Reception Maths Medium Term Plan – Summer 1

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

Understanding numbers beyond 10. (numbers 11-13) Knowing the 'one more than/one less than' relationship between counting numbers	Understanding numbers beyond 10. (numbers 14-16) Knowing the 'one more than/one less than' relationship between counting numbers	Understanding numbers beyond 10. (numbers 17-19) Knowing the 'one more than/one less than' relationship between counting numbers	Understanding numbers beyond 10. (20) Verbally count beyond 20, recognising the pattern of the counting system. Counting objects, actions and sounds (1:1 correspondence)	Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.	

Numerical Patterns

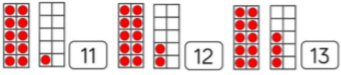|					
Making a pattern which repeats around a circle	Making a pattern around a border with a fixed number of spaces	Continue, copy and create repeating patterns		Explore and represent patterns within numbers up to 10, including **evens and odds,** double facts and how quantities can be distributed equally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

Reception Maths Medium Term Plan – Summer 1

Week	Focus Skills and Knowledge	Link to End of Year Objectives	Possible activities	Enhancements	Key vocabulary
1	Understanding numbers beyond 10. (numbers 11-13) Knowing the 'one more than/one less than' relationship between counting numbers Making a pattern which repeats around a circle	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.	**Power Maths Unit 15 – Numbers to 20** 		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 colour bigger smaller

Reception Maths Medium Term Plan – Summer 1

				same different tall short stripes squares

| 2 | Understanding numbers beyond 10. (numbers 14-16)

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

Making a pattern around a border with a fixed number of spaces | 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. | **Power Maths Unit 15 – Numbers to 20** | | 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 |
|---|---|---|---|---|---|

Building Numbers Beyond 10

Guidance

Encourage the children to build and identify numbers to 20 (and beyond) using a range of resources. 10 frames, number shapes, towers of cubes, rekenreks and bead strings all support the children to see that larger numbers are composed of full 10s and part of the next 10

Provide opportunities for children to recognise that the numbers 1-9 repeat after every full 10. So they have 1 full ten and 1, 1 full ten and 2, 1 full ten and 3 etc. Then 2 full tens and 1, 2 full tens and 2, 2 full tens and 3 and so on.

11   12   13

Other Resources
Numberblocks Series 3
One Moose, 20 Mice – Stella Blackstone
1 is One – Tasha Tudor
The Real Princess – Brenda Williams
Jack The Builder – Stuart J Murphy

Patterns & Relationships

Guidance
Children should be given opportunities to explore and investigate relationships between numbers and shapes. Classroom resources based around a standard unit such as Cuisenaire rods, pattern blocks and the unit construction blocks are particularly good for exploring these relationships.
Children should also continue to copy, continue and create a widening range of repeating patterns and symmetrical constructions. Draw children's attention to patterns in stories from a range of cultures.

Other Resources
Ants Rule The Long and Short of it – Bob Barner
Pattern Fish – Trudy Harris
Pattern Bugs – Trudy Harris
The Leopard's Drum – Jessica Souhami
Jamil's Clever Cat – Fiona French

Digging Deeper

Which Patterns Fit?
Provide frames with a set number of spaces and cubes or counters in different colours.
Ask the children to build patterns around the edge putting one item in each space. Ask them to try different patterns to investigate which will fit around the frame exactly and which won't.

Which of these patterns will fit exactly around the frames?
AB, ABC, ABB, AAB, AABB, AABBC

Prompts for Learning
Show the children 11 using the number shapes or 10 frame. What do the children notice? Can they see which number is represented?
Now build 12. What's the same? What's different?
Continue the pattern, ask the children to predict what numbers come next and how they could represent each number.
What happens when they get to 20 and beyond?

Using one of the texts as a prompt, ask the children to build representations beyond 10 using different resources and talk about the patterns they notice.
Prepare a set of cards showing pictorial representations and matching numerals (e.g. for 11-25) Give one card to each child. Ask them to find their partner. Can they also arrange the cards in order?

14

Prompts for Learning
Show the children a set of Cuisenaire rods
How many green blocks measure the same as one blue block? What other relationships can they find?
Can they find a block which is double the length of another block? How could they check?

Show the children one rabbit. How many ears do they see? Add another rabbit. How many ears now? Continue to add rabbits and count the ears each time. Encourage the children to notice that each rabbit has two ears, every time they add one rabbit they are adding two more ears. Can they continue the pattern?

Build a repeating ABBC pattern.
Ask the children to describe and continue the pattern. Can they identify the unit of repeat? Challenge them to create a different pattern using the same ABBC structure. Can they represent their pattern using drawings or symbols? Can they make their pattern continue around a circle?

Key Questions
Which patterns will fit exactly into the frames?
Are there any patterns which fit exactly around both frames?
How many more spaces did you need for a pattern that wouldn't fit?
Can you test some of your own patterns in the frames?
Which of your patterns fitted exactly? Which didn't fit?

Wrapping Paper
Have a look at some patterned wrapping paper. What patterns do the children notice?
Provide large sheets of paper and some items for printing and designing.
Encourage the children to use repeating patterns to design and create their own wrapping paper.

Building Numbers Beyond 10

Small World
Collect 30 items, filling three 10 frames to start the game. Children take turns to roll a dice and collect the corresponding number of items. The child who takes the last item, wins the game. As the children play, prompt them to see how many they have and how many remain.

Maths Area
Provide black outlines of a cityscape for the children to fill using the number shapes. Can they see which number has filled each tower? Is there more than one way to do this? Can they design their own cityscape?

Enhancements to areas of learning

Loose Parts
Provide different collections of loose parts e.g. nuts, bolts and washers. Encourage the children to estimate how many first and to arrange the items onto 10 frames to help them see how many full tens and how many of the next ten.

10 Frame Fill
Each player starts with 3 empty 10 frames. They take turns to roll a dice and collect the corresponding number of counters or cubes. They must roll the exact number to reach 30 The first player to reach 30 wins the game.

Patterns & Relationships

Construction Area
Ask the children to explore the different relationships they can find between the unit construction blocks. For example, how many short blocks do they need to match 4 long blocks? How could they use the blocks to make a set of stairs?

Enhancements to areas of learning

Maths Area
Ask the children to build a staircase pattern using the Cuisenaire rods.
Can they make it go up then down?
Can they make it go down then up?
Compare the different staircase patterns. What do they notice? Can they make a staircase pattern which uses different steps?

Outdoors
Provide quoits or beanbags to throw and hoops or buckets. Encourage the children to devise their own scoring systems where the harder targets score more points.
Encourage them to keep a tally of their points as they play. How many different ways are there to score 6 points?

Outdoors
Use the natural materials and loose parts to create repeating patterns. Encourage the children to make different patterns which have the same structure? Can they build a circular repeating pattern which continues around the circle? Is there more than one way to describe this pattern? What starting point would you use?

next
continue
repeat
unit of repeat
cube
round
pattern
size
shape
colour
bigger
smaller
same
different
tall
short
stripes
squares

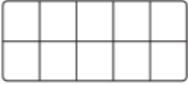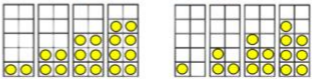| 3 | Understanding numbers beyond 10. (numbers 17-19)

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

Continue, copy and create repeating 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. | **Power Maths Unit 15 – Numbers to 20**
Power Maths Unit 14 – Counting on and counting back

Adding More

Guidance
The children will use real objects to see that the quantity of a group can be changed by adding more. The first, then, now structure can be used to create mathematical stories in meaningful contexts.
At first, the children may need to re-count all of the items to see how many they have altogether.
E.g. 1, 2, 3, 4… 5, 6, 7 When they are ready, support them to count on E.g. 4… 5, 6, 7
Encourage the children to represent the number stories using 10 frames, number tracks and their fingers.

Other Resources
Mouse Count – Ellen Stoll Walsh
Mr Gumpy's Outing – John Burningham
Rosie's Zoo – Ailie Busby
One Ted Falls Out of Bed – Julia Donaldson
Quack and Count – Keith Baker
My Granny Went to Market - Stella Blackstone

Prompts for Learning
Show me 5 fingers. Now show me 2 more. How many fingers now? How do you know there are 7? Did you count them all 1, 2, 3, 4, 5, 6, 7? Is there another way to count them? We know we have 5 on this hand? Can we count on? 6, 7?

Use first, then, now to tell simple maths stories to practise adding more in real life contexts.

First there were 2 people on the bus. Then 2 more people got on the bus. Now there are 4 people on the bus.

Make links with familiar stories. E.g. First there were 3 mice in the jar. Then the snake added 2 more mice. How many mice are in the jar now? | **Adding More**

Outdoors
Share the story Mr Gumpy's Outing by John Burningham. Ask the children to build a boat and to create their own first, then, now stories as different groups of characters climb aboard. Encourage children to count how many altogether as more children join them.

Outdoors
Provide a trellis or tape a grid onto the playground. Each player has one column to fill. Children roll a dice and fill their column with the corresponding number of small items (beanbags, pebbles etc.) The first to fill their column wins.

Enhancements to areas of learning

Construction
The children take turns to roll a 1-3 dice and collect 1, 2 or 3 cubes to add to their tower. If they are ready, encourage them to count on as they add their cubes. How high can they build their towers before they topple?

Small World
Encourage the children to create their own first, then, now stories using the small world resources.
E.g. First there were 3 dinosaurs. Then 2 more dinosaurs came along. Now there are 5 dinosaurs altogether. | 1,2,3,4,5,6,7,8,9,10
count on/back
move forwards, gp back
more, less, before, after
add, take away

next
continue
repeat
unit of repeat
cube
round
pattern
size
shape
colour
bigger
smaller
same
different
tall
short
stripes
squares |

Reception Maths Medium Term Plan – Summer 1

4	Understanding numbers beyond 10. (20) Verbally count beyond 20, recognising the pattern of the counting system. Counting objects, actions and sounds (1:1 correspondence) Name and describe some familiar 2D and 3D shapes.	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.	Power Maths Unit 14 – Counting on and counting back		1,2,3,4,5,6,7,8,9,10 count on/back move forwards, gp back more, less, before, after add, take away roll, stack curved, straight, round corners, face, edge, sides square, rectangle, triangle, circle sphere, cube, cuboid, cylinder, cone big, little, flat, pointy

Power Maths Unit 14 – Counting on and counting back

Taking Away

Guidance

The children use real objects to see that the quantity of a group can be changed by taking items away. The first, then, now structure can again be used to create mathematical stories in meaningful contexts. Encourage the children to count out all of the items at the start, take away the required amount practically, and then subitise or recount to see how many are left.

Continue to encourage the children to represent the number stories using 10 frames, number tracks and their fingers.

Other Resources

Incey Wincey Spider game – Nrich
Tad – Benji Davis
Mouse Count – Ellen Stoll Walsh
The Shopping Basket – John Burningham
Monster Math – Anne Miranda
Elevator Magic – Stuart J Murphy

Prompts for Learning

Ask the children to show you 5 fingers and then to show you 4. Prompt them to notice that one less is the same as taking away one. Extend to taking away 2 fingers or 3 and noticing how many are left each time.

Practise taking away in different contexts which could link to familiar stories. Encourage the children to physically remove the items they are taking away and then count or subitise to see how many are left.

Use first, then, now to tell simple maths stories to practise taking away in familiar contexts.

First there were 5 people on the bus.
Then 2 people got off the bus.
Now there are 3 people on the bus.

Spatial Reasoning (1)

Guidance

Provide regular opportunities for the children to complete jigsaws and shape puzzles. They need opportunities to select and rotate shapes to fill a given space. Encourage them to explain why they chose a particular shape and why a different shape wouldn't fit.
Provide opportunities for the children to match arrangements of shapes, prompting them to use positional language to describe where the shapes are in relation to one another. Ask the children to select shapes to complete picture boards or tangram outlines.

Other Resources

Snail Trail: A Journey Through Modern Art – Jo Saxton
Which One Doesn't Belong – Christopher Danielson
Jigsaws and shape puzzles & Tangrams
Pattern blocks & Cuisenaire rods
Geo boards
Numicon and base board overlays

Find My Match.
Show the children a set of shapes and ask them to find the shape which matches the one you hold up. Add challenge by making the shapes more similar and changing the orientations.

Extend to arrangements of linking cubes.
Can they find the set which matches yours? Talk about the position of the cubes in relation to one another.

Make a simple shape arrangement.
Ask the children to match your arrangement exactly, thinking about which shapes to select and where to place them in relation to the other shapes. This can also be done on a larger scale outside.

Digging Deeper

Can You Build a…

Ask the children to take photographs of their models and display them in the construction area.

Encourage the children to talk about the pictures.
What do they notice?
Which model do they like best and why?
Can they use the pictures to recreate a model?
Which pieces do they need to collect?
Could they ask the designer for help?

After building, prompt them to compare their models to the pictures.
Ask: Is there anything else you would like to add to your model?
Could you make a different model using the same pieces?

How Many Cubes?

Show the children a simple arrangement made from interlocking cubes. Ask them to talk about what they notice.

Can they recreate the same arrangement?
How many cubes will they need?
Are any of the cubes hidden?
Can you design a different arrangement for us to build using these cubes?
Do same colour models make this task easier or harder?

You can add extra challenge by just allowing the children quick peeps of the model as they build and then encouraging them to compare their models to the original afterwards.

Taking Away

Maths Area

Encourage the children to adapt and re-enact favourite rhymes such as 10 Green Bottles by making 1, 2, or 3 fall each time. Similarly, they could have 10 Currant Buns and choose to buy 1, 2, or 3 buns. Prompt the children to say how many are left after each verse.

Outdoors

A game for 2 children. Ask the children to line up 10 pebbles or shells. The children take turns to choose whether they take 1, 2 or 3 pebbles. The winner is the player who avoids taking the last pebble.

Enhancements to areas of learning

Spatial Reasoning (1)

Funky Fingers

Use the geoboards and elastic bands. Challenge the children to make as many different triangles as they can. How do they know they are all triangles? How many 4-sided shapes can they make? Does the geoboard work for making circles?

Maths Area

Provide outlines of the number shapes in different orientations. Ask the children to select the shape to match each outline. Provide baseboard overlays or number shape outlines for the children to match and fill. Encourage the children to use positional language as they build.

Pass It On

Each child starts with 6 cubes. They roll a 1-3 dice and pass the corresponding number of cubes to the person on their left. The winner is the first person to give away all of their cubes. Encourage the children to count how many they have left as they pass on their cubes.

Race To Zero

Each child collects 20 items which can be arranged to fill two 10 frames. They take turns to roll a dice and remove the corresponding number of items. They must reach exactly zero to win the game.

Construction

Provide simple models or pictures of models. Ask the children to select the shapes they need and position them to replicate the model. Can they design a model for their friend to replicate?
This can be done on a larger scale outside.

Enhancements to areas of learning

Small World

Set up a small world scene or provide pictures of scenes for the children to replicate. Encourage them to talk about where things are in relation to other things. Can they design their own scenes for a friend to replicate? Can they draw a map of their scene?

Reception Maths Medium Term Plan – Summer 1

| 5 | 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 | 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 | **Power Maths Unit 19 – Sorting (use in the context of sorting numbers)**

Power Maths Unit 16 – Numerical Patterns

STRUCTURES AND REPRESENTATIONS

Five frames: Using two five frames, one above the other, horizontally or beside each other vertically, helps to show patterns more clearly, and helps children to share counters into two groups.

Ten frames: Using ten frames, horizontally or vertically, helps to show patterns more clearly, and helps children to share counters into two groups.

Counters: Using counters on five frames helps children to reinforce sharing out the counters, one by one, into two groups. This will also show clearly whether the numbers produce equal or unequal groups.

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

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). | **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? | sort
group
same
different
odd one out
size, shape, colour, pattern
how many?
more than
describe
explain

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 |

Reception Maths Medium Term Plan – Summer 1

| 6	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and **how quantities can be distributed equally**	Explore and represent patterns within numbers up to 10, including evens and odds, double facts and **how quantities can be distributed equally**	**Power Maths Unit 16 – Numerical Patterns**		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

Power Maths Unit 16 – Numerical Patterns

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.
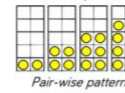
Pair-wise pattern

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

Prompts for Learning

Allow the children to explore different ways to build doubles using real objects and practical equipment.
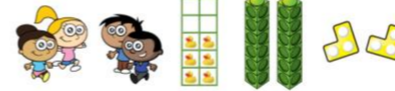
Provide sets of dominoes and ask the children to find the doubles. Show the children how to play dominoes and look at the doubles they make as they play.

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
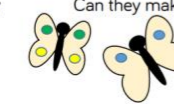
Sharing and Grouping

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