Reception Maths Medium Term Plan – Autumn 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					
Consolidate work on numbers to 5: Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Developing fast recognition of up to 3 objects, without having to count them individually ('subitising'). More than / less than Identifying groups with the same number of things	I understand the 'one more than/one less than' relationship between consecutive numbers.	Number bonds to 5 Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total) Explore the composition of numbers to 5.	Number bonds to 5 Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total) Explore the composition of numbers to 5.	Number bonds to 5 Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total) Explore the composition of numbers to 5. Inverse operations	Solve real world mathematical problems with numbers up to 5.

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Compare quantities using language: 'more than', 'fewer than'.					
Numerical Patterns					
Notice and correct an error in a repeating pattern.			Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' ***Daily routine***		
Spatial Awareness					
	Developing spatial vocabulary Shape awareness: developing shape awareness through construction Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. Identify some 2D and 3D shapes in the environment around me.	Developing spatial vocabulary Shape awareness: developing shape awareness through construction Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. Identify some 2D and 3D shapes in the environment around me.		Make simple comparisons between objects relating to size, length, weight and capacity	Make simple comparisons between objects relating to size, length, weight and capacity

Week	Focus Skills and Knowledge	Link to End of Year Objectives	Possible activities	Enhancements	Key vocabulary

Reception Maths Medium Term Plan – Autumn 2

1	Consolidate work on numbers to 5: Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5. Developing fast recognition of up to 3 objects, without having to count them individually ('subitising'). More than / less than Identifying groups with the same number of things Compare quantities using language: 'more than', 'fewer than'. Notice and correct an error in a repeating pattern.	Have a deep understanding of number to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 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.	**Comparing 1 2 3** **Guidance** Children begin to understand that as we count, each number is one more than the number before. Similarly as we count back, each number is one less than the previous number. Use a range of representations to support this understanding and encourage the children to represent the one more and one less patterns as they count. Support the children to make comparisons in different contexts as they play. **Other Resources** The Three Bears The Three Little Pigs The Little Bear and the Wish Fish – Debi Gliori When Goldilocks Went to the House of the Bears song Pink Tiara Cookies for Three – Maria Dismondy **Comparing Numbers to 5** **Guidance** Children continue to understand that when comparing numbers, one quantity can be more than, the same as or fewer than another quantity. Use a range of representations to support this understanding and encourage the children to compare quantities using a variety of objects and representations. Support the children to make comparisons in different contexts as they play. **Other Resources** A Squash and a Squeeze – Julia Donaldson Room on the Broom – Julia Donaldson One Elephant Came Out to Play 5 Little Monkeys Swinging in a Tree **Digging Deeper** **Build and Count** Provide children with 5 separate connecting blocks. Encourage them to join their blocks to build a tower and then to explore other shapes they could build with 5 blocks. How many different ways can they find to join their blocks? The children may build the same shape in different orientations so encourage them to turn their shapes around to check that they are not the same as another shape. Ask the children to explore different shapes they could build using 2, 3 and 4 blocks. There is just one way with 2 blocks, 2 ways with 3 blocks, a few with 4 blocks and many with 5 blocks. Numberblocks Series 1 Episode 11 Stampolines also looks at different ways to arrange up to 5 blocks.	**Prompts for Learning** Use stories and number songs which count on and back to introduce the one more and one less patterns. Represent the patterns using bricks or cubes to support the understanding that each number is one more/less than the number before. Using a range of real objects in different contexts ask the children to compare sets. Which set has more? Fewer? Can you find 2 sets with the same amount? The dot plates can also compared and ordered. Ask: How many dots does this plate have? Can you find a plate with more dots? With fewer dots? With the same number of dots? Can you put these 3 plates in order? What would come next? Ask the children to compare how far they can travel in 3 giant steps and in 1 or 2. In 1, 2 and 3 tiptoes. **Prompts for Learning** Show the children 3 fingers – ask them how many fingers? Can they hold up 3? Can they hold up more than 3 fingers? Is there more than one way to do this? Can they hold up fewer than 3 fingers? How many do they have? Working with a small group, provide each child with a plate and give them each a handful of snack such as grapes or crackers. Does everyone have the same? Is it fair? Encourage them to notice that some children have more snack and some have less and to share out the snack fairly. Can they check that everyone now has the same? Provide opportunities to compare smaller quantities of large items with larger quantities of small items to help children make the distinction between size and quantity. E.g. 2 large balls take up more space than 3 small balls but there are more small balls. **Key Questions** How many blocks are there? Can you build them into a different shape? Can you find another shape like yours? Can you make a shape different to all the others? How many shapes can you build with 3 blocks? Are there more shapes with 4 blocks or 5 blocks? How many different shapes do you think there will be with 6 blocks? Can you create your own stampoline prints? Put a selection of the shapes into a feely bag. Can the children find a 4 shape without looking? How did they know it was 4? If it is not 4, why not?	**Comparing 1 2 3** **Loose Parts** Provide an assortment of loose parts for the children to build their own one more/one less patterns. The children may like to extend these beyond 3 **Enhancements to areas of learning** **Maths Area** Game for 2 players: Provide picture cards showing different representations of 1, 2 and 3. Place the picture cards face down. Ask each player to pick a card and then compare to see which card has more. The player with more keeps both cards. **Comparing Numbers to 5** **Sand** Make towers of pebbles. Who can make the tallest tower? How many pebbles are in each tower? Does your tower have more or less pebbles than your friend's tower? Can you each make a tower using the same number of pebbles? **Enhancements to areas of learning** **Carpet** Provide a set of dot plates with different arrangements of 0-5 dots. Can you find a plate with 4 dots? With more/fewer than 4 dots? Can you put the plates in order? One of the plates is missing. Can you work out which one?	**Maths Area** Teach the children simple number track games and encourage them to create their own. Roll a dice and collect 1, 2 or 3 counters to fill their track. Compare – who has the most counters? How many more counters do they need to fill their track? **Role Play** Read children the story of the 3 bears and explain that we need to set the table in the home corner ready for breakfast. Do we have enough plates, cups and spoons for all the bears? Provide small, medium and large cups, bowls and spoons to compare and match to the bears. **Maths Area** Children use the number shapes, linking cubes and numeral cards to match and compare quantities. Provide a set of dominoes to explore. Ask the children to compare the number of spots on each side of the domino. Are there the same, more or fewer dots? **Small World** Provide children with the numbers 1 – 5 on cards and various small, similar items such as people, toy cars, plastic animals, etc. Ask them to show you fewer, the same or more than the number they choose.	1,2,3,4,5, one, two, three, four, five, none, zero number count – count forwards, count backwards how many? five frame first then now one less one more order fewer take away add altogether number story five frame represent next continue repeat unit of repeat cube round pattern size shape colour bigger smaller same different tall short stripes

Reception Maths Medium Term Plan – Autumn 2

<table>
<tr><td></td><td></td><td></td><td></td><td></td><td>squares</td></tr>
<tr>
<td>2</td>
<td>I understand the ‘one more than/one less than’ relationship between consecutive numbers.

Developing spatial vocabulary
Shape awareness: developing shape awareness through construction
Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: ‘sides’, ‘corners’; ‘straight’, ‘flat’, ‘round’.
Identify some 2D and 3D shapes in the environment around me.</td>
<td>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</td>
<td>
<h2>Power Maths Unit 4 – Change within 5</h2>
<h3>One More and One Less</h3>
Guidance
Children continue to count, subitise and compare as they explore one more and one less. Encourage children to use a five frame to represent numbers and to predict how many there will be if they add one more or take one away. Prompt children to see the link between counting forwards and the one more pattern and counting back and the one less pattern. There are many books and rhymes to support one more and one less.
Other Resources
The Gingerbread Man- Traditional Tale
The Enormous Turnip- Traditional Tale
The Very Hungry Caterpillar- Eric Carle
Stella to Earth! – Simon Puttock
Five little speckled frogs
Five currant buns
Five Little Ducks
Prompts for Learning
Use the songs and stories suggested to role play one more and one less with the children e.g. Five currant buns.
How many buns are there altogether? Put the penny in the pot, how many pennies do we have? How many buns do we have now? Repeat the song and questions. Encourage the children to notice that there is one less bun each time, but one more penny.

Read The Gingerbread Man and as you read, represent the growing pattern of characters using counters or cubes. Can the children see the one more pattern building? Can they predict what will come next? What will happen when the gingerbread man is eaten?
Ask children to make a number on a five frame.
Can you show me one more? One less?
Use a 1-5 number track underneath the five frame.
Can you point to the number you made?
Can you point to one more and one less than your number?
<h3>Digging Deeper</h3>
Washing line
Provide children with pictures of objects to arrange on the washing line in order. As the children order the pictures encourage them to use the language of one more and one less.
What can you tell me about 3?
Prompt the children to see that 3 is one more than 2 and also one less than 4.

Hide one of the cards and ask the children to work out which number is missing.
What strategies will they use to work out which number is missing?
Key Questions
Can you find 1 more than 3?
Where will you place this on the washing line?
Can you find a picture with 1 less than mine?
Can you find a picture that is 1 more than …. but 1 less than ….?
How many are in the bag?
If I add 1 more, how many will there be now?
Hidden Objects
With the children count 4 items into a bag.
Ask the children to confirm how many there are inside the bag.
Put in one more or take one out. How many are in the bag now?
Once the children are confident in predicting 1 more and less, this can be extended to adding 2 or 3 more or less.
Encourage the children to use their fingers or 5 frames to represent the hidden objects.
<h2>Power Maths Unit 3 – Shape</h2>
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<h3>One More and One Less</h3>
Outdoor
Create a bus route around the outdoor area. Start with a driver on the bus and have different bus stops around the route. To start with, ask one child to stand at each stop. When the bus stops, one more child gets on the bus. Encourage them to say how many are on the bus altogether, noticing there is one more each time.
This activity can be extended as children explore one less when people get off the bus and further addition and subtraction as multiple people get on and leave the bus.
Enhancements to areas of learning
Maths Area
Provide numerals, objects and picture cards for the children to compare. Have a number of the day and ask the children to find one more and less than the number using different representations.
Number of the day is 3
One less | The same as | One more
Construction
Show the children one more staircase patterns built with different materials e.g. lego, building blocks, bricks. Encourage them to build their own staircases looking at how many items they use for each step. Can they match them to the number track?
<small>© White Rose Maths</small>
</td>
<td>one, two, three, four, five
1,2,3,4,5
none, zero
count – forwards and backwards
how many?
first
then
now
one less
one more
order
fewer
take away
add
altogether

roll
stack
curved
straight
round
corners
face
edge
sides
square, rectangle, circle, triangle
sphere, cube, cuboid, cylinder, cone
big, little
flat, pointy
same
different</td>
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Reception Maths Medium Term Plan – Autumn 2

3	Number bonds to 5 Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total) Explore the composition of numbers to 5. Developing spatial vocabulary Shape awareness: developing shape awareness through construction Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'. Identify some 2D and 3D shapes in the environment around me.	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 Have a deep understanding of number to 10, including the composition of each number	**Power Maths Unit 5 – Number bonds within 5** **Composition of 1 2 3** **Guidance** Introduce children to the idea that all numbers are made up of smaller numbers. Allow them to explore and notice the different compositions of 2 and 3. For example 3 can be composed of 1 and 1 and 1 or 2 and 1 or 1 and 2. Although we are focusing here on numbers to 3 the children may choose to notice and explore the composition of larger numbers in their play. Encourage them to share what they have noticed. **Other Resources** BBC Number blocks 1, 2 and 3 The Three Billy Goats Gruff Number Farm - Stephen Holmes **Prompts for Learning** Have 3 small word animals such as horses or cows and 2 fields. Ask the children how many animals could go in each field. Can they find different ways to do this? What if they had 1 or 2 animals? In a small group ask each child to count out 3 double-sided counters. Shake them in their hand and then drop them down. How many are red? How many are yellow? Can they get all red? All yellow? Use the number shapes to investigate which smaller numbers combine to make 1, 2 and 3 Check by sitting them on top of the whole number. Play Bunny Ears Using 2 hands to be the ears, how many ways can you show 1, 2 and 3? Can you see what number I have made? Can you make ears the same as mine? Can you make the same number in a different way? **Power Maths Unit 3 – Shape**	**Composition of 1 2 3** **Game** Play The 3 Billy Goats Gruff game. Set up a bridge and 2 fields. Each player builds a 1, 2 and 3 tower to represent the 3 goats. Roll a 1-3 dice and move the corresponding tower over the bridge. The winner is the first player to move all 3 'goats' over the bridge. Encourage the children to notice how many goats are on each side of the bridge as they play. **Outside** Draw a large chalk circle on the ground. Ask the children to collect 3 quoits and to take turns to throw them into the circle. How many land inside the circle? How many land outside? How could they record their scores? **Enhancements to areas of learning** **Maths Area** Provide a set of dominoes. Ask the children to find all the dominoes with 1, 2 or 3 spots. How many dominoes have 1, 2 and 3 spots altogether? Are they all the same? How many dominoes can they find with 1, 2 or 3 spots on one side. **Outside** Fill a tuff tray with an assortment of wood, autumn leaves and seeds. Hide several ladybirds (painted pebbles) for the children to find. How many spots do the ladybirds have? Do all the ladybirds with 3 spots look the same?	one, two, three, four, five 1,2,3,4,5 group parts whole part-whole model how many? count more than same different roll stack curved straight round corners face edge sides square, rectangle, circle, triangle sphere, cube, cuboid, cylinder, cone big, little flat, pointy same different

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<table>
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<td>4</td>
<td>Number bonds to 5
Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total)

Explore the composition of numbers to 5.

Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then…’ Daily routine</td>
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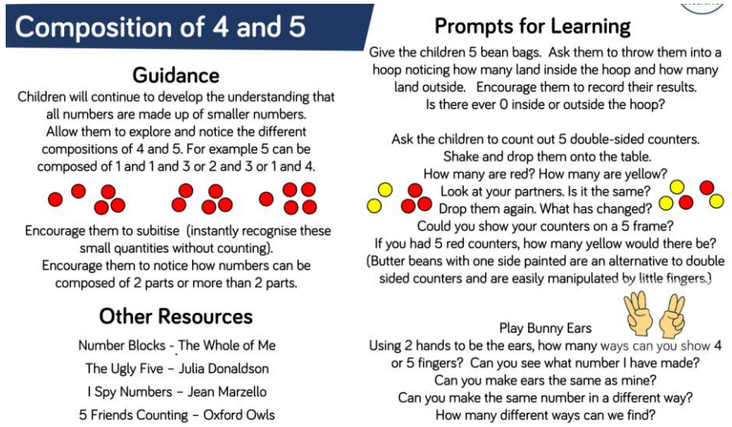
Power Maths Unit 5 – Number bonds within 5



Power Maths Unit 12 – Time
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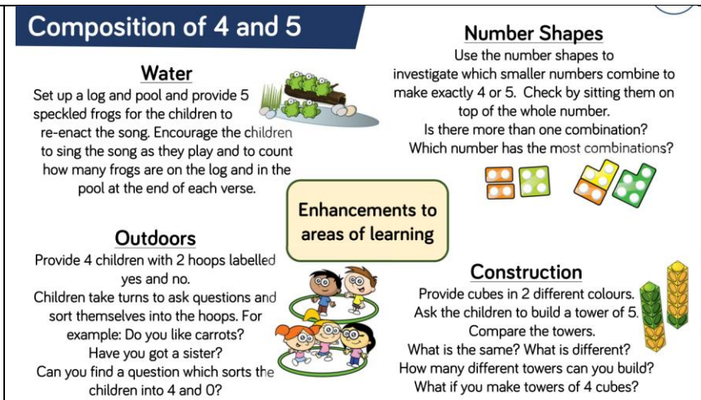

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<td>one, two, three, four, five
1,2,3,4,5
group
parts
whole
part-whole model
how many?
count
more than
same
different

first
next
later
then
before
after
every day
order
timetable
sequence</td>
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<td>5</td>
<td>Number bonds to 5
Part–whole: identifying smaller numbers within a number (conceptual subitising – seeing groups and combining to a total)

Explore the composition of numbers to 5.

Inverse operations

Make simple comparisons between objects relating to size,</td>
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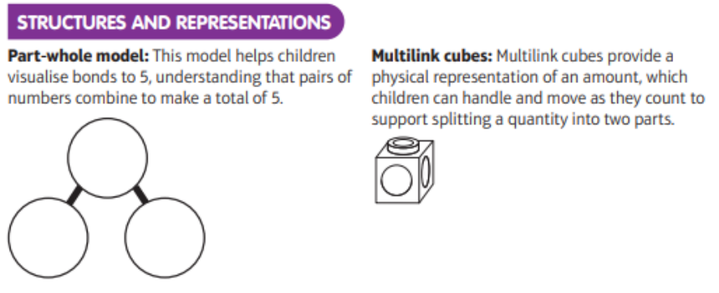
Power Maths Unit 5 – Number bonds within 5



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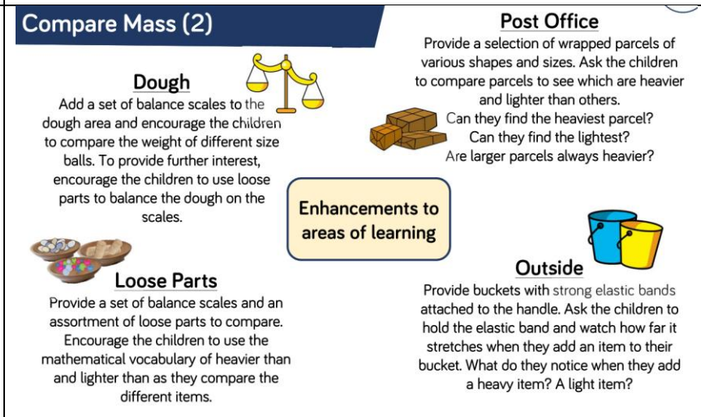

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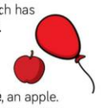
Reception Maths Medium Term Plan – Autumn 2

	length, weight and capacity	composition of each number	**Compare Mass (2)** **Guidance** Children may already have some experience of weight through carrying heavy and light items. Encourage them to make direct comparisons holding items to estimate which feels the heaviest then use the balance scales to check. Prompt them to use the language of heavy, heavier than, heaviest, light, lighter than, lightest to compare items starting with items which have an obvious difference in weight. Avoid the common misconception that bigger items are always heavier by providing some small, heavier items and some large, lighter ones. **Other Resources** Who Sank the Boat – Pamela Allen The Blue Balloon – Mick Inkpen Balancing Act – Ellen Stoll Walsh **Prompts for Learning** Bring in a heavy case or box. Show the children that it is difficult to lift and carry because it is really heavy. Ask if they have ever carried anything heavy? Ask the children to discuss what could be inside. Ask the children to be human balance scales – place an item on each hand and ask them to tip to show which item is heavier and which is lighter. Use the balance scales to check the children's estimations. The children could also hold buckets or bags in each hand and place items inside to feel which has the stronger downward pull.   Give the children an item, for example, an apple. Challenge them to find things which feel heavier and lighter than the apple and sort them into sets. Use the balance scales to check their estimation. Are all the heavier things larger than the apple? Can they find anything which is larger than the apple but lighter?		small/smaller/smallest longer/longest shorter/shortest tall/taller/tallest further/furthest heavy/heavier/heaviest light/lighter/lightest same, different length width height weight measure compare

Reception Maths Medium Term Plan – Autumn 2

<table>
<tr>
<td>6</td>
<td>Solve real world mathematical problems with numbers up to 5.

Make simple comparisons between objects relating to size, length, weight and capacity</td>
<td>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</td>
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Digging Deeper

How Many are Hidden?

Show the children 4 or 5 small world creatures.
Ask them to close their eyes whilst you cover some with a blue cloth to resemble a pool. Can they work out how many of the ducks you have put into the 'pool'?

Practise in different contexts for example teddies and a 'tent', horses and a 'stable' cars and a 'garage'. Encourage children to use concrete objects, draw a picture or use their fingers to help them explain how they know what is missing.

Exploring Possibilities

Show the children an empty feely bag.
Together, count 4 pebbles into the bag.
Take out an unseen amount in your hand.
Ask the children to discuss how many could be in your hand and how many could be left in the bag.

Compare Capacity (2)

Guidance

Encourage the children to build on their understanding of full and empty to show half full, nearly full and nearly empty. Provide opportunities to explore capacity using different materials such as water, sand, rice and beads. Provide different sized and shaped containers to investigate. Prompt them to use the language of tall, thin, narrow, wide and shallow.

Encourage the children to make direct comparisons by pouring from one container into another. They can also use small pots or ladles to make indirect comparisons by counting how many pots it takes to fill each container.

Other Resources

There's a Hole in my Bucket!

Mary Poppins clip – emptying the carpet bag

A Beach for Albert – Eleanor May

Digging Deeper

Number Shapes Balance

Provide a set of balance scales and some number shapes. Explore how to balance a number shape for example 5 by putting the 5 piece on one side of the scale and exploring different combinations to make it balance.
How many different ways can they find to balance 5?
What other combinations of shapes balance?

Encourage the children to use the language of equal to, heavier than, lighter than, heaviest, lightest.

Key Questions

How many are hidden? How do you know?
Can you draw a picture to show me?
Can you show me with these cubes?

How many pebbles could I have in my hand?
If I have 3 pebbles in my hand, how many will be in the bag?
Could I still have 4 pebbles left inside the bag?
If there are 4 in the bag, how many will be in my hand?
Could I have 0 pebbles in my hand?
Could there be 0 in the bag?
Could I have 5 pebbles in my hand? How do you know?

Hidden Bonds

Show the children 2 buckets.
Explain that you have 5 pebbles hidden inside the buckets.
Ask the children how many pebbles could be in each bucket.
Could this bucket have 0 pebbles?
Could this bucket have 4 pebbles? How do you know?

Prompts for Learning

In a small group perhaps during snack time, provide each child with a cup. Ask them to make their cup full, make it empty, nearly full, nearly empty, about half full. Can they find a container which holds more than their cup? Can they find one which holds less?

Provide a selection of containers of different shapes and sizes and ask the children to investigate which holds the most. They may do this by pouring directly from one container to another. They could also use a small cup to fill each container, counting how many small cup-fulls the containers hold. Encourage them to record their results using their own methods of recording.

Provide sets of similar containers in different sizes such as sets of nesting bowls or boxes. The children will enjoy comparing and ordering them and seeing how many loose parts such as beads, cubes or corks they will hold.

Key Questions

What happens if I put a 5 piece on one side of the scale and two 3 pieces on the other?
Which is heavier, two 2 pieces or one 5 piece?
Which is the heaviest number shape? Which is the lightest?
How many ways can you find to balance 5 exactly?
Can you find ways to balance 4 or 3?

Which Holds More?

Provide a tall narrow container and a wide shallow one. Ask the children to predict which will hold more water? How could they check? Encourage the children to try different methods.
More containers could be added and the children asked to order them from smallest capacity to greatest.

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Compare Capacity (2)

Sand

Provide each child with a bowl or cup and a selection of different sized spoons and ladles. Ask them to investigate how many small spoons it takes to fill their container. How many large spoons?
How many ladles? Which sized spoon was the best? Why?

Mud Kitchen

Provide a variety of pans, bowls, spoons and ladles for the children to use. Add daily recipes on a chalkboard to encourage the children to measure out ingredients. They could also design and create their own recipes.

Outside

Provide a small matchbox for each child. Ask them to hunt for things to put inside. Points could be awarded for specific criteria such as the most items, the prettiest leaf, the smallest pebble, the largest item, the softest item, something yellow etc.

Enhancements to areas of learning

Role Play

Set up a pop-up café or picnic area providing a variety of jugs and beakers. Encourage the 'waiters' to take drinks orders and bring out the drinks. Play alongside the children to model the language of nearly full, half full, nearly empty etc and enjoy your delicious drinks! (Discuss why we don't want the cups to be absolutely full!)

</td>
<td>one, two, three, four, five
1,2,3,4,5
group
parts
whole
part-whole model
how many?
count
more than
same
different

large/larger/largest
big/bigger/biggest
small/smaller/smallest
longer/longest
shorter/shortest
tall/taller/tallest
further/furthest
heavy/heavier/heaviest
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same, different
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height
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measure
compare</td>
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