

Baskets

Counting reliably
Solving problems, including doubling, halving and sharing
Using everyday language to talking about size, capacity, position and distance



Children often enjoy putting their things in containers and sharing with friends (whether equally or not!).

Adults could provide an assortment of objects from around the setting that are small enough for the children to hold in their hands.

The Activity

Place some baskets (probably 3 to 8) in the middle of a suitable space along with the objects which should be near to, but not in, the baskets.

Encouraging mathematical thinking and reasoning:

Describing

Place some baskets (probably 3 to 8) in the middle of a suitable space along with the objects which should be near to, but not in, the baskets.

Reasoning

How could you have more . . . in your baskets?

Have look at.....'s baskets. Are they the same? (If not) What makes's different?

Opening Out

Can you find another way to put them in the baskets?

We've all got ones that look different. Could you make everyone's the same? Would you need a different basket? (If yes) Why?

Recording

Could you find a way of keeping your ideas for this basket, maybe on paper, or? Do you want to make a label?

The Mathematical Journey

Properties of shapes

- choosing particular baskets for particular objects having analysed the properties of the shapes involved

Position and spatial properties

- using positional language for example on top of, next to, underneath, in front of, behind, between, left, right etc. to describe the items in the baskets and the positions of the baskets themselves

Number

- counting and cardinality - progressing from knowing some number words, to saying one number for each object, then knowing the number of the whole group

Development and Variation

This activity may be started with a small group of children. Once the whole class has been involved you may find some go off in a very small group of two or three to explore something similar independently.

There may be situations in the role play area that lend themselves to putting items in baskets or dishes etc.

You could suggest putting baskets inside other baskets and/or using drawstring bags of different sizes.

Introduce something too big to go in a basket and let the discussion follow.

You may find that the idea of sharing items between the baskets comes up naturally - sometimes children might share equally and sometimes not.

Resources

A variety of different baskets (perhaps 3-8 in total)

Collections of things that you already have in your setting e.g. small world play figures, cotton reels, pegs etc.

A camera may be useful to take photos during the activity

Photo acknowledgements



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Teachers: Early Years**Dice**

Counting, matching numerals and amounts



Children often enjoy rolling dice, particularly large ones.

Adults could provoke children's thinking by suggesting an appropriate challenge, for example, "Roll the dice, take that number of teddies out of the box and put them around the picnic table".

The Activity

Join with a group of children who are already rolling the dice and show how they can use the dice in order to choose the number of teddies/dolls etc. to join them for the picnic/tea party (perhaps in the role play area).

Encouraging mathematical thinking and reasoning:**Describing**

Tell me what the dice says.
Tell me about the teddy you've got to choose.

Reasoning

Have we got room for any more teddies?
Have we got enough teddies?

Opening Out

Could we play this game with something else?
Is that more than/less than/the same as your last roll?

Recording

How can you show how many teddies there are round the table?
What would you like to take a photograph of?

The Mathematical Journey

Counting

- saying one number for each object
- remembering the pattern of the number sequence
- understanding cardinality i.e. that the last number gives the total

Matching numerals and amounts

- reading numerals/interpreting dots with the purpose of seeing how many there should be
- comparing the value of numerals

Development and Variation

A precursory activity might be to use just a coloured dice and ask children to find items which match the colour thrown.

As a follow-up activity invite three groups of children to focus on three different collections, for example, cars, building blocks and farm animals.

One child rolls the dice and each group selects that number from their collection. You could then provoke discussion between the three groups.

Ask children what they would do with two dice, one with dots and one with colours, which are rolled at the same time.

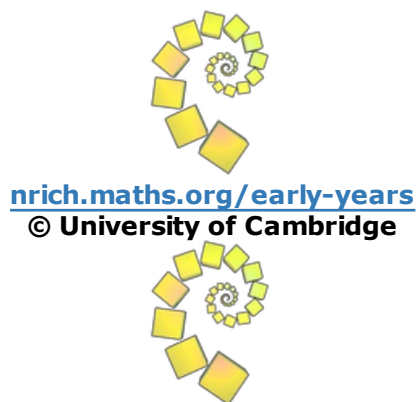


Resources

Large dice (with dots/numerals/colours)

If possible, large dice with replaceable faces, for use with children who are only confident with numbers 1-3, for example

Easy access to the usual collections found in your setting e.g. teddies/building bricks/cars etc.



Teachers: Early Years

Double Trouble

Doubling numbers
Counting and adding



Children often enjoy matching amounts and spotting things which are the same.

Adults could provide patterns of numbers which are doubles, e.g. on dice, dominoes, egg boxes etc.

The Activity

Tell a story of someone having trouble looking after two dogs who will not do what they are told. Then they get given two more dogs to look after - now they have four and they have 'double trouble'! What about if they have three dogs - how many would be double trouble? Ask the children to model doubling numbers up to five on their fingers and to select images to match the story numbers, e.g. dominoes and dot patterns.

Encouraging mathematical thinking and reasoning:

Describing

What do you notice about the numbers and their patterns?
What happens if you match the doubles numbers to a number line?

Reasoning

What do you have to do when you double? How do you know a number is a double?

Opening Out

Making 'double' numbers in two column arrays, with objects, counters and pegboards.
Identifying the double numbers with dice, dominoes, egg boxes, multilink etc.
Making up other patterns with double numbers.
Comparing patterns for the same number e.g. double 5 domino and 10 as an array.

Recording

Photograph, stick, stamp or draw patterns for 'doubles'. Match doubles patterns to a number line.

The Mathematical Journey

Same and different

- describing 'doubles' patterns e.g. 'there are 5 here and 5 here'
- discussing what is the same and different about domino and array patterns

Counting and cardinality

- counting to check the same number has been added when doubling

Matching numerals and amounts

- matching numerals to patterns, or patterns to a number line

Adding

- adding on the same number again to double
- 'counting all' to find the total
- 'counting on' from the first number to find the total
- predicting how many there will be before doubling a number

Multiplying

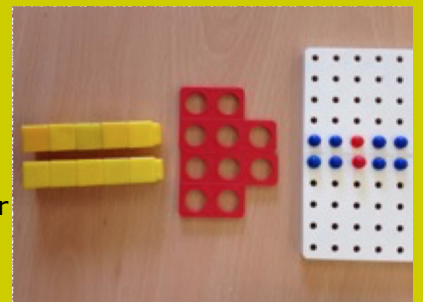
- talking about six being 'two threes' rather than 'three and three'
- talking about 'doubling three' to get six.

Development and Variation

Doubling and halving: invite children to double and halve numbers, using objects arranged in two-column arrays e.g. with pegboards and multilink. What happens when you halve a number?

You could use other story contexts; a sheepdog with troublesome sheep, or a cat looking after kittens or ...

Older children can play a game in pairs with dice: one gets the number of objects, the other doubles it. They can check by matching and counting. Repeat with a range of apparatus.



Resources

- Toy animals for the 'double trouble' story.
- 'Doubles' images: dice, dominoes, Numicon, multilink in two-column arrays, egg boxes.
- Counters and pegboards to make up doubles patterns.
- Stamps or sticky circles to record patterns.
- Large number lines to attach patterns to.

Teachers: Early Years

Estimation Station

Estimating, counting and comparing



Children often enjoy guessing. "How many are in the jar?" and then counting to see who is right. They get excited by big numbers!

Adults could provide a clear plastic jar with a number of things in it and change these daily. Filling a big jar with really small things will give children the experience of what large numbers look like.

The Activity

Children guess how many things are in the jar, then count to find out. Older children can record their guesses on post-its and then put these in order to discuss which estimates were closest.

Encouraging mathematical thinking and reasoning:

Describing

What do you notice?

How many can you see?

How do these pine cones compare with yesterday's beads?

Reasoning

How many do you think there are? Why do you think that?

Will it be more or less than 20? A lot more / less? Or a little more / less? Will it be between 15 to and 20? A little or a lot more than this? or less than his?

How many can you see - how many do you think are hidden?

Was your guess more or less than the actual count?

Was your guess very close / way out? Why do you think that was?

Can you put the estimates in order on the board / washing line?

Were most people close or far out?

Opening Out

Are there more or less than yesterday? Why do you think that?

What if we fill it up again, but with the little bears?

How many do you think will fit in the tall jar / the matchbox / the crate? Is there a quicker way to count?

Recording

Can you write your estimate on a post-it? Can you see your number on the number track? What numbers can you see that people have written?

Were a lot of people very close / way out?

The Mathematical Journey

Counting and cardinality

- estimating amounts as numbers
- counting amounts above 10
- comparing numbers, more/less/fewer
- ordering numbers
- comparing amounts to a range of numbers, e.g. 15 to 20, or 25 to 30

Matching numerals and amounts

- writing and reading numerals as estimates

Measures:

- using language: bigger/smaller, full, fuller/empty, emptier
- predicting and explaining that the smaller the object the less space they take up: 'The little bears are smaller so it will be a big number.'
- generalising: 'If you have little things you get more'

Development and Variation

- Use natural objects (like pebbles, shells, pine cones and conkers) or small toys, coins, buttons, keys, cotton wool balls.
- Choose the size of objects to provide the number range you want children to work with.
- Vary the scale of container and objects e.g. crates of bricks outdoors.
- Use assorted items which come in different sizes, such as shells or conkers, which will be harder to estimate, but provoke discussion
- Two children can record everyone's guesses on a clipboard, and then count the items in the jar.
- Children can record their estimate by putting a peg on a number 'washing line'.
- Set up a Filling Station: fill several identical containers (e.g. matchboxes, yoghurt pots, fish bowls) with different kinds of items or fill different (tall thin and short fat) containers with same things.
- Weighing with balances: guess how many objects it will take to balance the teddy bear. What about two teddy bears?



Resources

A clear plastic jar and collections of objects:

- of uniform size such as marbles, coins, beads, cubes, jewels, cotton-wool balls & bears
- of non-uniform size such as conkers, pebbles & dinosaurs...

Post-its, pens, number track, board or washing line

Acknowledgements: Helen J Williams;
Julie Sale Headington Prep-School



Golden Beans

Counting and comparing numbers
Linking numerals and amounts



Children often enjoy counting things they have been given or things they come across.

Adults could provide items for the children to count (in this example golden beans) and provide a variety of number cards for them to use in the counting.

The Activity

Leave a pile of golden beans and a range of number cards in a place for children to explore them. Some cards may have numerals on them, some may feature dots, some may have representations of apparatus found in your setting.

Encouraging mathematical thinking and reasoning:

Describing

Tell me about your beans.
(If they've used cards) Tell me about the cards you've used.

Reasoning

Why did you choose that card?
What would we have to do to make sure you have the same number of beans as?

Opening Out

Let's look at ...'s beans too. What can you tell me about his/her beans? How many do you have altogether? How do you know?

Recording

Can you write/draw/put on paper the number that you have? What would you like to take a photo of?

The Mathematical Journey

Counting and cardinality

- using number words and language about counting e.g. none, zero
- reciting (some) number names in sequence
- cardinality: saying how many there are altogether
- showing on fingers how many there are
- progressing from knowing some number words to saying one number for each object, then knowing the number of the whole group
- selecting a small number of objects from a group when asked
- showing curiosity about numbers by offering comments or asking questions
- relative number size - comparing numbers

Linking symbols and amounts

- finding numerals to match the number

Development and Variation

The mathematics of this activity could equally well arise from groups of objects collected by the child him/herself, rather than through the beans placed in the setting by the practitioner.

You may like to encourage children to create patterns and sequences with their beans, if they do not do this naturally. Provide materials with which to record their patterns, should they wish.

You could put some beans in a box/bag and invite learners to estimate the total number before finding out the exact number for themselves.

The NRICH EYFS activity "[Maths Story Time](https://nrich.maths.org/early-years)", which focuses a little more on the early ideas associated with division, could follow on from this one.



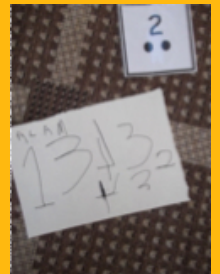
Resources

Beans (painted gold) or other items, perhaps linked to the current theme or a recently-read story

Cards featuring numbers in the form of dots

Cards featuring numerals

Cards featuring numbers in the form of any apparatus used in the setting



With thanks to Kirsty Lombardi at Ludwick Nursery School who was the inspiration for this activity.

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Teachers: Early Years

Hidden Jewels

Saying how many there are without counting



Children often enjoy hiding games, especially if they involve gems, jewels or golden coins!

Adults could provide 'hide and reveal' games that prompt children to subitise or see the number of the group without counting.

The Activity

Put three bowls over one, two and three jewels.

Quickly lift and replace one bowl and challenge children to say how many there are.

Swop the bowls around rapidly for a minute. When you stop, can they point to the bowl with three?

Lift the bowl and see if children can instantly say whether they are right.

Encouraging mathematical thinking and reasoning:

Describing

Can you see how many there are?

How did you see them?

Reasoning

How did you know there were three?

Opening Out

Can you make some different patterns with four jewels?

How can you arrange five jewels so you can quickly see there are five?

Recording

Draw, stamp, sticker or take a photo for your favourite patterns for 5.

The Mathematical Journey

Shape, space and position:

Using spatial language, such as 'above' and 'underneath' including shape names or properties, such as 'in a line' or 'triangle'

Number:

Perceptual subitising: saying how many there are without counting

Conceptual subitising: saying how many there are by subitising two subgroups and combining the numbers e.g. 'I knew there was three because there was one and two'; 'four - I saw two and two'

Counting and cardinality: counting to check how many there are

Counting irregular arrangements of things

Development and Variation

- Connect to story contexts, such as dragons stealing jewels and hiding them in caskets or caves.
- Use two colours of jewels and see if children can say how many there are of each e.g. one blue and two red.
- Put groups of two or three things on plates and ask children to find plates that are the same, or make one 'odd' and ask children to find one not the same as the others.
- Pairs of children can take turns to secretly hide a small number of jewels or cubes under a dish and then lift it briefly for the other to say how many there are.
- Increase numbers to four and five. For larger numbers see if children can estimate how many there are: who made a good guess?
- Make a number of sounds with a drum and ask children to show that many fingers.
- Challenge children to find five jewels in a sand tray, or amongst pebbles in a box, and discuss how many they have found and how many they are still looking for.
- Use large magnets on a tin tray (see the Number Talk Images website, ntimages.weebly.com)

Resources

Jewels or 'nuggets', gold coins, pounds or pennies, conkers or pebbles of roughly equal size, cotton wool balls, identical shape blocks.

Paper bowls to cover the jewels.

Other containers or things to hide or screen the objects e.g. boxes or pieces of card.

Clements and Sarama's Learning Trajectories website has many subitising activities, including videos of this one learningtrajectories.org

Acknowledgement: Clements & Sarama Learning Trajectories.org



Maths Story Time

Solving problems



Children often enjoy the challenge of being asked to help solve a problem, especially if it has big numbers and involves injustice.

Adults could introduce story problems with a large group of three and four-year-olds. The story can involve sharing with toy characters and a familiar context which will provoke mathematical discussion, language and reasoning. Having another character come along creates a new problem and remainders present options involving fractions, addition or subtraction.

The Activity

Pirate Panda has taken all the treasure, 20 golden coins. Cat, Dog and Rabbit jump about excitedly, "Can we have some too?"

"No! No! No!" says Pirate Panda.

Can the children suggest what Panda ought to do?

Encouraging mathematical thinking and reasoning:**Describing**

Is it fair?

Have they all got the same amount?

Is it fair now?

Reasoning

Why is this fair/not fair? How do you know?

Opening Out

What if we give them another one each?

Sheep comes along - what should we do now?

Bear comes too, so what could we do about the remainder?

What else could we do?

Recording

Could you draw a picture to show Panda what to do in order to be fair?

The Mathematical Journey

Counting

- cardinality - the last number gives how many there are
- counting for a purpose - to see if everyone has the same number

Number symbols

- matching numerals to amounts, or recording amounts informally

Comparing

- saying who has more or not as many
- saying which numbers are more or less than others

Adding and subtracting

- saying how many there will be if we give them one more each
- saying how many there will be if we take one away

Dividing

- sharing practically, using one-to-one and many-to-one
- understanding how 'dealing' results in equal shares and the same number each

Problem-solving

- starting again and redistributing
- using adding and subtracting to make it fair
- creating fractions to solve a remainder problem
- finding alternative solutions
- checking to make sure they all have the same

Development and Variation

You could start the story with Panda sharing unfairly, provoking the children to comment. The numbers chosen determine the level of challenge: 20 shared between four toys encourages counting up to 5 for younger children. You might simplify the problem by having two then three characters, but use larger numbers for expert counters.

Deliberately choosing numbers which create remainders, like 4 or 5 shared between three, offers opportunities for alternative solutions such as fractions, subtracting some or adding some more. Problems such as 7 shared between four offer more challenging multistep solutions.

Toys and objects could fit with a current interest, such as a teddy bear party.

Use a real context such as sharing fruit. This would encourage discussion of fractions, especially if there was a 'bigger half'!

Other contexts include sharing bulbs between containers or sharing resources for artwork. You could use Numicon or ten frames to check that everyone has the same amount, or arrange coins on trays or plates.

Large numeral cards will emphasise whether everyone has the same number and encourage discussion about comparing numbers if the sharing is unfair. These could be supported by dot patterns on card, Numicon or other representations of amounts.

Resources

Puppets or toy animals
Things to share e.g. gold coins, treasure
Large numerals and dot cards
Trays, plate



With thanks to Kim McDonagh and Janine Davenall,
from a North London school, who inspired this activity.



Two Halves

Halving
Solving problems



Children often enjoy finding things that are the same.

Adults could ask children to find half of lots of different things, quantities and collections.

The Activity

With a playdough cookie, pose a story problem about having to share it with a friend. How could you do this?

Cut or break it in two pieces and keep the bigger 'half' yourself. Ask the children what they think about this.

Present a range of materials, such as paper shapes, string and bananas. Challenge children to halve them and then discuss and display the results.

Encouraging mathematical thinking and reasoning:

Describing

What do your halves look like?

How did you make the halves?

Reasoning

How do you know they are halves?

How can you check they are the same size?

What can he do if gets the wrong number/not enough/he has too many?

Opening Out

What if you have to halve a box of four cakes? A collection of pennies?

What if you have to halve a length of gold ribbon? A bottle of drink?

Is there another way to fold a square of paper in half?

Recording

Can you put something on paper to show:

- what your halves look like?

- how you know these are halves?

How do you write half?

The Mathematical Journey

Counting and cardinality

- using counting to check both amounts are the same

Matching numerals and amounts

- selecting numerals to match the numbers involved

Subtracting

- predicting the result of taking away one number from another
- using the inverse addition facts (e.g. 'Half of 10 is 5, because 5 and 5 make 10')

Dividing

- understanding that dividing by two results in two equal parts - explaining this as 'same' or 'fair', or justifying by matching amounts

Measures

- awareness of aspects such as length, volume, weight, area
- comparing by estimating or directly, or using measuring tools such as identical containers or balance scales
- explaining how they know the halves are the same amount

Development and Variation

Finding halves of:

- 2D shapes (area) by drawing lines or folding paper
- 3D shapes (volumes) by cutting e.g. fruit and playdough
- lengths e.g. ribbons, strips of paper - folding and cutting
- weights e.g. playdough - checking with balance scales
- volumes e.g. water - pouring into two identical containers
- numbers of items e.g. pennies, jewels, pegs on pegboards
- numbers of structured materials e.g. Unifix sticks, Numicon, Cuisenaire

Make a display of halves.

Where does half go on the number line? Make an 'ages' line from birth to 20, for children and siblings, to include half years e.g. one and a half, four and a half ...

Use:

- tablets to halve pictures
- mirrors to halve (and double) pictures



Resources

- 2D shapes, folding paper
- ribbons
- playdough, knives, scales
- water, jugs, identical containers, mirrors
- items e.g. pennies, jewels, pegs on pegboards
- structured materials eg Unifix sticks, Numicon, Cuisenaire

Acknowledgements: Claire Christie, Annabel Bennet

Incey Wincey

Counting



Children often enjoy playing games with dice.

Adults could use this to develop connections between the number of dots on a dice and counting actions.

The Activity

Draw a giant 'drainpipe' outdoors. Children choose to be either the sun or the rain. They take it in turns to throw the dice and move the spider up or down the drainpipe according to their role. They use giant dice with dots to determine how many jumps to take and direct the 'spider' who counts each jump after landing.

Encouraging mathematical thinking and reasoning:

Describing

Where are you now?

How many jumps did you make?

Reasoning

Why did the sun win, do you think?

You've thrown two – what do you have to do now?

How many more steps have you got to go?

You've thrown three – will that get you to the end?

How many turns do you think you will need to get to the end?

What do you think will happen? Why?

Opening Out

Could we make another game like this? What could we use?

Recording

Can you put something on paper to show what numbers you threw or to show someone what you learned from the game?

The Mathematical Journey

Counting:

- remembering the order of number words as they count
- synchronising saying one number word with landing on each square
- remembering the 'stopping number' so that the required number of steps are counted

Partitioning numbers:

- knowing how many more steps remain

Number recognition:

- recognising the number of dots on the dice
- associating the numeral or the number of dots with the number of jumps along the track

Relative number size:

- knowing that a bigger number means going further

Development and Variation

You could play other games which involve tracks, like snakes and ladders, especially on large or outdoor tracks where the children jump along, counting as they land.

For less experienced children, play games where they throw the dice and fill up the track with counters, so they are counting objects, which is easier than counting moves. You can make tracks or grids to fill up with any objects the children are interested in, like shells.

There are many commercially produced games that involve turn-taking and counting, and that are valuable. Having dice and a variety of different tracks, both in and outside, encourages children to make up their own games too.

Resources

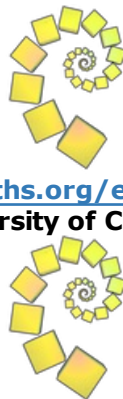
The game board (see [Here.jpg](#)) and a spider (or counter with a spider drawn or pasted on it).

Outdoor track drawn with chalk or painted with powder paint.

Dice (large foam for outdoors) or spinners with 1, 2, 3 dots and another with numerals 1, 2, 3 (or mixed).

A spider hat for a child would be fun.

Paper/whiteboards and pens if recording.



Number Book

Counting reliably with numbers from 1 to 20
Sorting and describing



Children often enjoy collecting objects and counting them, and many love having a sticker book.

Adults could suggest creating a 'number book' when they see a child picking up one or two related objects.

The Activity

Children are asked to collect four (or whatever number is appropriate) of a range of objects both indoors and outdoors, for example, they may choose four leaves, four stones, four play figures ... They are invited to create their own book, 'My Book of 4', by sticking the objects into a plain-paged book, where appropriate, or by sticking in photos of the objects.

Encouraging mathematical thinking and reasoning:

Describing

Tell me what you are looking for.
Tell me about these things you've collected. Tell me about your book.

Reasoning

Do you need any more? How do you know?
Have you got enough? How do you know?
Have you got too many? How do you know?

Opening Out

Provide further opportunities for children to do similar activities in different environments, on forest visits, in the playground, in the school garden, in the PE store ...

Recording Same and different:

Will you keep that/them for your book?
How shall we put them in your book?
Could we draw/take a picture of these things for your book?

The Mathematical Journey

Counting skills:

- saying one number for each object
- remembering the pattern of the number sequence
- understanding cardinality i.e. that the last number gives the total

Same and different:

- grouping e.g. these are all leaves, these are all square-shaped buttons

Development and Variation

You could encourage children to group together to count their objects in total and perhaps to create a new book as a result.

You could suggest that the whole group/class creates a counting book of numbers in order from 1. Pairs of children could be given a particular number and asked to find that number of objects of their choice. You could then assemble the book as a whole group/class. It would be lovely for the book to follow the group up the school, where possible. The following NRICH Early Years activities might offer similar mathematics: [Tidying](#), [Incey Wincey Spider](#), [Dice](#) and [Washing Line](#).



Resources

Simple plain-paged scrap books

Glue/paste

A variety of collections of objects in your setting, some of which may be present all the time, some of which may be introduced for shorter periods

An outdoor space

A camera will be useful to take photographs of the items that can't be stuck into the books

Photo acknowledgement:

<http://www.mommywithselectivememory.com/p/all-activities-for-kids.html>

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Number Rhymes

Counting down from, and up to, 10
Saying how many there are altogether



Children often enjoy singing and saying rhymes and telling familiar stories.

Adults could share the song 'Ten Green Bottles' in order to involve the children in singing and counting.

The Activity

Provide a collection of ten green bottles, partly filled with sand. Stand them in a row for all the children to see. Sing the song and act it out.

Encouraging mathematical thinking and reasoning:

Describing

What is happening to the number of bottles each time one falls?

Reasoning

Two bottles have fallen off the wall. How many are there left? How do you know that? What if you count the bottles on the wall and those that have fallen off? Can you see a pattern?

Opening Out

What if two fell off at once?

Imagine how many bottles there will be on the wall if three have fallen off.

What if we add five more bottles, how many would there be then?

Recording

Can you show on your fingers how many there are/how many will be left?

Can you find the numeral, doty card or Numicon to match the number left?

Can you draw a picture/make a mark, to show me how many bottles there are on the wall now?

The Mathematical Journey

Counting and cardinality

- using number words and language about counting e.g. none, zero, next door number/number neighbour
- cardinality: saying how many there are altogether
- showing on fingers how many there are

Linking symbols and amounts:

- finding numerals to match the number left

Subtracting

- counting them all to find out how many are left
- using the language of subtraction: saying how many are left
- knowing that one less is the next number counting backwards e.g. predicting the next number before the next bottle falls

Describing position

- using positional language e.g. on, off, next to, before, after, left, right

Development and Variation

If two fall off at once, children may realise they can count back to subtract: you could support this with a number line.

Children could show with fingers how many there will be.

Counting up and down from a given number in the context of the number of children in the group e.g. ten children and two are away today so there are eight here.

Counting sets and collections of objects and adding or removing some by hiding objects under a cloth or in a bag.

Story, rhyme and song links

Five Little Ducks Went Swimming One Day, Ten Fat Sausages

Resources

Green plastic bottles partly filled with sand or water to weigh them down

Numerals, dotty cards, Numicon

Whiteboards and pens

Camera or video camera for recording



Number Talks

Recognising, creating and describing patterns with numbers



Children often enjoy saying how they see something differently from someone else.

Adults could show interesting arrangements of objects and invite children to talk about the numbers they see.

The Activity

Arrange five large magnets on a tin tray and confirm that everyone sees five.

Ask, 'What numbers can you see hidden inside five?' Collect different views.

Turn the board away to rearrange, show briefly and ask, 'How do you see them now?'

Encouraging mathematical thinking and reasoning:

Describing

Can you tell me how you saw them?

Did anyone see them differently? How did Lucas say he saw them?

Reasoning

How did you know how many there were?

Is this way easier to see how many there are? Why did you find it easier?

Opening Out

Has anyone got a quicker way of counting?

Can you arrange your counters so that you can quickly see how many there are?

Recording

Can you copy this pattern with your counters?

Can you record this by drawing or stamping or with stickers?

The Mathematical Journey

Shape, space and position:

Using spatial language, like 'on the top', 'underneath' or 'left' and 'right'.

Number:

Perceptual subitising and cardinality: recognising small numbers without counting.

Part-whole awareness: Talking about numbers being made up of other numbers and numbers within a number e.g. 'I knew there were three because there's two and there's one'.

Recognising doubles, e.g. 'When I see 6 I see 3 and 3'.

Conceptual subitising: recognising the whole number by subitising and adding subgroups e.g. 'there's two and two and one, and that makes five'.

Counting in twos (unitising).

Development and Variation

Show numbers of things in less familiar arrangements and provide counters for children to copy.



Invite children to make lots of different arrangements for five with counters, matchsticks, shapes or small cubes, and to talk about how they are made up with different numbers.

Bunny ears: ask children to show a number on the fingers of two hands held above their heads. One child can show a number briefly in this way for others to say how many there are.



Discuss images from Making Number animations <https://www.oxfordowl.co.uk/for-school/pd-books/making-numbers> (you'll need to register) or Number Talks (ntimages.weebly.com)

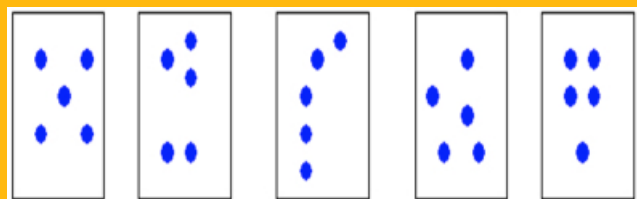
Resources

Large magnets, magnet board or tin tray

Video of the magnet activity with a class of five year olds:

<http://www.teachingchannel.org/videos/visualizing-number-combinations>

Dot cards with different arrangements, see article at : <https://nrich.maths.org/10737>



Counters, such as 'nuggets', square tiles or cubes

Subitising progression with activities: <http://learningtrajectories.org>

Acknowledgements: Stephanie Latimer on Teaching Channel



Owl's Packing List

Counting reliably
Understanding numerals and solving problems



Children often enjoy activities which involve counting and packing, as well as helping those who are less experienced than themselves.

Adults could include a range of numbers and make selected mistakes to see if children can demonstrate and explain solutions.

The Activity

This is a problem-solving story, for an adult with a large or small group of children. Owl has a pictorial packing list with the numbers of various things he needs to take away with him on a visit to his aunty for a few days. He has got lots of all the things, but he needs help reading the numbers on his list and counting the right amounts into his travel bag. He keeps making mistakes which he needs help to sort out.

Encouraging mathematical thinking and reasoning:

Describing

How many things can you see?
About how many do you think there are?

Reasoning

How does Owl know how many this means?
How does Owl know he has the right number? Can you find another way to check?

Opening Out

What can he do if gets the wrong number? ... not enough? ... too many?
Suppose he stays for twice as long? Or he takes a friend or a pet?

Recording

How do you know how many this (numeral) means?
Is there a different way we could show Owl how many things to pack?
Can you make a packing list for someone for a trip for a number of days, to show them how many things they will need?

The Mathematical Journey

Counting and cardinality

- remembering the word-number-sequence
- saying one number for each object
- understanding cardinality i.e. that the 'stopping number' gives the right amount when counting out a number from a larger group
- counting in a different order to check

Knowing number values

- making reasonable estimates
- subitising or knowing how many there are without counting e.g. recognising a dice pattern

Matching numerals and amounts

- using a number line independently to find a numeral illustrated with a number of things
- reading numerals with the purpose of seeing how many things there should be



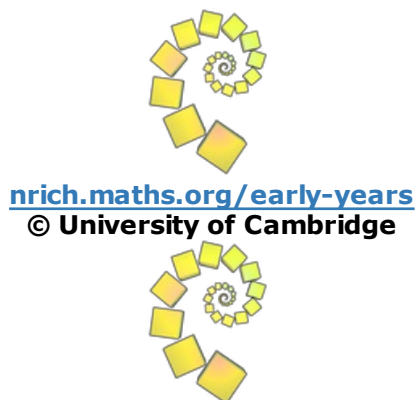
Development and Variation

- Relate to a calendar and days of the week.
- Trips can be for more days, or with more creatures.
- Other toys could be used with other requirements e.g. T-shirts and socks for a doll, dog food/rabbit pellets for a pet dog/rabbit...
- Children could:
 - have packing lists in pairs
 - make up their own packing lists
 - buy things in a class shop for packing.

Resources

- a very large pictorial packing list - you could have just the numeral and a picture of the item, or words as well
- collections of all the things Owl will need for his trip - e.g. tickets, spare feathers, miniature shampoo bottles, biscuits and apples, reading books, toys/stuffed animals, stationery/pens, spending money, presents to give his aunty ...
- a travel bag
- a large number line, with easily recognised patterns of things (e.g. dot patterns) to show the meaning of the symbols and to help children decode these independently.
- a calendar

With thanks to Nicola Papastavrou-Brooks for the image



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Shopping - Pirate Poundland

Counting



Children often enjoy shopping role play and exchanging coins for selected purchases.

Adults could structure the prices and money allocated to shoppers and model ground rules.

The Activity

Set up the pirate shop where pirates are only allowed ten pounds each and all pieces of treasure cost one pound. Encourage children who are acting as cashiers to check that shoppers buy no more than ten items. You may suggest that customers go back for more items to make up the ten if they don't have 'enough'!

Encouraging mathematical thinking and reasoning:

Describing

How much have you spent so far? How much have you got left?

Reasoning

How many more do you need to buy to have ten?

If you buy those two jewels, how much will you have spent? How much will you have left? How do you know?

Opening Out

If jewels are on offer, 'buy one get one free', how many will you get for five pounds?

Recording

Can you make a shopping list, so you know how many things to get?

How do you know what you have bought from your list?

The Mathematical Journey

Counting

- cardinality - the last number gives how many there are altogether
- counting for a purpose - to check the right amount of treasure

Number symbols

- linking numerals to amounts

Adding and subtracting

- saying how many you will have if you buy one more thing
- saying how many pounds you will have left if you buy one more thing
- saying how many more you need to have ten things altogether

Dividing and multiplying

- counting in twos for the two-for-one offer

Development and Variation

Shops can obviously take a variety of forms, such as a building supplier, garden centre or fast food outlet.

Changing prices, so everything costs £2, 10p or 5p, increases the level of challenge.

Games, where the supply of money is controlled by throwing the dice, can also help to structure the activity and focus children on the numbers involved.

Games can also involve real money which has to be checked at the end (e.g. by matching on silhouettes on box lids).

Resources

Plastic pounds (these are more realistic than other plastic coins).

Treasure: anything gold, silver or sparkly - necklaces, gold chains, buttons etc. You can buy brightly coloured 'jewels' from educational suppliers.

Pirate supplies could include food, drink, nautical equipment, perhaps weapons

Treasure chests, purses, bags for treasure purchases

Pirate hats



Acknowledgements: Georgina Harry and her Reception class,
Marlborough Primary School, Falmouth, Cornwall



Show Me

Cardinal numbers
Matching numerals and amounts



Children often enjoy finding things which are the same.

Adults could provide lots of different images and resources to show the value of numbers and numerals.

The Activity

Hold up five fingers, a giant dotty dice or a large numeral and ask the children to show you that number in different ways.

Put out lots of different things which children can use to show the numbers, including countable items like conkers, small world toys, large blocks, multilink, dot images like dice and dominoes, structured apparatus like Numicon, Cuisenaire or an abacus, things in packs like egg boxes and crayon cartons, and number symbols including washing lines, number lines and 100 squares.

Encouraging mathematical thinking and reasoning:

Describing

How does this 5 look different from that 5?

What does this pattern of five look like?

What can you see?

How did you make 5 with two hands?

Reasoning

How do you know these are the same number?

What is the same and what is different about these fives?

Opening Out

Can you show me five fingers a different way? Is there another way? What different patterns can you make with five counters?

Can you see any numbers hidden inside this pattern of five?

Can you show me 15? How do you know it is 15?

Recording

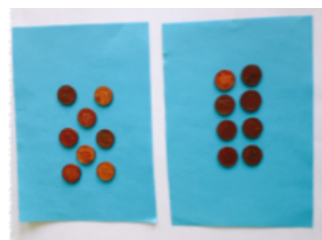
Can you draw or record your patterns?

Can you put something on the paper to show how many there are? Can you put some numbers to show what hidden numbers you see?

The Mathematical Journey

Counting and cardinality

- using counting to check
- subitising: recognising the number of items without counting
- conservation:
- rearranging items and explaining the number is the same because the arrangement can be returned to the original and none have been added or taken away
- matching two groups one-to-one to show they have the same number



Matching numerals and amounts

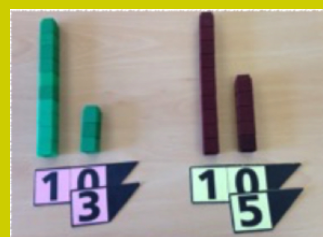
- selecting number symbols to match the total or numbers inside numbers

Composition of numbers

- talking about numbers being made up of other numbers: 'It's 6 because I see 3 and 3'.
- knowing number facts e.g. '5 and 1 more makes 6'.

Development and Variation

- Show me different numbers.
- Have a display table for the number of the day or week, or where children can choose a number to make a display for. Show number symbols in different forms and scripts e.g. on calculator.
- Number hunt: hide numerals and bags with numbers of things in (e.g. conkers).
- Use laminated cards with dots or pictures and ask children to find a numeral and then items or pictures with the same number.
- Make different patterns for the same number with objects on trays; take photos.
- Use overlapping digit cards for teen numbers (see picture) and same colour sticks of 10



Resources

- countable items: conkers, small world toys, large blocks, multilink, pennies
- dot pattern images: dice, dominoes and Hungarian number pictures
- structured resources: Numicon, Cuisenaire, unifix with same colour sticks of 10, 10p coins
- things in pairs or packs: pairs of baby socks, egg boxes, packets of crayons, multipacks
- numerals in different styles, on tiles, washing lines, giant number tracks, 100 square mats, overlapping place value cards for teen numbers, calculators
- numerals on everyday objects like birthday cards, football shirts, calendars, clocks, measuring equipment e.g. height charts
- displays of numbers in different arrangements with numerals e.g. staircases of rods or conkers on strings; number lines or tracks with numerals and dot patterns.

Download a [pdf](#) of this resource

With thanks to Jenni Back and Janine Davenall



The Box Game

Adding and subtracting
Solving problems



Children often enjoy visualising how many toys are hidden in a box.

Adults could start by using three large toys and a giant box with a group of young children. Then use bigger numbers or miniature toys with smaller groups or individuals.

The Activity

Put toys one at a time into the box, so children cannot see them inside, counting altogether. Ask: 'Can you show on your fingers how many are hidden?'. Display a large numeral. Add one to the box, without showing the objects inside and ask children to show on their fingers, 'How many are there now?'. Then show how many are inside the box and count to check.

Encouraging mathematical thinking and reasoning:

Describing

How many are there to start?
How many now?

Reasoning

How do you know?
How did you work it out?

Opening Out

What if we add two more?
What if we take one out? Two out?
Imagine there are 10 in there and I take out 6 - how would you know how many were left?

Recording

Can you show how many there were?
Can you show how many there are now?
Can you show how many there were and what happened?

The Mathematical Journey

Counting and cardinality

- saying numbers in the right order
- saying one number for each object
- saying how many there are by showing 'finger numbers'
- by counting fingers
- instantly, without counting

Matching numerals and amounts

- selecting numerals to match the starting and finishing numbers

Adding

- predicting adding one to a number (or two)
- modelling on fingers
- counting all e.g. putting up 4, then 2 more, then counting from one through to 6.
- counting on, starting from the first number: '4, 5, 6'
- visualising or counting mentally, e.g. nodding at hidden objects; saying, 'I went 4, 5, 6'
- using number facts: 'Because there were 3 and you put one more', 'I know 2 and 2 is 4'.

Subtracting

- predicting taking one from a number (or two)
- modelling on fingers
- counting all, then how many left: putting up 6, putting down 2, counting the 4 still up.
- visualising or counting backwards mentally: 'I went 6, 5, 4, so there's 4'.

Development and Variation

Increase numbers to start, to add and take away:

- repeatedly add one to the previous number.
- repeatedly subtract one from the previous number.
- vary the starting number, but just add one each time (or two):
- keep one starting number and subtract varying amounts to build number fact knowledge.
- repeatedly add 2, or subtract 2 from a starting number.

Children can choose how many to add or take away.

Vary the context: use pennies in a pot, children behind a screen, dinosaurs in a cave. Model with fingers, Numicon, large number line, 'staircase' of cubes or other resources.

Resources

- Box or tin with lid, a pot to upturn or a screen, cloth, cave ...
- Toys, pennies, children, dinosaurs ...
- Large numerals to display

Acknowledgement:
Martin Hughes (1986) Children and number: Oxford, Blackwell

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Tidying

Counting, matching numerals and amounts
Calculating
Using shape properties



Children often enjoy hunting for missing items or counting to excitingly high numbers at tidy-up time

Adults could plan to focus on particular children to support and challenge, as well as intervening opportunistically.

The Activity

If resources are organised in containers with number labels showing how many there should be, then everyone can be involved in 'stock checks' to count and see if any are missing. 'Check point' number tracks help identify the missing number. Children can also match construction blocks or tools onto silhouettes, or numbered trikes to their parking bays.

Encouraging mathematical thinking and reasoning:

Describing

So how many are there altogether?
How do you know?
Do you notice anything about the bigger numbers?

Reasoning

How many more do we need?
Do you think we have the right number yet, with those two?
How did you know we would have the right number?

Opening Out

What shape box/basket/container do we need for these?
Is there a better way of doing this?

Recording

Can you keep track on your clipboard of how many we have found?
Tell me about what you've written/drawn.

The Mathematical Journey

Counting:

- saying one number for each object
- remembering the pattern of the number sequence
- understanding cardinality i.e. that the last number gives the total

Matching numerals and amounts:

- reading numerals with the purpose of seeing how many there should be Subtraction - "how many more?":
- progressing from one more to bigger missing numbers
- using fingers, visualising or counting on (this is the aspect of subtraction called 'complementary addition' or 'inverse of addition' and involves seeing numbers as parts within wholes)

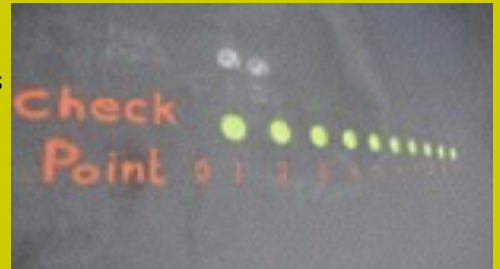
Shape properties:

- noticing similarities and differences, and matching the 2D face of an object to an outline or silhouette

Development and Variation

Children can help organise, count and make the labels for resources in the classroom, outdoors or a role play area, such as a shop.

Labels showing different numbers, for example, '10 pairs of scissors' or '110 pieces of Lego', can be used to differentiate challenges. Children can count as far as they can, just for fun. Number lines with numbers of dots under the numerals will help as a reference and giant 100 squares support counting to higher numbers.



A number track is useful to count things onto. Children can identify the target number, count the objects onto the track, then count the empty spaces to find how many are missing. Outdoors a 'checkpoint' of numbered spots can be used for large things like trucks (see photo).

Children can use calculators to support counting, like a clicker tally, by pressing + 1 =, then pressing =

Resources

Labelled containers
Number tracks or 'checkpoints'
Illustrated number lines, giant 100 squares
Calculators

Photo acknowledgement: Janine Davenall

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Using Books: Maisie Goes Camping

Using everyday language to talk about addition and subtraction



Children often enjoy sharing a book with an adult and then acting out the story.

Adults could provide story props for indoors and outdoors.

Here we focus on using 'Maisie Goes Camping' by Lucy Cousins.

The Activity

Read and enjoy the book and discuss any camping experiences.

Re-tell the story with small world characters going into folded card 'tents', one at a time. Repeatedly ask, 'Is there room for one more?' until children decide its a squeezy squish-squash and characters POP! out of the tent one at a time. Add wooden numerals and cards with POP! written on.

Children can act out their own versions with props or with dens made outside.

Encouraging mathematical thinking and reasoning:

Describing

Tell me about this picture (with characters going in or popping out of the tent). What do you notice? What do you wonder?

Tell me what is happening. How many are inside now? And now?

Reasoning

How many will fit without a squeezy squish-squash? Why do you think that?

What will happen if another person goes in/out/now? Can you explain why you think that? How do you know that there will be 6/3/2/1 in the tent? Shall we act it out to check?

Opening Out

Play a game with 5 toys: hide some in the tent. One is outside, so how many are inside? Shut your eyes and imagine: 3 campers inside the tent, one more goes in, how many now?

2 go inside, 3 are outside: how many altogether? Children can check by modelling. What if ... we have a larger tent? ..we have 2 tents?

Recording

Can you find some numbers to go with your story?

Would you like to do a picture to show how many children are inside and outside the tent? Can you put something to show how many have gone in/come out?

The Mathematical Journey

Counting

- cardinality - the last number tells you how many there are
- counting for a purpose - to see how many there are

Comparing

- saying a number which is more or less

Number symbols

- reading and matching numerals to amounts, or recording amounts informally

Addition and subtraction

adding and subtracting 1 or 2 from small amounts in a practical situation

talking about and solving practical problems involving addition and subtraction

using fingers for addition and subtraction calculations

using number facts e.g. 'I know there's 2 inside because 2 and 2 are 4.'

Problem-solving

- modelling a simple addition/subtraction word problem

Development and Variation

Children could create their own versions of the story and illustrate a group book.

Use wooden or other numerals and Numicon to represent what is happening to the number of animals in the tent as they tell the story.

Make shadow puppets and re-create the story, drawing children's attention to what is happening to the numbers.

Play the Box Game <https://nrich.maths.org/content/id/12745/BoxGame.pdf>

Watch the animation 5 Friends counting Making Numbers OUP <https://www.oxfordowl.co.uk>

Other books for mathematical discussions:

Mouse Count by Ellen Stowe Walsh, about a snake collecting mice to eat. <https://www.youtube.com/watch?v=Vr7qKFnp6bE>

The Double Decker Bus by Catherine Fosnot and Nina Uz explores numbers within 10 <https://www.youtube.com/watch?v=1EEkcDP2ios>

Resources

Maisie goes Camping by Lucy Cousins

<https://www.youtube.com/watch?v=q9u8r16B5lo>

Small world toys and folded cards to represent tents

Large numerals and POP! cards

Outdoor den-making equipment

Pens and whiteboards or clipboards

Acknowledgements: Helen J Williams

Using Books: the Doorbell Rang

Solving problems involving sharing and talking about numbers



Children often enjoy sharing a book with an adult and talking about it.

Adults could provide suitable books with matching props to act them out. Here we focus on using *The Doorbell Rang* by Pat Hutchins, which is suitable for Reception children.

The Activity

Read and enjoy *The Doorbell Rang* a number of times with the group. Acting out the story involves children in sharing a number of cookies between different numbers of people (using salt dough cookies and paper plates).

Encouraging mathematical thinking and reasoning:

Describing

Tell me about this picture (showing children about to take cookies from the plate.) What do you notice? What do you wonder?

Have you ever shared any cookies? Tell me about what happened. How many people were there? Here are $2/3$.. toys. Tell us how you share them out so they all have the same number.

Reasoning

What will happen if another person turns up now? Can you explain why you think that? How do Sam and Victoria know that there will be $6/3/2/1$ cookies each? Shall we act it out? Have they all got the same? How do you know? Can you prove it? Can you show me?

Opening Out

What do you think the children should / might do now? (especially at the last doorbell).

I wonder what would happen if . . . there were a smaller number of cookies? An odd number of people at the door? Or a number giving remainders? e.g. 10 shared between 3 or 4.

Recording

Would you like to do a drawing/picture to show how Sam and Victoria could share out the cookies fairly? To show how you have shared them?

The Mathematical Journey

Counting

- cardinality - the last number tells you how many there are
- counting for a purpose - to see if everyone has the same number

Comparing

- saying who has more or not as many
- saying which numbers are more or less than others

Number symbols

- matching numerals to amounts, or recording amounts informally

Dividing

- sharing practically, using one-to-one and many-to-one
- understanding how 'dealing' results in equal shares and the same number each
- knowing 'halves' mean two equal parts of a whole

Problem solving

- changing strategies: e.g. starting again and redistributing
- using adding and subtracting to make it fair

Development and Variation

Children could be invited to create their own version of the story, which an adult could scribe for them to illustrate as a group book

Instead of changing the number of children, you could change the number of cookies to share, and explore which numbers 'work'.

A similar story about Pirate Panda is presented in Maths Story Time: <https://rich.maths.org/content/id/9718/Maths%20Story%20Time%20.pdf>

Another activity based on a book is Maisie Goes Camping <http://rich.maths.org/13533>

Other books which lend themselves to mathematical discussions include:

Jim and the Beanstalk by Raymond Briggs, about measuring the giant for glasses

Mouse Count by Ellen Stowe Walsh, about a snake collecting mice to eat.

Resources

The Doorbell Rang by Pat Hutchins

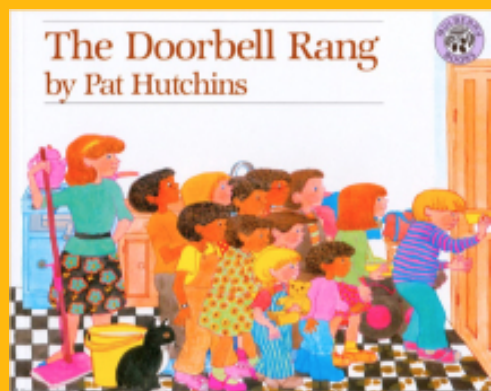
<https://www.youtube.com/watch?v=BXtu90JnDkM>

12 salt dough or playdough biscuits, 12 paper plates

Laminated pictures of biscuits and children from the book to arrange on a magnet board

A battery doorbell (a bike bell also works)

A range of materials for children to record



Acknowledgements: Helen J Williams

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The Voting Station

Counting and comparing



Children often enjoy having their say and helping to decide events by choosing between options, such as which book to share in story time. This provides purposeful opportunities for comparing numbers.

Adults could set up a 'voting station', displaying options such as books, and provide 'voting bricks' with each child's name on to be placed next to their choice and number cards to label the results. Timers could be provided that children could use to time themselves as they fill up the container.

The Activity

Ask children which of the two books displayed they would like at story time and give each child a brick with their name on, to place next to the book of their choice. Make towers of the bricks and discuss which option has the most votes, by comparing the numbers of bricks.

Encouraging mathematical thinking and reasoning:

Describing

Which tower has more bricks?
How many have they each got?

Reasoning

So which book do most people want?
How do you know?
How many people have not voted yet?

Opening Out

Suppose we have three books to choose between?
There are two more people to vote-will their votes change the result?

Recording

Can you put something on paper to show which one most people wanted?

The Mathematical Journey

Number

- Comparing more and less; being able to say 'This has more than that one'.
- Cardinal counting: counting and saying how many there are.
- Comparing numbers e.g. 'This has more because it has 8 and that one only has 6'.
- Estimating how many there are in a tower, or scattered bricks.
- Predicting addition e.g. 'If two more people vote for that one, then it will have 8'.
- Reasoning: ' . . . But if this one gets 2 more, it will win, because it will have more'.

Data Handling:

- Interpreting the bricks as signifying the numbers of people who wanted an option.

Development and Variation

You could start by asking children how to decide – e.g. by raising hands and then discussing how to make it easier to see what happened and whether anyone has voted twice.

After the vote, two children could count the bricks and find number cards to match. Voting matters more if something happens as a result! Children could choose games to play outdoors or role play areas to set up, what to cook or make, or destinations for outings. Children may try to influence their friends as voting progresses: you could discuss how this might be avoided e.g. by posting votes secretly in a ballot box for each book.

Resources

Duplo bricks with children's names or name cards.

Named pebbles or hand prints.

A table display, with number cards to label the results and a number track for reference.

Posting boxes for each option.

John Burningham's *Would you rather?* provides some engaging fantasy options.



Acknowledgements: Kelly Cross, St James Weybridge
Sarah Campbell, St Laurence CPS



Counting Collections

Counting confidently



Children often enjoy counting for their own enjoyment, recounting things they have counted before, arranging or lining up objects, filling and emptying containers of objects, making choices about what they like to count and having favourites.

Adults could demonstrate counting rhythmically, using different ways to keep track when counting objects, pausing to say how many they have counted so far, putting objects into groups and representing amounts using drawings or symbols.

The Activity In pairs, children choose a collection of objects which they would like to count (from a range of collections in boxes or jars). They decide together how they will count their collection and may choose resources to help them (such as pots or trays to count into or to group objects for counting). The children count their collection and then record their count, by drawing or mathematical mark making (using numerals alongside these if they wish). If possible, children should work in pairs to select, count and record but children might work alone or with an adult, as appropriate.

Encouraging mathematical thinking and reasoning:

Describing

How many are there? Show me how you counted them. How did you keep track of which ones had been counted?

Reasoning

How do you know you have 12?

Why did you choose to count them this way? Can you count them a different way?

Is there another collection with the same number?

Opening Out

Use trays, mats or images with two (or more) sections and place the objects into the sections. Talk about composition (the numbers that make up the total). Move one or more objects between sections to see how that changes the numbers.



Recording

Use large sheets of blank paper for children to choose how to record their count. Some children may choose to draw around the objects, some may draw pictures and some may use their own symbols (such as lines or circles). Provide numerals for children to use as labels or refer to.

The Mathematical Journey

Number:

Saying the number sequence (teen numbers, especially 13, are harder)

One-to-one correspondence when counting (assigning one number word to each object)

Counting to find 'how many' (cardinality)

Subitising (instantly recognising how many without counting) small collections of objects in familiar and perhaps unfamiliar arrangements.

Subitising small collections of objects within a larger group of objects (e.g. seeing three within five or making groups of 3s without counting 3 in each group).

Counting groups of objects in 2s, 5s or 10s (for older children)

Pattern:

Arranging objects into familiar patterns to aid counting (e.g. domino patterns, Numicon patterns or ten frame pattern).

Development and Variation

Store all resources in a counting library which can be accessed within the continuous provision. Decorate the area with interesting images for counting and include number tracks, hundred squares, rulers and calculators.

Parents can help children to make their own counting collections at home, bringing their collections to the setting to share with other children. Providing bags or jars as well as ideas for what to collect (e.g. bottle tops, pebbles, shells) can help.

Create large outdoor collections using buckets.

Take children on a walk to the local woods to create natural collections.

Make themed collections related to festivals or seasons. You might make a new collection from each educational visit that you take the children on, building up a counting library of memories to enjoy counting again and again.

Compare two or more collections. Which is the largest/smallest number of objects?

Lining up or grouping the objects alongside each other to show the difference.

Arrange collections in order of size or create two shelves, one for odd numbered and one for even numbered collections.

Play games with the objects, for example 'ten nice things', 'nim' or 'who has more'?

Discuss the zero collection (empty box or jar).

Resources

Boxes or jars containing different collections of things to count (e.g. twigs, matchsticks, lolly sticks, jewels, spoons, feathers, pegs, pom poms, bottle tops, curtain rings, pebbles, tiles, fabric squares, conkers, shells, plastic figures, cotton reels, corks, beads). The collections may be labelled or colour-coded so the smaller and larger collections are apparent (e.g. 0-10, 11-20, 20-30, 30+).

Containers to count into, out of or for grouping whilst counting (e.g. trays, bowls, boxes, bags, egg boxes, ice cube trays, muffin trays, place mats, 5 or 10 frame cards/trays).

Large sheets of blank paper for drawing or representing how the collection have been counted.

Wooden or plastic numerals or number cards to label the collection with the total.



Download a pdf of this resource

Acknowledgement: Cath Gripton

