – Stuart J Murphy
Numberblocks Series 2 Episode 9 - Double Trouble

Sharing and Grouping

Guidance

The children will probably already have some experience of sharing and will be quick to point out when items are not shared fairly. During snack time or group activities, encourage them to check that the items are shared equally and that everyone has the same. The children should also be given opportunities to recognise and make equal groups. For example can you put 3 crackers on each plate or plant 2 flowers into each pot. What groups do they notice on a bead string? The children will notice that sometimes there are items left over when they share or group. Encourage them to come up with their own suggestions for how to resolve this.

Other Resources

The Doorbell Rang - Pat Hutchins
Nrich – Maths Story Time
The Gingerbread Man - Traditional
Bean Thirteen - Matthew McElligott
One Hungry Cat – Joanne Rocklin
Ness the Nurse - Nick Sharratt

Power Maths Unit 17 – Shape

Prompts for Learning

Allow the children to explore different ways to build doubles using real objects and practical equipment.

Provide sets of dominoes and ask the children to find the doubles. Show the children how to play dominoes and look at the doubles they make as they play.

Play Match my Quantity
The children sit opposite each other in pairs with a barrier between them and a collection of small items such as pebbles or cubes. One child sets out a quantity. They show their partner quickly and then hide again. Their partner matches the quantity. Then the barrier is removed. Check - Is it a double? Which double have we made?

Play Doubles
The children take turns to roll 2 dice. They score a point each time they roll a double. The first to reach 3 points wins the game.

Prompts for Learning

Show the children a bowl of strawberries. Explain that you are going to share them into 2 equal groups so there will be half for you and half for your friend. Put a handful straight onto each plate without counting – make sure that one plate clearly has more strawberries than the other. Ask the children if it is fair. Prompt them to show you how to share the strawberries fairly. What if another friend arrives?

Provide opportunities for children to group objects in different contexts.
Can they give each gingerbread man 3 buttons?
Can they give each child 5 carrot sticks during snack.
Can they arrange their pebbles into groups of 2?
What about groups of 3?

Provide opportunities for the children to share items equally. They could share out the cards or dominoes before playing a game. Prompt the children to notice that sometimes they can make equal groups and sometimes they have items left over.

Doubling

Maths Area
Play snap or matching pairs games using pictorial playing cards or dot cards. Encourage the children to say the doubles as they make them. The person with the most doubles or pairs of cards at the end wins the game.

Art Area
Provide large paper with a fold down the middle. Encourage the children to make doubles by adding blobs of paint to one side of the paper only. Then fold the paper over to make the double. Can they predict how many blobs of paint there will be altogether if they start with 3 blobs?

Outdoors
Have number shapes hidden around the outdoor area. Give each child a number shape and ask them to find another one the same to make a double. Encourage them to say the double they have found, e.g. Double 5 is 10

Finger Gym
Provide ladybird or butterfly templates and ask the children to use the tweezers to make doubles by adding the same number of pompoms to each side. How many different doubles can they make? Can they make one which is not a double and tell you why?

Enhancements to areas of learning

Sharing and Grouping

Snack
Encourage the children to sit with their friends in small groups for snack or have a picnic outside. Provide quantities of food that can be shared onto their plates. For example a box of raisins, a handful of crackers, some sticks of carrot or slices of banana.

Small World
Ask the children to make groups using the small world animals. Can they make groups of 2? What happens if they make groups of 3? Can they make more groups of 2 or more groups of 3?

Funky Fingers
Provide some threading beads or coloured pasta and encourage the children to thread the items in groups to create a necklace. Do all of the necklaces have equal groups? Compare the necklaces. What's the same? What's different?

Teddy Bear Picnic
Provide teddy bears, plates and small quantities of loose parts for representing different food items. Ask the children to share out the loose parts fairly so that each teddy gets the same. Are there any items left over? What will happen if another teddy joins the picnic?

Enhancements to areas of learning

Spatial Reasoning (2)

Maths Area
Provide a set of Cuisenaire rods. How many different ways can the children arrange the rods to build a square? Can they make another square the same size using different rods? How do they know they are square? What do they notice about the rods as they build?

Maths Area
Provide some paper rectangles, squares and triangles. Encourage the children to predict which new shapes will be made if the shapes are folded or cut in different ways and then investigate to see.

Grandpa's Quilt
Ask each of the children to design one square using different shapes. Put all of the individual squares together to make a new quilt for Grandpa. Can we arrange the squares to make a long thin rectangle, a short fat rectangle?

Enhancements to areas of learning

Carpet Area
Provide an outline of a 6 by 6 square for each child and some number shapes. Children take turns to roll a dice and select the corresponding number shape which they place in their square. The winner is the first player to fill their square exactly.

Reception Maths Medium Term Plan – Summer 2

Spatial Reasoning (2)

Guidance

Children understand that shapes can be combined and separated to make new shapes. Provide opportunities for the children to fit shapes together and break shapes apart and to notice the new shapes they have created.

Investigate how many different ways a given shape can be built using smaller shapes.
Encourage the children to explore the different shapes they can make by combining a set of given shapes in different ways.

Other Resources

Grandpa's Quilt – Betsy Franco
Jack and the Flumflum Tree – Julia Donaldson
Pezzettino – Neo Lionni
Shape puzzles & Tangrams
Pattern blocks & Cuisenaire rods

Digging Deeper

Triangles

Provide a set of pattern blocks or similar and challenge the children to build as many different triangles as they can. Who can build the largest triangle? The smallest?

How many different ways can they find to build the same sized triangle? (Cardboard templates with a cut out triangle for the children to fill will provide support)

Stars

Provide a set of pattern blocks or similar and a cut out star template. Challenge the children to find different ways to build a star. Encourage them to talk about the shapes they choose and what they notice. How many ways can they build a star using the same shape? Using different shapes?

Prompts for Learning

Show the children 2 identical right-angled triangles which have been made by cutting a rectangle in half diagonally. How many new shapes can they make by fitting the triangles together? Can they make shapes with 3 sides? With 4 sides? Can they make a rectangle again? A tall thin triangle? A short fat triangle? What if they had 4 right-angle triangles?
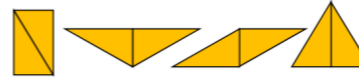
Using square tiles or pieces of card, how many different squares and rectangles can they build?
How many tiles do they need for the smallest possible rectangle? Can they build a long thin rectangle? A short wide rectangle?
How many tiles do they need to build a larger square? How do they know it is a square?

Key Questions

Can you make a triangle using the blocks?
Can you make a different triangle? Why is it different?
Can you build a larger/smaller triangle than this one?
How many blocks did you use?
Can you make a triangle using 2 blocks?
3 blocks? 4 blocks?
Is there more than one way to do this?

What other shapes can you build?
Can you make them in more than one way?

Tangrams

Encourage the children to explore the different arrangements and shapes they can build using a tangram.
Can they use some of the pieces to make a triangle?
Can they join some of the pieces to build a square?
Is there more than one way to do this?

Digging Deeper

Build it

Provide a set of pattern blocks or similar and picture templates.
The children can progress from matching shapes with coloured pictures, to pictures with outlines only. They will need to look carefully to select the correct shapes and rotate them to fit the outline.

Design it

Encourage the children to design their own picture using the pattern blocks.
Can they create a template to help them remember their design?
Can their friends use the template to recreate their design?

Key Questions

Which shape will you start with?
How many triangles will you need?
Can you find a shape like this?
Does that shape fit? Do you need to turn it round?

Tell me about your shape picture.
What will your design be?
Which shapes will you use?
How could we remember your design?
Can you make a picture to help you make your design again?

Which One Doesn't Belong?

Using the book as a prompt, ask the children to explain which shape is different to all the rest.
Can they find more than one answer?
Challenge them to find a reason why each of the images could be different to the rest.