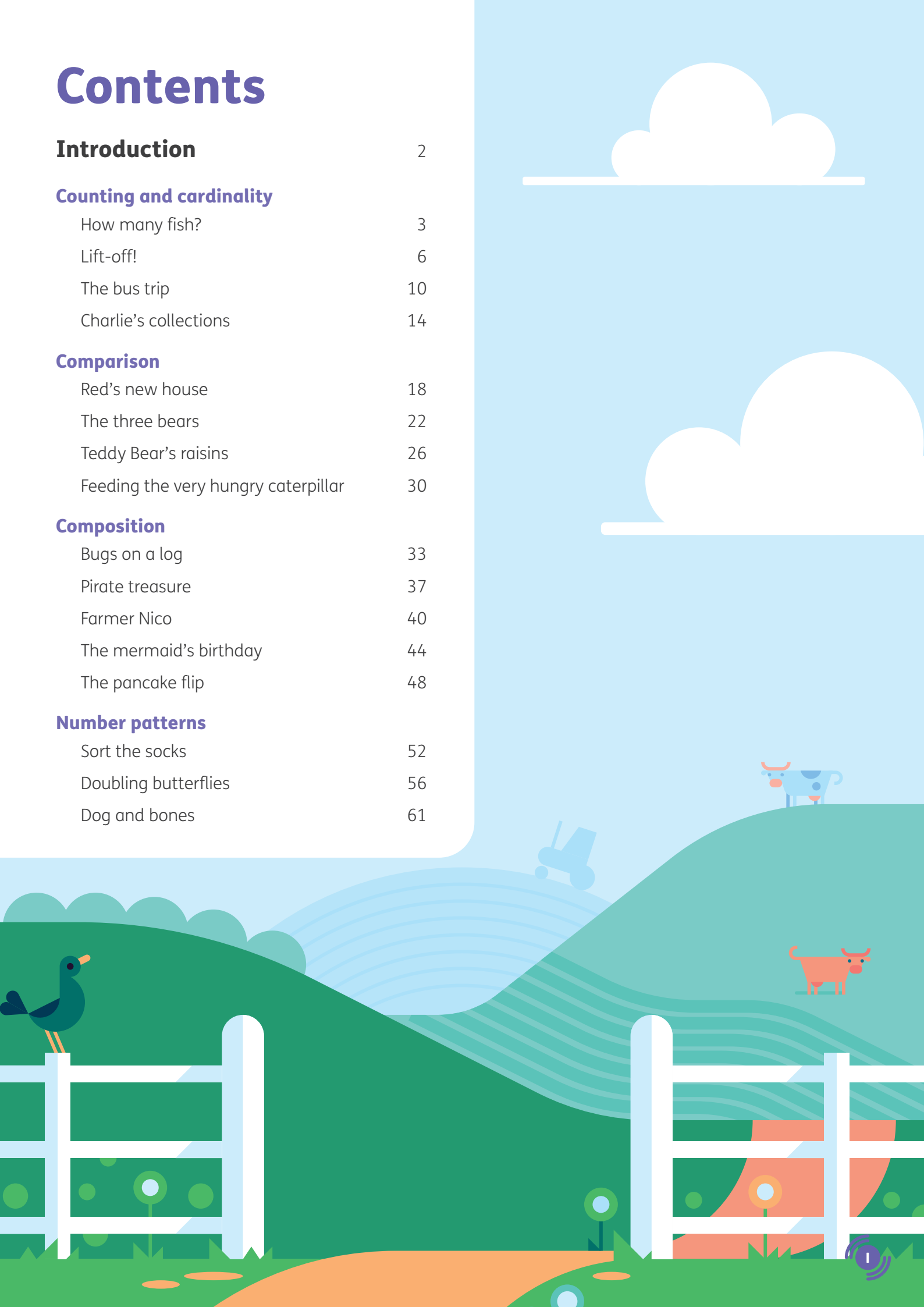
MathsBeat

Enhancements for Reception focusing on Number

OXFORD

Contents



Introduction

These Enhancements for Reception provide reception teachers with simple child-centred activities to develop essential mathematical skills and Early Learning Goals. These enhancements focus on Number and includes the pre-requisite knowledge children require for the activity, ideas for adult-led learning and continuous provision. To facilitate child-led learning, recommended resources and picture books are listed. The combination of direct teaching, including modelling, alongside play-based strategies where children take the lead, helps ensure high quality learning. Each enhancement also includes **Observable features** with suggestions of what to 'look out' for as you observe children. Rather than provide a progression within these enhancements, we feel that you know your children best, so the enhancements can be used flexibly and adapted depending on your cohort of children and where they are in the school year.

Acknowledgments

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About the author

Sarah Watkins is a Reception teacher and Forest School leader who is passionate about meaningful learning opportunities and secure, positive relationships in Early Years. Previously a Headteacher, Sarah is a Specialist Leader of Education and lectures in Child Development at the University of Worcester. Sarah has a strong interest in children's wellbeing and is the author of *Outdoor Play for Healthy Little Minds*. As well as writing for publications such as Teach Early Years, Sarah regularly presents at events around the United Kingdom.

Counting and cardinality

How many fish?

Early learning goal

- Verbally count beyond 20, recognizing the pattern of the counting system.

Area of learning

- Counting.

Knowledge required
- Knows some number words, although the sequence is not always correct.

Learning outcome
- Recognize and use the patterns in the number system to count up accurately.

Key vocabulary
- Count, number, order, next number, last number, most, least, more, less.

Observable features to look out for
- Saying the number words consistently in the correct sequence, without dropping back to one.
- Skipping numbers or confusing the sequence.

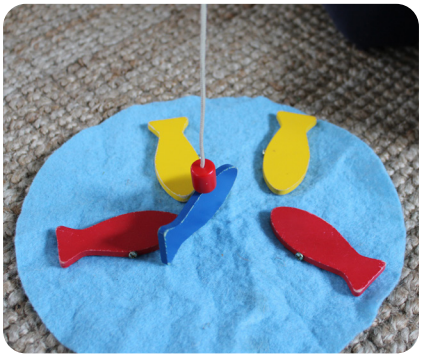
What you will need
- Puppet
- Toy fishing set (cut fish shapes from card and attach paper clips; tie a piece of string to a stick and attach a magnet/hook to the other end of the string)
- Beach ball, beanbag

Picture books
- *One, Two, Flea!* by Allan Ahlberg and Colin Mcnaughton
- *Alfie's Numbers* by Shirley Hughes
- *Cockatoos* by Quentin Blake
- *123, A Child's First Counting Book* by Alison Jay

Adult-led learning

- Practise counting with a puppet who makes mistakes with the order and encourage the children to correct the puppet. *Our friend has got confused. Who heard the mistake he made? Let's show him how to count. We need to be really clear so he can hear us.*
- Count with the puppet again and make a different mistake. *Oh no, it still wasn't right. Who heard the mistake this time? Let's try to count in a different voice. Count together in different voices to build engagement.* For example, using a whispering voice, a shouting voice, or a singing voice.
- Make another mistake with the puppet. *Maybe we need to try extra hard to help our friend. Let's use an action this time.* Count with children while clapping or jumping, encouraging them to count in time with their movements.
- Introduce the toy fishing game, using five fish. Sing *One, Two, Three, Four, Five, Once I Caught a Fish Alive*. At this point, children may not link the number names to quantities, but instead focus on remembering the verbal order of the numbers.

Continuous provision



- Put out the toy fishing game. Watch for children saying the number names in order as they catch and count the fish. Children may count as they catch the fish, or they may count them on the side of the pond. Watch for children arranging caught fish systematically to make counting easier. *Your friend caught four fish. Who caught the most?* Look and listen for children who can identify who has the most or least, and use the language 'most', 'least', 'more' or 'less'.

Variations

- When children are becoming more confident, use the counting puppet to start at a number other than one or zero, e.g. start counting at three.
- Try seating children in a circle and taking it in turns to say the next number in the counting sequence. You may wish to start with a small group of three or four children first. Next, throw a beach ball to children in the circle in a random order and ask them to say the next number. Ask the child to throw it back to you and say the next number before throwing it to another child.

- Ask children to count in pairs, sitting opposite each other and taking it in turns to say each number. When the children feel comfortable with this, give each pair an object such as a car or beanbag which can be passed or rolled. Whoever has the object keeps counting until they decide to pass the object to their partner.
- If you are at the point where you are discussing odd and even numbers, stand in a circle and hold hands for the even numbers and let go for the odd numbers, while counting.

Focused activities

- Play hide and seek outside. Ask one child in the group to hide while the others close their eyes and counts to ten or twenty.
- Count the children who are in class each morning (reinforcing the order of the numbers).

Assessment for learning

Look and listen for	If so
Children skipping or repeating numbers, e.g. *one, two, three, four, five, seven, eight.*	Go back to a couple of numbers before the last correct number and count together from there, putting extra emphasis on the correct number(s).
Children confusing the sequence.	Model the correct sequence and count together. Use a puppet who makes mistakes with the sequence, asking the child to correct the puppet. Pay special attention to the numbers eleven to twenty. Confusion between twelve and twenty is common. Verbal counting is a memory task, so some children may need additional support.

Lift-off!

Early learning goal

- Verbally count beyond 20, recognizing the pattern of the counting system.

Area of learning

- Counting backwards.

Knowledge required
- Can count up by saying some number words, even though the sequence is not always correct.

Learning outcome
- Recognize and use the patterns in the number system to count down accurately.

Key vocabulary
- Count back, count down, next, zero, less.

Observable features to look out for
- Saying the number words consistently in the correct sequence without skipping, repeating or confusing numbers.

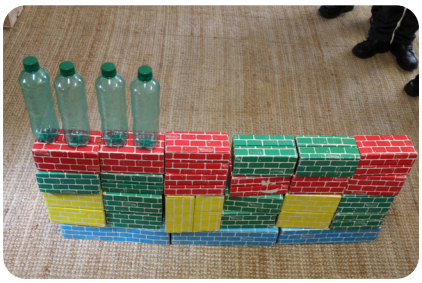
What you will need
- Space rocket launch pad (black card circle with red centre)
- Toy rocket/picture of a rocket
- Small world people
- Ten plastic green bottles, wall (made from a painted cardboard box)
- Ten toys, e.g. teddy bears
- Carpet/rug
- Space-themed toys, large cardboard box, chairs
- Ten frogs, small log, pool (bowl of water/piece of blue material or paper)
- Talking tins/similar
- Large digital timer
- Small ladder suitable for a small puppet/soft toy (sticks with wool/string to create the steps)
- Teddy bears/soft toys, blanket
- Toy animals, cave (box/area of classroom)
- Wooden blocks

Picture books

- *Whatever Next!* by Jill Murphy
- *Ten In The Bed* by Penny Dale
- *Pete the Cat and His Four Groovy Buttons* by Eric Litwin
- *The Shopping Basket* by John Burningham
- *One to Ten and Back Again* by Nick Sharratt and Sue Heap
- *All Aboard the Numbers Train* by Oxford Children's Books

Adult-led learning

- Set up a space rocket launch. Place a toy rocket on top of the launch pad and two small world figures close to the rocket. Explain that these are the engineers and they must gradually move away from the rocket as it gets closer to lift-off. Take one figure in each hand and, as you and the children count down from ten to zero, move the two figures back a little every time you say a number. When you reach zero, let go of both figures and lift the rocket up.
- Now invite three children to come and do the activity. Ask two children to each move a figure back and one child to lift the rocket up when you reach zero. Look out for children who are looking to their peers for the next number or confusing the sequence and give these children more opportunities to practise counting.
- Set up a wall in the classroom and place ten green plastic bottles on this. Sing *Ten Green Bottles* and invite a child to knock a bottle off the wall each time for each verse. Encourage the children to say the next number in the sequence. Vary this by using different objects, e.g. ten toy animals sitting on the rug. Can children suggest their own versions of this song?
- Sing well-known songs to reinforce the sequence, e.g. *Five little speckled frogs*. Use a log and five little frogs and frog-jump each of the five frogs into the pool as you count down.



Continuous provision

- Create a space area. Put space-themed toys and items that will encourage counting prior to 'lift-off'. Use a large box or set of chairs to create a role play space rocket.
- Record yourself on a talking tin counting down from ten to zero. Put the talking tin out for children to listen to and imitate.

- Place the ten green bottles, or other objects, on the wall. As each bottle is pushed off the wall, discuss how many there were and how many there are now. Ask the children if there will be more or fewer bottles when this one is knocked off the wall. Stress that when there are 'none', this is zero bottles.
- Put out five little frogs, a log and pool. Gradually add more frogs. Look and listen for children moving frogs from the log to the pool as they count.

Variations

- Use a small world (space) figure to move back along number track as you count down to lift-off.
- Ask children to pretend to be frogs and ask them to jump into the pool as you count back together.

Focused activities

- Use a classroom timer on the whiteboard during tidy up time. Ask children to join in with the countdown from ten.
- Walk a puppet or teddy bear up the steps of the ladder, counting as you go. Then take a teddy bear down again, counting backwards.
- Put ten teddy bears under a blanket. Sing (There were) *Ten in the Bed* together and encourage children to remove one teddy bear at a time, as you sing.
- Hide ten toy animals in a cave. One at a time they go off to find food. Count down together as each animal leaves the cave.

Assessment for learning

Look and listen for	If so
Children skipping or repeating numbers, confusing the sequence.	Model the correct sequence and keep practising counting down together. Use ten wooden blocks and put a finger on one every time you say a number in the sequence. If a child is finding the sequence tricky, try standing at the classroom door and walking across the classroom while counting back from ten. Look at where you arrived. Repeat this every morning, starting at the same spot.

The bus trip

Early learning goal

- Compare quantities up to 10 in different contexts, recognizing when one quantity is greater than, less than or the same as the other quantity.
- Have a deep understanding of number to 10, including the composition of each number.
- Verbally count beyond 20, recognizing the pattern of the counting system.

Area of learning

- Object counting.

Knowledge required

- Can move or touch one object at a time within a collection of items.
- When asked how many there are, knows to count each object to find out.

Learning outcome

- Find out 'how many' by counting carefully.

Observable features to look out for

- Children pointing to objects or touching them while counting them one at a time.
- Arranging objects in a line and counting them one at a time.
- Tagging each object with one corresponding number name.
- Not necessarily starting at the first object in the line but still counting accurately.
- Accurately counting objects arranged randomly by touching each object.
- Accurately counting objects by tagging them with their eyes rather than touching each object.

Key vocabulary

- How many?, count, number, match.

What you will need

- Chairs
- Toy bus (small box decorated to represent a bus)
- Small world people
- Bus stop, structure to represent a bus shelter (optional)
- Number track
- Fences/blocks, toy animals, bell
- Stones/glass beads
- Pool (blue material/paper/water tray)
- Paper bags
- Counters, building blocks

Picture books

- *Naughty Bus* by Jan Oke
- *Maisy's Bus*, by Lucy Cousins
- *One Gorilla* by Atsuko Morozumi
- *Ten Apples Up on Top* by Dr Seuss
- *Have you Seen My Dragon?* By Steve Light

Adult-led learning

- Tell the children that they are going to go on a bus trip today. Arrange ten chairs in a five by two arrangement to reflect a 10-frame. Ask some children to sit on the chairs and, placing another single chair at the front of the arrangement, ask one child to be the bus driver. Have a chosen number of empty seats on the bus. Ask some other children to come and stand at the bus stop.
- Discuss the fact that when waiting for a bus, people usually line up in a queue. Ask the driver if there is enough room on the bus for the waiting children. Support the children to count the empty chairs by touching each seat and counting aloud with children. *How many empty seats do we have?* Then count the children at the bus stop all together, as you point to each child. *We have eight empty seats and six children. Do we have an empty seat for every child?*

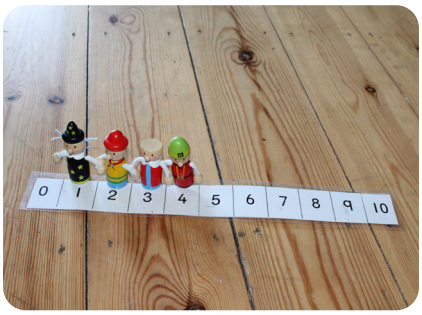
- Take suggestions from children and then try this out by asking children at the bus stop to sit on the empty seats. *Were we right? Did every child get a seat?* Confirm that, for example, every child got a seat and there are still two spare seats or that there were not enough seats and that three children will have to wait for the next bus.

Continuous provision

- Put out a toy bus and a bus stop, alongside a basket of small world people. Start by placing two of the people in a queue. Observe how the children play with these objects, for example, do they add more people to the bus stop queue if there are still more seats to fill?

Variations

- Place a number line for the small people to line up on. Watch to see if children use the number line to help them line up the people. Do they read the numbers as they go? If they do, ask: *How many people do we have?* Watch to see if children read the final number from the number line or attempt to count each one again.
- Set up a road travelling across the classroom with bus stops along the way where people can wait. Ask children how many children are waiting at each stop. *Does this stop have more people waiting than the last one?*
- Arrange fenced fields of small world animals close to the road. Arrange animals more randomly and ask children to count them. Watch for children arranging the animals in rows or groups to make counting more systematic. Point out that the last number counted not only tags the last animal/object, but also the whole set. Use a full circular motion with your finger around the whole set to reinforce this.
- Ring a bus bell once every time a passenger gets on the bus. Ask a group of children to count how many passengers are getting on by listening to the dings of the bell.



Focused activities

- Put small stones and shiny glass beads in the water tray. This will encourage children to count the beads in the water by tagging them with their eyes.
- Arrange animals next to a lake. Tell children that they are only allowed, for example, five animals here. *How many do we have? How many will we have to move somewhere else?*
- Go on an outdoor maths walk and fill paper bags with items to count in the classroom. Look and listen for children who say that bags containing larger items, such as sticks, must contain more items than bags of smaller objects, such as leaves. Support children to count the items in each bag. Then show them a bag of mixed-sized objects and compare this to the other bags.

Assessment for learning

Look and listen for	If so
Children counting objects more than once and not keeping track of where they started.	Show children how arranging objects or people more systematically, e.g. in a line, can help to keep track of where they started.
Children incorrectly saying that a group of larger objects must contain more than a group of smaller-sized objects.	Show children three collections of objects with the same quantity in each. One collection should be small objects, e.g. counters, another should be a collection of larger objects, e.g. building blocks. The final collection should be of mixed objects. Model counting each object in the first collection. Repeat for the second and third collections. *How many counters were there? How many building blocks were there? What about this collection? What can you tell me about the number of objects we had in each collection?*

Charlie's collections

Early learning goal

- Have a deep understanding of number to 10, including the composition of each number.
- Compare quantities up to 10 in different contexts, recognizing when one quantity is greater than, less than or the same as the other quantity.

Area of learning

- Cardinality.

Knowledge required

- One-to-one correspondence.
- Can match each object with a number.
- Can count verbally to 10 and beyond.
- When asked how many there are, knows to count each object to find out.
- Recognizes numbers as labels in the environment.

Learning outcome

- Recognize that numbers can represent the number of items in a collection.
- Show understanding that collections of the same amount can look very different.

Observable features to look out for

- Saying how many objects are in a small set without counting.
- Touching each object as they count and moving it away.
- Tracking each object with their eyes and possibly nodding each time or tapping.
- Correctly matching the number of objects in each collection with the numeral that represents the number of objects.
- Counting a set of objects with different physical attributes correctly without becoming distracted by the varying sizes or attributes.
- Saying that the last number name is the total.
- Counting objects in a circle correctly by keeping track of the first object counted.

Key vocabulary

- How many?, count, number, match, set, correct, more, less, most, least.

What you will need

- Selection of loose parts (pom-poms, beads, buttons, pine cones, shells, pebbles, wooden coins)
- Trays with compartments
- Paper/plastic cups labelled with a numeral
- Puppet/soft toy
- Bucket, stickers with numerals
- Paper bags with numerals
- Trays with compartments
- Pots to decorate, cut-out pictures, stickers
- Toy animals/cars
- Clothes pegs, numeral cards
- Abacus/Rekenrek
- 5-frames/10-frames

Picture books

- *Junk DNA* by Clare Thompson
- *One Thing* by Lauren Child
- *Crash! Boom! A Maths Tale* by Robie H. Harris
- *Seaweed Soup* by Stuart J. Murphy

Adult-led learning

- Show a puppet to the children and explain that the puppet is called Charlie. Charlie collects little treasures, but he needs support with counting how many he has. Show a bucket with a number written on the side and ask the children to read the number displayed. The puppet puts objects into the bucket one by one, counting aloud, but does not correctly match the number of objects to the numeral. For example, he may miss out numbers or forget the total. Ask the children for their help and suggestions.
- Watch for children who are counting accurately but are unsure of the total or those who keep counting verbally when there are no more objects to count. Reinforce by counting aloud together, starting from the beginning again if necessary.

Continuous provision

- Put out paper bags with different numerals on each. Each bag needs to contain a different number of loose items (sometimes this should match the label on the bag and sometimes it should not). Place the puppet nearby so that the children can role play using him to count and check the objects in each collection. Look out for children putting the loose parts in a line to count or pushing each item away as they count. Children may choose to change the total on the bag because they have found more loose parts in other areas of the classroom.
- Look and listen for discussion about which bag has the most, the least or the same number of objects.

Variations

- Put out a mixture of different loose parts, e.g. beads, buttons, pine cones, shells and pebbles, alongside trays with compartments to encourage sorting and counting. Look out for children saying the total, e.g. *There are seven small dice and nine beads.*

Focused activities

- Go outdoors and write numbers in circles with chalk and provide a range of loose parts such as pine cones and wooden coins. Alternatively, place a number card in a wild area and ask the children to find that number of objects. Look out for children partitioning the number, e.g. *I've got four leaves so I need to find two more to make six.*
- Ask children to decorate a collection pot from junk modelling materials. Ask them to make their own collection using cut-out pictures, nature or stickers. Can they write the correct numeral for the number they have in their collection and stick it onto their collecting pot?
- Hide a collection of objects in the sand, e.g. toy animals/cars. Ask children to collect as many as they can and put them into a box or bag. Can they write a label to show how many they found?

Assessment for learning

Look and listen for	If so
Children incorrectly matching the numeral and the number of objects.	Practise putting the correct number of clothes pegs onto a card with a numeral on it, e.g. put four pegs onto a card with the numeral 4 on it. Make sets of a small number of objects so that children can see what, for example, five can look like.
Children displaying difficulties with one-to-one correspondence.	Use an abacus or Rekenrek and say the number as each bead is pushed to the other side.
Children recounting the same set that they have already counted.	Help them to arrange the objects on a 5-frame or 10-frame so that they can see what that number of objects looks like.

Comparison

Red's new house

Early learning goal

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

Area of learning

- Comparison.

Knowledge required

- Accurate one-to-one correspondence.
- Subitizing (recognizing quantities without counting).
- Understanding the concepts of more and less.
- Make number comparisons, e.g. 9 is greater than 5.

Learning outcome

- Can say which of two groups of physical objects/two continuous quantities has/is more.

Observable features to look out for

- Accurate counting without confusion over the size or shape of objects.
- Retaining the number of objects in the first group in order to compare with another group.
- Can say which of two collections has 'more' and 'less'.

Key vocabulary

- Most, least, more, less, count, total, groups.

What you will need

- Miniature wooden house, cubes
- Two bags of household objects: one containing large number of small objects (e.g. 10 teaspoons); one containing small number of large objects (e.g. a plastic jug, cushion, book) big enough to fill a large hoop
- Sticky notes
- Two large hoops

- Two equal-sized jugs, food colouring/squash, plastic beakers
- House template (simple house drawing showing two rooms upstairs and three rooms downstairs)
- Pens, paper/whiteboards
- Loose parts, e.g. buttons, screws, pom-poms and beads
- Large loose parts, e.g. crates, branches, tarpaulins to make a den
- Paper plates
- Large 10-frames

Picture books

- *How Many?* by Christopher Danielson
- *All Sorts* by Pippa Goodhart and Emily Rand
- *The Bug Collector* by Alex Griffiths
- *Peepo* by Janet and Allan Ahlberg
- *Moving House* by Anna Civardi

Adult-led learning

- Explain to the children that Little Red Riding Hood is moving house and she has to count the things she is taking to the new house. Show a miniature wooden house house with a small, but different, number of cubes in two different rooms. Tell the children: *Each of these cubes is a piece of furniture. This one is a chair, this one is a table, this one is a bed. Which room do you think has the most pieces of furniture? How can we check?* Count the cubes in each room together, write the number on a sticky note and stick it in that room. As you count, stack the cubes together so that you have a visible 'tower' in each room. *Which room has the most furniture?*
- Try adding a small number of cubes to a third and fourth room. *Now which room has the most?*
- Compare quantities of related objects to objects that are not the same (see suggestions above under 'What you will need'). Show the children the two unopened bags of household objects. Explain that Little Red Riding Hood has packed these things into bags to help her move to a new house. *Which bag has more?* Look and listen for children who assume that bigger bags will have more objects inside. *How can we check which bag has more objects?* Place two hoops on the floor and put the objects from each bag into each hoop, ensuring that one group of objects fills one whole hoop. Ask the children which hoop has more objects and listen for children who say that the hoop that looks 'full' must be the one that has the largest number of objects inside.

- Ask one child to say how many objects they think are in one hoop and another child to say how many objects they think are in the other hoop. *Which group has more? How do we know?* Look and listen for children trying to count straight away and ask them if they can tell without counting. Encourage thinking out loud from children who may be assessing the hoops more carefully.
- Little Red Riding Hood has asked some friends around to help her move to a new house. They are all tired after carrying the heavy boxes, so she wants to give them a drink. Show children two clear equal-sized jugs containing different quantities of coloured water/squash. *Which has more?* Pour some water into a plastic beaker from the fullest jug so that it contains less than the other jug. *Little Red Riding Hood has poured one of her friends a drink. Which jug has the most now?*

Continuous provision

- Put out a miniature wooden house and some cubes that are the same colour to represent the furniture. Look and listen for children putting into practice what you have modelled.
- Put out two hoops along with a selection of loose parts that can be sorted (allow children to decide how to sort the objects), counted and compared. Have recording equipment such as whiteboards and pens available in case children want to record their thinking.
- Put two equal-sized jugs in the water play area along with several plastic beakers to encourage children to compare continuous quantities.

Variations

- Give pairs of children one of the house templates and ten cubes. Each child takes it in turns to distribute the cubes amongst the rooms. The other child then decides which room has the most, least or the same number of cubes.
- Encourage the children to subitize. Listen for children saying, *I can see a group of three in this room, and a group of two in this room, and another group of two in this room, and another group of two in this room and one in this room. So, the first room has the most and the last room has the least.*

Focused activities

- Use seasonal opportunities to compare groups. For example, collections of food at harvest festival time, boxes of decorations, boxes of kit for sports day.
- Give children 'counting collections', e.g. boxes which contain a small number of different loose parts. Look and listen for children counting and comparing quantities.
- Use large loose parts to make dens outside. When they are dismantled, count the parts. Ask: *Which den has the most parts? Which has the least?*
- Place jugs and other containers in the sand area, making sure you have several of the same-sized containers, so children can compare quantities. Encourage children to compare quantities as part of their play. *What happens if we pour some from one container to another? Can we share out some sand between friends? Who has the most and least?*

Assessment for learning

Look and listen for	If so
Children not correctly linking the number names with the items being counted.	Model touching each object as you count. Model putting the objects in a line to make it easier to count and starting from the left so that you know where you started.
Children not correctly saying which group has more.	Give the child paper plates with different numbers of dots on. Ask the child to count the spots and then put the plates in order.
Children saying that a group of larger objects means there are more objects in that group, e.g. *This hoop looks full so it must have the most objects inside.*	Use a large 10-frame (this could be taped on the floor of the hall or chalked outside). Take four large objects and seven small objects. Ask the child to tell you which group has more. Support the child to put the large objects on the 10-frame and remove them and then put the smaller objects on the 10-frame.

MathsBeat

The three bears

Early learning goal

- Have a deep understanding of number to 10, including the composition of each number.
- Subitize up to 5.
- Compare quantities up to 10 in different contexts recognizing when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Area of learning

- Recognizing when groups or continuous quantities are equal.

Knowledge required

- Can accurately count verbally to 10.
- Can count collections of objects accurately.
- Understands that the later counting numbers are worth more.

Observable features to look out for

- Correctly identifying when a group has more or less than another or is the same.
- Counting accurately.
- Matching objects on a one-to-one basis.
- Retaining and recalling the number of objects in one group in order to compare with another group.
- Uses 'equal' and 'the same' correctly.
- Subitizing – being able to spot straight away, when presented with a group of three and a group of four, that the groups are not equal.

Key vocabulary

- Equal, count, How many?, fair, share, more, fewer.

What you will need

- Two hoops, blocks/bricks
- Multiple equal-sized jugs/containers, food colouring/squash
- Three teddy bears
- Plastic beakers
- Pens, paper/whiteboard
- Dot cards up to 10 dots
- Natural objects, e.g. conkers, leaves
- Pencils, plates
- Numicon Shapes

Picture books

- *Bean Thirteen* by Matthew McElligott
- *Each Orange had 8 Slices* by Paul Giganti Jr

Adult-led learning

- Retell the story of *Goldilocks and the Three Bears* and explain to the class that Mama Bear now wants to have more pillows on her bed to make it comfortable like Baby Bear's bed. Baby Bear has two pillows and Mama Bear only has one pillow and they both want to have more pillows of equal amounts (three pillows each in this example). Show two hoops, one containing four bricks and one containing two bricks to represent the pillows. *Is this fair?* Agree that one has two bricks and the other has four, so it isn't fair.
- Ask: *How can we make these groups equal? Equal means that both the groups are the same.* Listen to children suggesting that they could add more or take some out of the hoops. Ask two children to take one brick each out of the hoop containing four bricks. Put them next to each other outside the hoops. Encourage them to count each brick out loud. Confirm that there are two groups of two bricks in each hoop and two bricks that are left over. Model sharing the leftover bricks, giving one brick to each hoop. Check that the bricks are shared fairly by counting them, e.g. *There are now three bricks in each group.* Repeat with eight and then ten bricks.
- Tell children that Baby Bear has invited a friend round to play and they get thirsty. Show children two equal-sized containers containing coloured water/squash. Ensure one container has more liquid than the other. *These are the bears' drinks. Is it fair? How could we make it fair?* Look and listen for children suggesting that they pour some liquid from one container to another, or that they pour away some liquid from the fullest container. Demonstrate how to balance liquid in the containers. *Look, now it is equal. That means we have the same in each container, so it is fair.*

Continuous provision

- Put out the three bears, bricks and hoops for children to share items between the bears. Make pens and paper or whiteboards available, in case children want to record their thinking.
- Put out containers, such as plastic jugs and beakers, in the water play area. Ensure there are several containers of the same size to help children compare quantities.

Variations

- Model drawing two of the bears on a piece of paper. Ask the children for ideas of how the bears could be represented. Then draw a large circle close to each bear. Model different ways of sharing bricks. For example, draw four bricks in one bear's circle then ask the children how many bricks should go in the other circle. *How can we check that it is right?* Draw one extra brick in the second bear's circle and encourage the children to check that the groups are equal. Alternatively, draw one brick in one bear's circle then draw one in the other circle and continue, asking children if it is fair as you draw.

Focused activities

- Play a memory game with cards that have up to ten dots on each one. Turn all the dot cards over so that the dots cannot be seen. Two children take it in turns to turn over two dot cards and decide whether they match. The dots can be in different arrangements.
- Outside, put two hoops down on the ground. Start off by putting natural objects in the hoops, such as conkers or leaves. Ask the children if the two hoops are equal. Now put two hoops down in a wild area of the outside area. Ask the children if the groups are equal and pay attention to what they are counting (e.g. flowers, leaves, bugs). Look and listen to what individual children choose to count and how they count.
- At tidy-up time, give children baskets to collect a small number of different items or toys from around the classroom, asking them to sort into types (e.g. toy animals and pencils). Ask children to compare the groups. Are they equal? Does one group have more? Does one group have fewer?
- Place jugs and other containers in the sand area, making sure you have several of the same-sized containers so children can compare quantities. Can children share out sand between friends so everyone has an equal amount?

Assessment for learning

Look and listen for	If so
Children not matching objects on a one-to-one basis.	Model lining up the objects from each group in pairs and encourage the child to slow down the process.
Children not correctly saying when two groups are fair or equal.	Take a set of pencils and two plates. Put two pencils on one plate and three on the other plate. *Do the plates both have the same number of pencils? Are the groups equal?* Ask the child if they can make the groups equal (they may choose to add a pencil to one group or take a pencil from the other). Repeat this with different numbers of objects. With small groups, encourage the child to subitize. With larger groups, model careful counting.
Children not correctly recalling the total of the first group after counting the second group.	Support the child to count two groups, using different objects to add variety. When the first group is counted, model saying the total out loud and repeating it to aid recall. Encourage them to record the total with dots or lines, or by choosing a corresponding Numicon Shape.

Teddy Bear's raisins

Early learning goal

- Have a deep understanding of number to 10, including the composition of each number.
- Subitize up to 5.
- Compare quantities up to 10 in different contexts, recognizing when one quantity is greater than, less than or the same as the other quantity.

Area of learning

- Identifying one more/one less.

Knowledge required

- Verbally counting to 10 accurately.
- Confident with the order of numbers.
- Counting forwards and backwards.
- Reading numerals 0 to 10.
- Understanding that the later counting numbers represent a bigger quantity.

Learning outcome

- Identify one more or one less.

Observable features to look out for

- Can accurately say the sequence of numbers, counting forwards and backwards.
- Can say that if one object is removed, there is one less and that if an object is added, there is one more.

Key vocabulary

- More, less, How do you know?, How many?, number, next, before.

What you will need

- Raisins (counters/buttons), plates/bowls
- Counting stick, small counting sticks (made from cardboard tubes) with divisions labelled 0-10
- Teddy bear
- Sticky notes
- Blocks
- Rekenrek/bead string

- 10-frame, dice
- Numicon Shapes, small pom-poms, tweezers
- Chalk
- Number track
- Similar-sized and coloured objects

Picture books

- *Alfie's Numbers* by Shirley Hughes
- *One More Sheep* by Mij Kelly and Russell Ayto
- *Stuck* by Oliver Jeffers
- *Nibbles Numbers* by Emma Yarlett

Adult-led learning

- Sit children in a circle. Take nine raisins and put them on a plate. Count the raisins together. Take another raisin out of the pack and put it on the plate. *How many are there now? One more is ten.* Tell the children that the teddy bear would like a raisin. Take one raisin off the plate and put it in a bowl for the teddy bear. *How many are left? One less is nine.* Repeat, encouraging the children to tell you which number is next in the sequence. Reinforce the 'one more' facts: *That's right, one less is four. What would one more than four be? Five.*
- Show the children the counting stick and talk about the numbers displayed on it. Count up and down from zero to ten as a group, while you point to each number. Then ask children to say the number you point to as you point to numbers at random. Sit the teddy bear nearby. *The teddy bear gave me five raisins* (point to the number 5 on the counting stick). *I had five and then the teddy bear gave me one more. How many do I have now? How do you know?* Look and listen for children saying that you would have six raisins as this is the next number on the counting stick.
- Repeat with different numbers. *What if the teddy bear gave me three raisins and then he gave me one more? What about if he gave me seven and then he gave me one more?* Each time, point to the numbers on the counting stick. Invite a child to point to a number on the counting stick. Ask the other children to say the number and then say one more.
- Next, tell the children that you are going to give raisins to the teddy bear. *I have five raisins* (point to 5 on the counting stick) *and I gave one away to the teddy bear. What is one less than five? How do you know?* Repeat with different numbers.

Continuous provision

- Put out a teddy bear, counters/buttons to represent the raisins, along with a counting stick, sticky notes and pencils. Look and listen for children giving out raisins to the teddy bear and identifying one more or less.

Variations

- Use the counting stick vertically instead of horizontally. A vertical number line can be helpful for promoting understanding of one more and one less. Try also using a stack of blocks with sticky notes displaying numerals.
- Place numerals 0 to 10 on a counting stick using sticky labels. Take off the sticky note with numeral 0 and point to numbers at random (including zero) and ask the children to say the numbers. Next take off numeral 5 and numeral 10. Can the children still identify the missing numbers? This helps reinforce the children's mental visualization of the sequence of numbers.

Focused activities

- Show a Rekenrek and ask the children how many red beads there are and how many white beads. *How many beads are there altogether?* Push all the beads to the right-hand side. Practise sliding numbers of beads from one row to the left and asking the group to say how many there are, *How many can you see? Yes, three. How many can you see now?* (Slide over two more) *Yes, five.* Select children to come up and show you different numbers on the Rekenrek. Encourage them to do this without counting, *Show me five. That's right, slide all the red beads to the left. Now show me three.*
- Start to build on the children's knowledge of number pairs. For example, when you ask children to show you nine, look and listen for children who push all but one bead to the left.
- Next move onto one more and one less. Ask the children to show you five beads (slide five of the red beads to the left) and then show you one more (slide a white bead across). *How many is this? Yes, six.* Repeat this with different numbers and then start to work on one less, moving a bead from the right back to the left and saying the new number.
- Use a 10-frame. Roll a dice to generate a number and ask children to put that number of counters on the 10-frame in a line. *What is one more? One less?* They may need to physically put another counter on or take one away.

- Put out Numicon Shapes, small pom-poms and tweezers. Once the children have filled the Numicon Shape, ask them to add one more pom-pom. *How many is that now?*
- Chalk out a hopscotch frame outside and ask children to step onto a number. *What is one less than that number? Jump onto that number.*

Assessment for learning

Look and listen for	If so
Children who do not identify the next number in the sequence, e.g. saying one more than six is eight.	Reinforce the sequence of numbers by counting with the child. Use a number track, pointing to the first number and the next number.
Children identifying one more when you ask for one less, and vice versa.	Use objects that are similar in size and colour. Put them out on a small whiteboard and ask the child to add one more and then take one away. Repeat with different numbers of objects. Discuss the fact that more means that there will be an increased number of objects and less means that one or more objects will be taken away. Use a number rod track on the interactive whiteboard. Ask the child to point to 2. Then ask them to find one more and model moving your own finger onto the number 3. Now ask them to find one less. Ask the child to use a finger puppet, 'jumping' up and down the number line.

MathsBeat

Feeding the very hungry caterpillar

Early learning goal

- Have a deep understanding of number to 10, including the composition of each number.
- Compare quantities up to 10 in different contexts, recognizing when one quantity is greater than, less than or the same as the other quantity.

Area of learning

- Comparing quantities represented by numerals.

Knowledge required
- Can count to 10 accurately.
- Is confident with the order of numbers.
- Can count forwards and backwards.
- Can read numerals 0 to 10.

Learning outcome
- Compare quantities represented by numerals.

Observable features to look out for
- Being able to say which group has more.
- Comparing two numbers and saying which is the larger.

Key vocabulary
- Larger, bigger, less, fair, count, share, most, least.

What you will need
- Boxes
- Counters to represent strawberries
- Caterpillar (picture of a caterpillar)
- Pen, numeral cards, whiteboard
- Foam pads, card, glue
- Small suitcase templates
- Teddy bear, jar of honey
- Two paper bags

Picture books

- *The Very Hungry Caterpillar* by Eric Carle
- *When I am Big* by Maria Dek
- *When I am Bigger: Counting Numbers Big and Small* by Maria Dek
- *Dogs* by Emily Gravett
- *Pip and Posy: Look and Say* by Axel Sheffler
- *Jack and the Flumflum Tree* by Julia Donaldson and David Roberts

Adult-led learning

- Read *The Very Hungry Caterpillar* to the children. Explain that the caterpillar needs to eat a lot so that he can get bigger and turn into a butterfly. Tell the children that they are going to help the caterpillar by putting some food out for him. Show the children two boxes - one with the numeral 3 written on it and one with the numeral 8 written on it. Tell children that these are two boxes of strawberries and the caterpillar can choose one. The numbers on the boxes tell us how many strawberries are inside. *Which box would the caterpillar choose? Why?* Now add a box with the numeral 5 on it. *Which box would the caterpillar choose? Why is it not the box with five on it? Which box would the caterpillar not like to have?* Add a box with the number 7 written on it. Can the children put the boxes in order, with the smallest number first and the largest number last?

Continuous provision

- Put out small, sealed cardboard boxes with numbers on them. Alongside these, put out small empty boxes and a basket of items (e.g. counters) to represent strawberries. Provide a pen. Look and listen for children counting a number of strawberries to go in a box and labelling the box with the correct number. Watch for children putting the boxes in order.

Variations

- Move onto using numeral cards to represent the boxes, e.g. show children the cards 8, 7 and 3. *Which of the numbers would the caterpillar prefer? Which would be his least favourite? Why?* Talk about what each number means and that the caterpillar is very hungry and so will want the largest number of strawberries.
- Repeat with numbers that are further apart, such as 3 and 9. *Another caterpillar has come along. If we have a box of three and a box of*

nine, how could we make it fair for the two caterpillars? Draw the strawberries as dots on a whiteboard and model sharing them so that the boxes are equal. Change the numbers so that you have a 6 and a 6.

Focused activities

- Make elevator buttons by sticking foam pads onto a piece of card and gluing numerals on the top of each pad. Ask children to press the button for the lowest floor and then the top floor. Then say that you want to go to a floor that is, e.g. above seven, or below five.
- Write a different numeral on each small suitcase template. Explain to the children that the labels represent how much the suitcases weigh in kilograms. The airport needs to know which is the heaviest and which is the lightest. Can the children put the suitcases in the right order?
- Show the children a toy bear and discuss what bears like to eat. Explain to the children that brown bears eat fish, plants, fruit and honey. Show a jar of honey and encourage children to talk about when they have tasted honey. Tell the children that bears in the wild will eat honey from beehives and they will even eat the bees! Show them two sealed bags with different numerals on. Explain that the labels tell us how many small jars of honey are inside. *Which bag would the bear prefer? Why?*

Assessment for learning

Look and listen for	If so
Children not matching the correct numeral to a group of objects.	Match flash cards with numbers of dots to numeral cards. Make sure the dots are arranged differently on the cards, so that, for example, five is displayed as a group of three and two, and also as a group of four and one. Show a number label and a number of objects. Ask: *How many frogs are on this tray? The card says five. Let's count them and check.*
Children not saying, or correctly identifying, which of two numbers is the bigger.	Ask children to put the numeral cards 1 to 5 in order. Give children groups of objects and support them in matching the number of objects to each card. Help children to see that as you move up the line of numeral cards, each group of objects gets bigger by one. The group of four objects is bigger than the group of two objects.

Bugs on a log

Early learning goal

- Have a deep understanding of number to 10, including the composition of each number.
- 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.

Area of learning

- Part-whole.

Knowledge required
- Can accurately count verbally to 10.
- Can count objects accurately.
- Can recognize a group of one or two when asked.

Learning outcome
- Identify smaller numbers within a number.

Observable features to look out for
- Saying how many are in small groups without having to count each item.
- Adding together two small groups to accurately reach a total.

Key vocabulary
- How many can you see?, groups, together, total.

What you will need
- Toy bugs (counters), large wood slice
- Piece of material
- Double-sided counters
- Wood slice
- Small wooden coins
- Paper plates, bingo dabbers

- Boxes with lids
- Dot cards
- Paper cups
- Chalk
- Pens, whiteboards, 5-frames

Picture books

- *Let's Make Faces* by Hanoch Piven
- *Go Away, Big Green Monster!* by Ed Emberley
- *Ten Black Dots* by Donald Crews
- *I Spy Numbers* by Jean Marzollo
- *The Button Box* by Margarette Reid

Adult-led learning

- Arrange five bugs (counters) on a large wood slice in a dice pattern. Conceal it with a piece of material. Hold up a counter and explain that this is a bug. Tell children that in a moment, they will see a group of bugs sitting on a log. Take the material away: *How many bugs are there?* Expect some children to count each counter, while others recognize five without counting. Some children may also notice that the arrangement is like that seen on dice.
- Holding the material to hide what you are doing, but while making it clear that you have not added or taken away any counters, move them into groups and then take away the material. Ask the children what they can see now. Encourage the children to describe what they can see, e.g. *I can still see five bugs* or *I can see a group of two and a group of three. That makes five*. If children try to count again, ask them if they saw you add or take away any bugs? Agree that this means there must still be five. Repeat with different partitionings, discussing the different ways that five counters can be arranged. Each time, agree that although the five bugs look different, the total remains the same. *The total is still five. What are the parts?*

- Select a child to come and make an arrangement of five, using two different coloured counters. *Does it make it easier to see the different groups when two colours are used?*

Continuous provision

- Put out a wood slice and small toy bugs. Look out for children arranging the bugs in different ways and spotting the groups.
- Assemble small wooden coins with different arrangements of dots painted on in random arrangements. Look out for children seeing the small groups and saying how many there are without counting.
- Provide paper plates and bingo dabbers for the children to make their own subitizing patterns. Encourage them to make small groups for others to count. Provide black marker pens for children to draw a circle around the groups they can see.

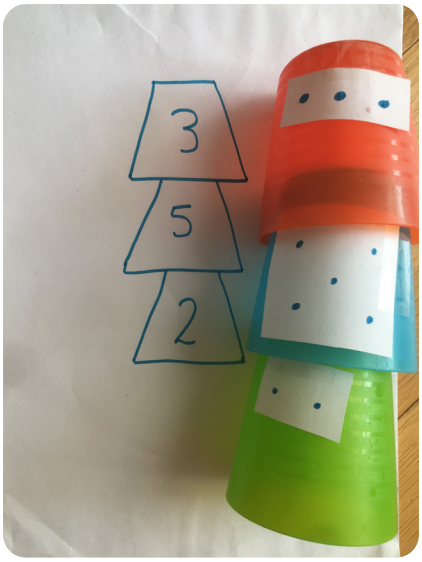
Variations

- Move on from the log and bugs to paper plates with ten or fewer sticky dots in random arrangements. Show each plate one at a time and ask the children what they can see. *Is there another way we could arrange these dots?*
- Put double-sided counters in small plastic boxes with lids. Shake them then put the box down to see how the counters settle. Ask children to talk about the arrangements they can see, e.g. *I can see four red counters and one yellow one. That makes five.* Look out for children who have added together the two groups. Support children who try to recount the total number of counters. *Did we add any or take any away?*

Focused activities

- Play subitizing snap. Give children a set of cards with dot arrangements on them. Each pair of children takes it in turns to put a card down and shouts snap if there are two cards with the same number of dots (even if the dots are in different arrangements).

- Use subitizing cups. Draw dots on the side of paper cups and ask the children to tell you what they can see. Then give children a diagram of a cup tower with a numeral on each cup. The children must arrange their paper cups in a tower, matching the dots on their paper cups to the numbers on the cups in the diagram.
- Draw ladybird outlines with chalk. Draw a line down the centre and dot arrangements on each side of the body. *How many are there on each side? How many altogether? Is there a different way we could arrange the dots and still have the same total?*



Assessment for learning

Look and listen for	If so
Children counting each object or dot each time they are rearranged.	Give children opportunities to practise recording a number such as five in different ways using double-sided counters, pens and whiteboards.
Children incorrectly adding together two small groups.	Ask children to make groups of up to five objects. Ask them how many objects are in each group. If they are not confident with these number pairs, support them as they count on from one group to the second. Use 5-frames. For example, give the child a 5-frame, a set of two red counters and a set of three blue counters. Model putting the counters onto the 5-frame to count more effectively. Use two-sided counters to help reinforce number pairs. For example, take a set of five double-sided counters and drop them on the table. Support the child to see two yellow and three red or other combinations.

Pirate treasure

Early learning goal

- Have a deep understanding of number to 10, including the composition of each number.
- 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.

Area of learning

- Inverse operations.

Knowledge required

- Understands that a whole can be split into parts.
- Can accurately count to 10.
- Can count a small number of objects within a collection of items.

Learning outcome

- Partition into two groups and recombine to make the same total (whole/parts).

Observable features to look out for

- Seeing groups and subitizing.
- Using the vocabulary of 'part' and 'whole'.
- Correctly calculating an unknown part by using knowledge of number pairs.
- Recording their understanding as pictures, words or numbers.

Key vocabulary

- Part, whole, notice, missing, add.

What you will need

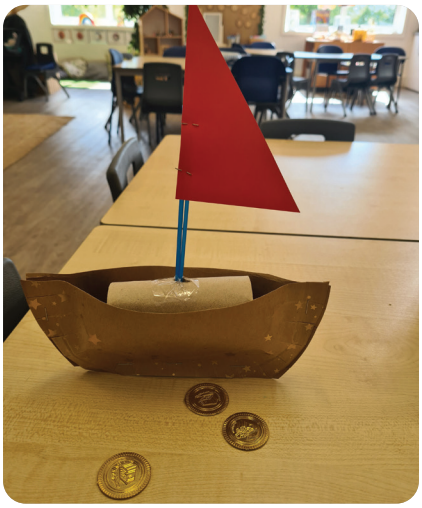
- Two toy boats (cardboard, toilet roll, straws, coloured paper)
- Ten gold coins
- Whiteboards, pens
- Buckets
- Treasure Island (piece of sand coloured paper with a large red cross/ treasure chest)
- Skittles set
- Toy garage (cardboard box), ten toy cars

- Ten soft toys/toy animals, baskets
- Raisins, modelling dough
- Two sieves, water tray, ten ducks
- Double-sided counters, Numicon Shapes, knife, piece of fruit, e.g. banana

Picture books

- *Ten Flashing Fireflies* by Philemon Sturges

Adult-led learning



- Before the activity, make a ship as shown. Alternatively, use a toy boat.
- Explain to the class that Pirate Zahra and her crew have followed their treasure map and landed on treasure island. Talk about what treasure is (or could be). In this case, the treasure is gold coins. Show five gold coins. *The pirates find this many gold coins on the island. How many coins are there?* Count them together. Establish that five coins is all the treasure, or the total amount of treasure and that this amount will be the 'whole'. Explain that you are going to trick the pirates by hiding some of their treasure! Without the children seeing, hide two coins in the boat, making sure they are out of sight. *How many coins have I put on the boat?* Look and listen for children who notice how many coins are left. Establish that there are three coins left. *How can this help us work out how many coins are on the boat?* Agree that if there is a group of three left, there must be a group of two on the boat because three and two make five. Put the coins back together as a group of five and confirm the total.
- Repeat, moving a different number of coins each time. Look for children who are using their knowledge of number pairs.

Continuous provision

- Put out a boat, up to ten gold coins, and a treasure island. Look and listen for children identifying the 'whole' by counting accurately. Observe if children use their number pairs: *There are five coins in the boat and five coins on the island. There are ten altogether.*
- Add whiteboards and pens so that the children can record their ideas. Try adding a second boat so that there are two 'parts'.

Variations

- Outside, tell the children that there are five gold coins in the sand or dirt box and give them two buckets to collect the coins in. Look out for children checking how many they have in each bucket and working out how many remain in the sand.

Focused activities

- Put a set of skittles outside and, if necessary, model how to play. Encourage children to count how many there are at the start and how many they knocked down. After playing, confirm that there is still a total of ten.
- Make a toy garage out of a cardboard box. Give children up to ten toy cars. Explain that some of them need to be fixed. *How many are in the garage and how many are on the road? What if one more car needs to be fixed?*
- Hide up to ten soft toys or toy animals in a basket. Explain that some animals are sleeping in the cave. *How many are awake? What if these two animals wake up and want to play?*
- Give children up to ten raisins and ask them to share them between two cookies (modelling dough balls). *How could they arrange them?*
- Put two sieves next to a water tray with up to ten ducks inside. Encourage the children to count how many are in the water and then to put some in each sieve.

Assessment for learning

Look and listen for	If so
Children not correctly identifying what the missing 'part' is.	Use Numicon Shapes. For example, if the child knows that the total is six and they have four, give the child a 6-shape and a 4-shape to place on top of it so that they can see which piece would cover the remaining gap.
Children who don't correctly identify what are 'parts' and what is the 'whole'.	Demonstrate with fruit, such as a banana, cutting it into parts and putting it back into the whole. Draw a large part-part-whole circle diagram and move the counters back and forth within it.

Farmer Nico

Early learning goal

- 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.

Area of learning

- Partitioning a number into different pairs of numbers.
- Identifying pairs of numbers that make a total.

Knowledge required
- Can read numerals up to 10.
- Can count up to 10 objects.
- Can count two small groups of objects.

Learning outcome
- Identify pairs of numbers that make a total.

Observable features to look out for
- Correctly identifying the parts and the whole.
- Partitioning one group of objects in different ways.
- Identifying the number bonds without counting.

Key vocabulary
- Partition, split, pairs, total.

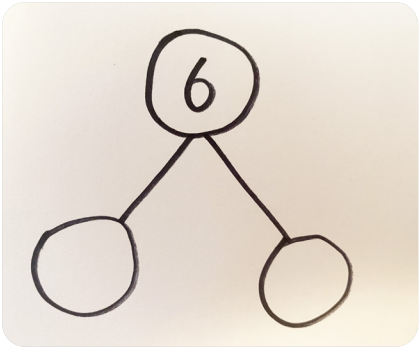
What you will need
- Banana, knife
- Small world person to represent a farmer
- Toy farm animals, plastic fences, artificial grass (two pieces of paper with clearly marked areas – green if available)
- Chalk, picture frames (made from cardboard), ten loose parts
- Toy cakes, two teddy bears, paper plates
- Glass beads, bowls, modelling dough
- Part-part-whole circle diagram template/three plates
- Cubes, double-sided counters

Picture books

- *Poppy and Sam's Counting Book* by Sam Taplin
- *The Rainbow Fish* by Marcus Pfister

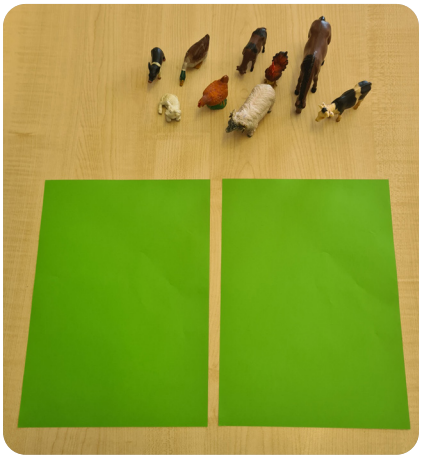
Adult-led learning

- Show the children a peeled banana and talk about the fact that this is a whole banana. Can the children see anything missing? Confirm that (other than the peel) the banana is complete, it is the 'whole'. Explain that you are going to split the banana into parts, then cut it into two unequal parts. Show the children the two parts of the banana and then push the parts together again to make a whole banana. Agree that there are two parts that go together to make the 'whole' banana. *The parts are different sizes, but that doesn't matter. There are still two parts that make up this whole banana.* Remove, or eat, one part of the banana. *Is it still a whole banana?* Discuss the fact that one part is now missing and so it is no longer whole.
- Introduce the children to Farmer Nico, a small world character. Farmer Nico has a group of animals on his farm. Show the children a group of six farm animals. Ask the children how many animals there are and check by counting, touching each animal. Place the numeral card 6 next to the animals and agree that the 'whole' is six animals. Show the two fields and explain that Farmer Nico is letting the animals choose which field they want to go into. For each animal, ask the children which field it will choose, until all the animals are in one of the two fields. Together, count how many animals are in each field and talk about the relationship between the three groups: for example, *How many are in this field? Yes, four. How many are in their field? Yes, two. Are there still six animals in total? Yes. A group of four and a group of two makes six altogether.* Look out for children subitizing, recognizing what a group of four looks like in different arrangements. Watch for children who try to count all the animals to find the 'whole' again. *Have we added or taken any animals away?* Agree that you have just moved the animals into fields, the total remains the same.
- Show a part-part-whole circle diagram. Write 6 in the circle at the top that represents the whole. Explain that, in this case, the two 'part' circles represent the fields the animals were in. Ask the children for ideas of different ways the group of six animals could be put into two fields, or parts. Write those different numbers onto the part-part-whole circle diagram template and discuss the relationship between the numbers.



Continuous provision

- Put out farm role play toys, including Farmer Nico, two fields and a small selection of animals. Look out for children who are splitting the animals into two fields and talking about the relationship between the parts and the whole.



Variations

- Outside, draw three circles in chalk as a part-part-whole circle diagram to represent the farmyard and the two fields. Explain to children that they will be Farmer Nico's animals. Ask two children to stand in one circle and three children to stand in the other. *How many farm animals are there in total?* Write that number with chalk in the circle that represents the 'whole.' Repeat with different numbers. Look out for children who can carry out inverse operations, rather than simply partitioning a total into two groups. Given one part, e.g. three, some children may be able to suggest different combinations for the other part and total.

Focused activities

- Put out picture frames and small groups of up to ten loose parts for children to make arrangements. What different arrangements can they make with the same number of loose parts? Take photos and make a gallery. Look out for children who can identify small groups.
- Provide a set of toy cakes and two teddy bears with paper plates. Look out for children who are able to identify the whole and ask children how many different ways they can arrange the cakes.
- Put out glass beads, two fish bowls and *The Rainbow Fish* story. Look out for children who are able to discuss the pairs and the total.
- Make modelling dough balls and a part-part-whole circle diagram template available. Look and listen for children who put modelling dough balls into each 'part' and correctly identify the 'whole'.

Assessment for learning

Look and listen for	If so
Children who do not correctly identify what are 'parts' and what is the 'whole'.	Use three red cubes to demonstrate splitting the whole group up into two and one and three and zero. Explain that the whole is always three here, but that the parts can change.
Children who do not correctly identify the pairs that make the total.	Use double-sided counters to explore different ways to split a number into parts. For example, a child will see that four is made up of three and one, but also two and two, and four and zero. Use double-sided counters on a part-part-whole circle diagram. Put red counters on one part and yellow on the other part then recombine to make the whole again.
Children who recount each group when the total has not changed.	Give the child plenty of opportunities to develop number sense: understanding that numbers are composed of different 'parts'. For example, use 'bunny ears' where you ask children to put their hands by their ears, palms facing the front. Ask them to show you three or five fingers, by holding up different combinations of fingers.

MathsBeat

The mermaid's birthday

Early learning goal

- Have a deep understanding of number to 10, including the composition of each number.
- 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.

Area of learning

- Partition a number into more than two numbers.

Knowledge required

- Can accurately count verbally to 10.
- Can recognize numerals.
- Can count two small groups and add them together.

Learning outcome

- Partition a number into more than two numbers.

Observable features to look out for

- Saying how many are in small groups without having to count each item.
- Adding together two or three small groups to accurately reach a total.
- Predicting what will be in the second or third group when the total is known.
- Finding different ways to share a small number of items.

Key vocabulary

- How many can you see?, groups, together, share, add, subitize, amount, total, count on.

What you will need

- Mermaid doll or puppet
- Toy sea creatures (e.g. shark, whale), shells
- Whiteboard, pens
- Water tray, small trays
- Large loose parts, e.g. crates, branches, tarpaulins to make a cave
- Cake shop (large cardboard box), double-sided tape
- See through purses (plastic cases), 1p coins

- Hoops, cones
- Blossom (pom-poms/pink buttons/screwed up pieces of pink tissue paper)
- Double-sided counters, interlocking cubes

Picture books

- *The Singing Mermaid* Julia Donaldson
- *Too Many Carrots* Katy Hudson
- *Julian is a Mermaid* by Jessica Love

Adult-led learning

- Show the puppet and tell the children that this is Miya and that she is a mermaid and it is her birthday. Miya has some shells to share with her friends. Lay out some yellow fabric to represent the beach. Place eight shells on the fabric and encourage the children to count them. Look out for how children are counting the shells – are they pointing to each one? Are they tracking them with their eyes? Tell children that eight shells are the 'whole' and write the number on the board in a circle.
- Introduce two sea creatures, e.g. a shark and a whale, and tell the children that Miya wants to give her eight shells to her two friends, without keeping any for herself. Ask the children how Miya will do this and invite a child to give the shells out. It is likely that a child will give the shells out one at a time, giving one to each sea creature in turn until they are all gone. Discuss how many each friend has. *Does it matter if one friend has more?* Agree that it is fair if each friend has the same number of shells, but that even if you shared them differently the 'whole' would stay the same.
- Talk about the composition of eight, e.g. *The shark has six shells and the whale has two shells and that makes eight shells altogether.* Distribute the shells in a different way. Can the children work out how many shells the whale will have if you give some to the shark and conceal the remainder? Draw the two parts on the board to show a part-part-whole circle diagram. *What if we gave one from this friend to the other?* Look and listen for children noticing that although the parts are now different, the whole remains the same. If this does not occur naturally ask: *Do we still have the same total number of shells?*

- Tell the children that another friend has arrived, so now Miya has three friends to give her shells to. Invite the children to give out the shells between the three friends. *Has the 'whole' group of eight changed now that we have another friend?* Confirm that there are still eight shells

but now there are three friends to give them to. Can they find out how many will be in the third group when some of the shells have been put into two groups?

- Use a part-part-whole circle diagram to show the way that eight has been partitioned into three parts. Invite the children to share the shells in a different way. *What do you think would happen to the 'whole' group if another friend came along?* Look and listen for children saying that the whole would stay the same, but that the shells would need to be given out to four friends.

Continuous provision

- Put out toy sea creatures and shells. Look out for children giving out the shells between the different creatures and talking about the total, or 'whole' and the 'parts'. Are they sharing the shells in different ways?

Variations

- Provide children with whiteboards and pens to record their working. Look out for children drawing the groups and beginning to write the appropriate numerals. Varying the size of the shells and the number of shells increases the complexity and may provide some insights into whether children can count objects without getting distracted by the size.
- Put shells in the water tray and provide three small trays in which to share out the shells.
- Take it outside and make it as active as possible so that children are experiencing the concepts in different ways. Support the children to build a cave for Miya out of large loose parts such as crates and pallets. Ask one child to hide a number of shells in and around the cave and then ask the group to find all of the shells and share them with Miya's three friends.

Focused activities

- Make a cake shop using a cardboard box. Remove all four flaps at one end and ask children to help you paint or decorate the inside. Children may also like to make a 'cake shop' sign and put it on top of the box. Draw cupcakes or print pictures of them, making sure each cake is slightly different. Laminate or stick them onto card. Put double-sided tape on the back of each cake picture. Ask the children to count how many cakes are the 'whole'. Then ask them to put the cakes on the shelves. Discuss the 'whole' and the 'parts' on each shelf.

- Use trees at different times of the year to explore parts and wholes. For example, in winter, cut out three triangle fir tree shapes and provide a small number of green and red pom-poms in a bowl to decorate the trees. In spring, provide three pieces of blue paper with the brown trunk and branches of a tree painted on. Provide a small number of pink blossoms in a bowl. Confirm that the 'whole' are the pom-poms of blossom balls, and the 'parts' are the trees.
- Provide three purses (or see-through plastic pencil cases) and a small number of 1p coins. Discuss the number of coins visible in each purse. Can children think of different ways to distribute the coins?
- Use three hoops and a small number of cones outside to explore 'parts' and 'whole'.

Assessment for learning

Look and listen for	If so
Children counting small groups rather than subitizing.	Practise subitizing with small numbers, looking at the composition of different numbers. For example, look at different arrangements of five counters.
Children not adding together two or three small groups correctly.	Put the two groups together and count all the objects. Work towards counting the objects in one group and then counting on. Work on adding two groups of double-sided counters, e.g. show the child three red counters and two yellow. Prompt the child to talk about the groups they can see and identify the total.
Children not correctly identifying what will be in the second or third group when the total is known.	Play with the composition of numbers, looking at the numbers hidden within numbers. For example, ask the child to show you seven on their fingers in different ways – four on one hand and three on another. Use interlocking cubes of two colours to make a number tower, e.g. three red cubes and four blue cubes to make a tower of seven.

MathsBeat

The pancake flip

Early learning goal

- Have a deep understanding of number to 10, including the composition of each number.
- 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.

Area of learning

- Number bonds.

Knowledge required
- Can count up to 10 objects.
- Can subitize.
- Can match a small group of objects with the correct numeral.

Learning outcome
- Knowing which pairs make a given number.

Observable features to look out for
- Saying how many are in small groups without having to count each item.
- Adding together two small groups to accurately reach a total.

Key vocabulary
- How many?, number pairs, number bonds, groups, together, total, add.

What you will need
- Pancakes (made from card or material with picture of a lemon/coloured yellow on one side)
- Whiteboards, pens
- Spatula, frying pan, tea towel, plate
- Dominoes
- Clothes hanger, pegs
- Ladybird templates, sticky dots
- 10-frame, double-sided counters
- 5-frame
- Different coloured 3D blocks

Picture books

- *Ten Monkey Jamboree* by Dianne Ochiltree
- *Mr Willy-Nilly and Zoey's Dream* by Ji-yun Shin
- *Quack and Count* by Keith Baker
- *One is a Snail, Ten is a Crab* by April Pulley Sayre and Jeffrey Sayre
- *Mr Wolf's Pancakes* by Jan Fearnley
- *The Runaway Pancake* by Mairi MacKinnon
- *Pancakes! Cook in a Book* by Lotta Nieminen

Adult-led learning

- Show the children the pancakes and count how many there are in total, for example, seven. Show that on one side the pancakes are plain and on the other side they have lemon added. Discuss the children's favourite pancake toppings - this could be represented as a physical block graph, using different coloured 3D blocks. Talk about the children's experiences of pancake flipping and demonstrate how to flip one pancake in the pan. Watch to see how the pancake lands – is it a plain pancake or a lemon pancake? Put the flipped pancake onto the plate. Repeat with each pancake until all seven are on the plate. Put the lemon pancakes together on the plate and the non-lemon ones together. *How many lemon pancakes are there? How many plain pancakes are there? How many are there in total?* Listen for responses, e.g. *There are four lemon pancakes and three plain pancakes and that makes seven pancakes in total.*

- Take all the pancakes back off the plate and invite another child to flip them. Discuss the different number pairs that are generated. As they are being flipped, discuss how many there are of each type and how many there are left to be flipped.

Continuous provision

- Put out the pancakes and plate and frying pan plus whiteboards and pens for children who want to record. Look out for children writing addition sentences, using numerals or dots for pancakes.

Variations

- Ask a group of children to flip all the pancakes at the same time. This will give a faster visual representation of the number pairs.
- Record the different combinations on large whiteboard paper, drawing

yellow and brown circles on a plate. Record the addition sentences underneath.

- Increase the number of pancakes. For example, look at number bonds to ten.
- Flip some of the pancakes and hide the remaining ones under a tea towel. Discuss how many lemon pancakes can be seen and how many plain pancakes can be seen. *What is the total? How many are hidden under the tea towel?*

Focused activities

- Use dominoes to generate number pairs. Children add the two sides of the domino and record the number pairs.
- Use a clothes hanger and pegs to visually represent different number pairs, e.g. attach seven pegs to the hanger. Slide four to one side and three to the other. Keep separating the pegs in different ways and discussing the different number bonds.
- Give the children a ladybird template and a small number of sticky dots. The children choose which side of the line to put each dot.
- Tell children they are going to pretend to be bunnies. Ask them to put one hand behind each of their ears, with fingers pointing upwards, like bunny ears. Ask them to show you seven on their fingers, across both hands. Now can they show you seven in a different way?
- Give children a 10-frame and see how quickly they can represent given numbers by putting counters in the spaces. For example, if they are asked to represent eight, do they count each of the counters one at a time, or do they simply leave two spaces free?
- Put out tree templates with up to ten red and ten green counters for children to put on the trees and discuss the number pairs. Children select counters, e.g. a total of six counters (four red and two green). They put the red counters on one tree and green counters on the other tree and say the total and then the pairs, e.g. *There are six apples, four red and two green. Four and two makes six*.

Assessment for learning

Look and listen for	If so
Children not adding together two groups correctly.	Ask children to make groups of up to five objects. Support children to count on from one small group if they are not confident with these number bonds. Use 5-frames. Give children two small groups of counters with a total of less than five. Model counting one group then counting on to the next group. Then put all of the counters onto the 5-frame to check the total. Use double-sided counters to help reinforce number bonds, e.g. take a set of five double-sided counters and throw them on the table. Support children to see two yellow and three red or other combinations.

Sort the socks

Early learning goal

- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
- Have a deep understanding of number to 10, including the composition of each number.

Area of learning

- Odds and evens.

Knowledge required
- Can read numbers from 1 to 10.
- Can count up to 10 objects.

Learning outcome
- Understand that an even number of objects can be shared equally and an odd number of objects cannot be shared equally.

Observable features to look out for
- Children identifying repeated patterns of odd and even.
- Being able to share objects and identify if there are objects left over.
- Splitting up a group into pairs.

Key vocabulary
- Odd, even, pairs, left over, match, pattern, notice.

What you will need
- Pairs of patterned socks/cardboard equivalent
- Sock templates, coloured pens
- Number track, Numicon Shapes
- Double-sided counters, 10-frame
- Feely bag

- Small world people, basket
- Building blocks
- Two hoops

Picture books

- *Socks* by Elizabeth Lindsay and Nick Sharratt
- *Pairs! in the Garden* by Smriti Prasadam-Halls
- *Simon Sock* by Sue Hendra and Paul Linnet

Adult-led learning

- *Can you tell me anything about odd and even numbers?* Show the children a small pile of individual socks in a laundry basket, ensuring that there is an odd number of socks. Explain that you have a problem. The socks need to be matched together into their pairs. Count the individual socks together. Look and listen for children spotting that there will be one odd sock left over.
- Ask a child to come and put one pair of socks together and repeat this until all of the socks are in pairs. *We had seven socks and we sorted them into their pairs. We have three pairs of socks and one left over. Seven is an odd number of socks as it can't be shared fairly.*
- Take a set of eight socks and count them as a group. *Will we be able to put these into pairs? Let's try.* Support children to pair up the socks. When they are all paired up, explain that there were eight socks and so they can all go into pairs. *Eight is an even number of socks as it can be shared fairly.*

Continuous provision

- Put out cardboard patterned socks for the children to match into pairs. Enable the children to design their own matching pairs of socks by making available sock templates and coloured pens.
- Put out a number track with the odd and even numbers in different colours. Look and listen for children identifying that odd and even numbers are marked in different colours. Put Numicon Shapes alongside the number track. Can children sort the Numicon Shapes? What do they notice?

Variations

- Show the children three pairs of socks, already matched together. *When we take the socks out of their pairs, how many socks will we have? Can you work it out?* Look and listen for children incorrectly saying that there will be three socks. If so, remind children that there are two in a pair. Support children to count in twos.
- Use double-sided counters. Give the children a small group of counters and a 10-frame. Arrange the counters on the 10-frame (five across), one on the top row and one on the bottom row, all with the same colour facing up. Continue in this way until all the counters are used. If one counter does not have a counter below it, turn it over so that it is a different colour. Explain that if there is a counter without a partner, there must be an odd number of counters.

Focused activities

- Use Numicon Shapes to explore odds and evens. Ask the children to sort Numicon Shapes into odd numbers (Numicon Shapes with 'sticky-up bits'/has a one on its own) or even numbers (Numicon Shapes with 'smooth tops'). Alternatively, show the children on a big piece of paper how to draw around the circles of each Numicon Shape. *How do you know whether that number is odd or even? What does the pattern of circles show you?* If there is an extra circle, it is an odd number. Wrap Numicon Shapes in foil or hide in a feely bag. Can the children tell you if the number it represents is odd or even by touch?
- Sort small groups of small world people such as peg dolls into odd or even groups. Present the groups in a small basket and encourage the children to find a friend for each doll. The dolls could be lined up in pairs. If there is one doll left over, the total number of dolls in that group is an odd number.
- Outside, put the children into odd and even numbered groups and ask them to find a partner. Discuss the number of people in the groups. *Is that an odd or even group? Why?*
- Give children a small number of building blocks that are the same size and ask them to make two towers. If the towers are the same height, the total number of blocks in that group is an even number.

Assessment for learning

Look and listen for	If so
Children not accurately sharing a group of objects into two groups.	Use two hoops and model taking it in turns to take one from the group and put it in one hoop and another from the group and put it in the second hoop.
Children confusing pairs with the number of objects, for example, saying that there are three items when shown three pairs.	Remind children that a pair means two objects and that you have to count each individual item. In a group of six children ask each child to find a partner. Explain that they could now say you are a 'pair'. Count the pairs, then count the children. Confirm that there are three pairs, but six individual children.

Doubling butterflies

Early learning goal

- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
- Have a deep understanding of number to 10, including the composition of each number.

Area of learning

- Double facts.

Knowledge required

- Can accurately count up to 10 objects.
- Can match a numeral to the correct number of objects.
- Can subitize.

Learning outcome

- Show an understanding of double facts.

Observable features to look out for

- Creating equal groups (e.g. doubling three by putting out another three objects).
- Counting the objects in two groups accurately.
- Adding the two groups to find the total.
- Recalling some doubles without counting.

Key vocabulary

- Double, two, each, add, total, together, double facts.

What you will need

- Butterfly templates, paints/bingo dabbers, dot stickers
- Large dice
- Whiteboards, pens
- Ladybirds with an identical number of dots on each wing (pictures or painted stones)
- Counters
- Two small pom-poms
- Small postcard-sized mirror

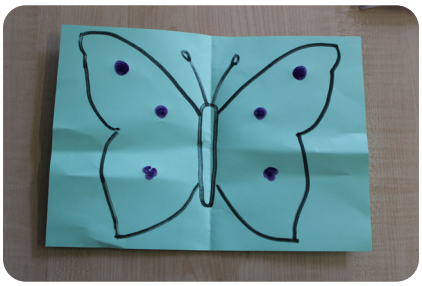
- Strips of coloured paper, tape
- Rekenrek/beadstrings
- Number cards with numerals written on them
- Clothes pegs
- Smoothie ingredients (e.g. one cup of orange juice, four tablespoons of blueberries, three teaspoons of honey, two tablespoons of oats–coloured cubes can be used to represent the ingredients)
- Recipe card listing the ingredients for the smoothie
- 10-frame, split pins, card paper in two different colours

Picture books

- *Two of Everything* by Lily Toy Hong
- *Shoe Baby* by Joyce Dunbar
- *The Twins, Two by Two* by Catherine Anholt and Laurence Anholt
- *Another* by Christian Robinson
- *What the Ladybird Heard* by Julia Donaldson

Adult-led learning

- Show the children a butterfly template, with a fold down the centre. Talk about the fact that butterflies have symmetrical patterns – the pattern on their wings is the same on both sides. Dip your finger into the paint and put three dots of paint onto one side of the butterfly. Explain that you are going to press the wings together and when you open the paper, there will be double the number of dots. Ask the children if they know how many dots there will be. Confirm that each dot painted on the first wing will print a dot on the other wing.
- Press the wings together and open up the wings to show the six dots. Ask the children what they notice (they may see two groups of three). Encourage subitizing. Ask the children to show you three fingers and another three fingers.
- Explain that when doubling, there are two groups that are the same and that when added together it gives the total. *If I was doubling four on another butterfly, I would have four dots on this wing. How many would I have on the other wing?*
- Use another blank butterfly template and roll a large dice. *The dice has landed on the five so we are going to double five. We will need a group of five dots on this wing and a group of five dots on the other wing. Then we work out the total.* Use your finger to put dots on one side of the butterfly in a group of three dots and a group of two. Ask the children what they notice. Press the paper together and reveal the new total. Encourage counting by pointing to each dot. *Yes, double five is ten.* As you say this, show five fingers and then ten.



- Look and listen for children who correctly say ten before any of the dots are drawn. Ask them if they can double other numbers. Observe to see whether they are using certain strategies, such as counting on their fingers, or if they know their double facts.

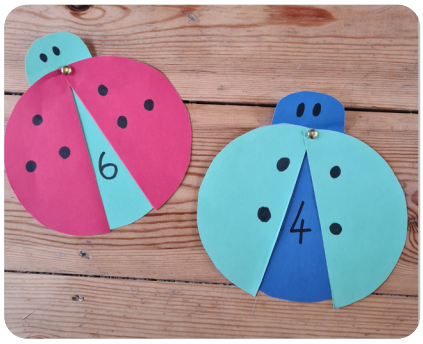
Continuous provision

- Put out butterfly templates and small pots of paint/bingo dabbers. Some templates should already have dots on one wing for children to double. Others should be blank for children to explore themselves.
- Put out toy ladybirds with an identical number of dots on each wing. Put out whiteboards and pens for independent recording.

Variations

- Show a ladybird with two dots on one side and two dots on the other. Ask the children how many dots there are in total. *How many are there on this side? How many are on this side? We have four dots in total. What number was doubled? That's right, two. Double two is four.*
- Draw a ladybird with a line down the centre and place some dot-stickers next to the ladybird. Ask a child to roll a large dice and put that number of dots on one side of the ladybird. Select another child to come up and work out double that number by putting the same number of dots on the other side and then counting all of the dots.
- Ask the children to sit with a partner and share a whiteboard and counters. Model how to draw a circle for the ladybird's body with a line down the centre. Taking it in turns, the children set a doubling challenge for their partner, choosing a certain number of counters to go on one side. The second child matches the counters on the other side and says the total. They then swap roles. Children may also like to complete this activity with modelling dough.
- Model how to make split pin ladybirds, where the wings have the same number of dots and can be moved apart to reveal the total.

Focused activities



- With a small group, sitting at a table where they can all see your hands, show them two small pom-poms. Ask the children how many pom-poms there are. Explain that you are going to double the pom-poms by using a magic mirror. Take a small postcard-sized mirror and put it behind the pom-poms, facing away from you so that the children can see two pom-poms and a reflection. *How many pom-poms can they see now in total?* Look and listen for children

counting and then doubling or knowing that double two is four. Give each pair of children a mirror and put a basket of pom-poms in the middle for pairs to explore.

- Make doubling paper chains. Give children strips of coloured paper and ask them to take three strips of one colour. *We are going to double three.* Support them to make a chain with the three strips. *Now choose a different colour and add three more to your chain. You have three red and three blue. What is double three? Count all of the links in your paperchain. Double three is six!*
- Model how to use a Rekenrek for doubling. Push two beads from the top row to the left and two beads from the bottom row to the left. *How many beads are here?* Agree there are two. *How many beads are here* (top row)*?* Agree there are another two. *How many are there in total* (bottom row)*? Double two is four.* Now ask the children to double different numbers, using a Rekenrek.
- Give children a card with a number written on such as three. Ask them to read the number. Give them a basket of clothes pegs and ask them to put three pegs on one end of the card and three pegs on the other end. *How many are there in total? Double three is six.*
- Prepare the ingredients for a smoothie. Explain that you need to double the numbers in the recipe to be able to make enough for everyone. Show a recipe, for example, one cup of orange juice, four tablespoons of blueberries, three teaspoons of honey, two tablespoons of oats. Alternatively, use different coloured cubes to double these numbers. For example, give the children one orange cube, four blue cubes, three yellow cubes and two brown cubes. Give them access to a tray or basket of cubes so that they can double these amounts.
- Carry out a similar activity in the mud kitchen, e.g. three sticks, two leaves, three handfuls of mud, two daisies and four cups of water.

Assessment for learning

Look and listen for	If so
Children not adding the same number when doubling, e.g. when asked to double three, they count out three objects and then a group of four objects.	Match the objects one by one. For example, when doubling three, count out three objects and put them in a line. Next, put a second object under each of the first objects. You could also use a 10-frame, so, when doubling four, put four counters in a row at the top and count to check you have four. Now put four counters underneath.

Dog and bones

Early learning goal

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

Area of learning

- Exploring how quantities can be distributed equally.

Knowledge required

- Counting accurately, using the correct sequence.
- Subitizing.
- Sharing objects accurately.
- Comparing different groups.

Learning outcome

- Explore how quantities can be distributed equally.

Observable features to look out for

- Using efficient strategies to share objects between two or more groups equally.
- Counting to check it is fair.
- Saying when there are more in one group and less in another. Using strategies to correct this. For example, taking all of the objects out of the two groups and returning them to the main group for redistribution.
- Subitizing, e.g. *There are three there and three there so that is fair.*
- Mentally calculating and then saying how many will be in each group when the total is known, without having to move objects.

Key vocabulary

- Equal, fair, share, total, check, count.

What you will need

- Three soft toy dogs of similar sizes, bowls
- Bone-shaped dog biscuits (salt dough/craft matchsticks)
- Number cards/wooden coins with numbers on, sticky notes, pens
- Two card dogs that stand up (use a piece of card as a flap glued to the back)

- Toy cats, toy fish, card/cardboard
- Two dragon toys, dragon food (modelling dough balls/balls of paper/stones)
- Dragon caves (yogurt pots/boxes)
- Trays, toy cakes/pictures of cakes
- Pine cones

Picture books

- *The Doorbell Rang* by Pat Hutchins
- *Spinderella* by Julia Donaldson and Sebastien Braun
- *The Lion's Share* by Matthew McElligott

Adult-led learning

- Show the children two soft toy dogs and two dog bowls. Explain that these dogs have been very good and are allowed to have some treats. Show a group of six bones. Tell the children that the dogs must have the same number of bones so that it is fair. Arrange the bones into groups so that children can subitize. For example, two groups of three, or a group of four and a group of two. Ask children to say how many bones they think there are. Repeat the total and ask the children to tell you the total.
- Ask: *How can we share the bones so that it is fair?* Ask children to come and demonstrate their methods. For example, giving one bone at a time to each dog until they are all gone. *How can we check it is fair?* Model counting the groups to check: *Three for this dog and three for that dog. Is that fair?* Agree that it is.
- Now repeat with different even numbers of bones. Look and listen for strategies when you introduce larger numbers of bones such as estimating or putting handfuls in each bowl. Observe how different children approach the sharing, and if it is not accurate, prompt them to explain their thinking: *How do you know that is fair? Show me how you would check.*
- Introduce an odd number of bones and observe how different children respond. They may wish to break the extra bone in half or simply keep that bone. They may even ask you to take the extra bone away. This can lead to discussions of odd and even numbers.

Continuous provision

- Put out bones and dog bowls ready for sharing. Put out number cards or wooden coins with numbers on, sticky notes and pens so that children can write numerals if they choose.
- Using the two dogs that stand up, cut a mouth out on each dog so that children can feed the dogs and count as they post the bones.
- Put out two soft toy dogs with bowls in front of them containing bones. *Do the dogs have equal quantities?*

Variations

- Add a third dog and ask the children to share the bones equally.
- Explain that dogs love to bury bones. One of the dogs has buried all of the bones in the sandpit. Can the children dig up all of the bones and share them into the two dog bowls?
- Introduce toy cats and fish. *How can we share the fish fairly?* Introduce fish that are different colours and watch for children hesitating because the fish are not the same colour.
- Make a set of cards with circles for the dog's bowl and place a number of bones in the bowl. Show two cards. *Have the bones been shared fairly?*

Focused activities

- Present the children with two dragon toys and a small stack of dragon food and two caves. Explain that the dragons love to breathe fire but they need to eat their special food to do this. Ask the children to share the food between the two caves.
- Show the children a selection of toy cakes and explain that these have just been delivered by the bakery. They need to be shared between two cake shops, 'The Bake Shop' and 'Cake Corner'. Give the children two trays to represent the cake shops.
- Take the learning outside and give the children a basket of pine cones to share between two squirrels. If you have two trees close to each other, the children could distribute the pine cones between the two trees.

Assessment for learning

Look and listen for	If so
Children who do not say when the two groups are equal.	Give the child different opportunities to compare sets of objects of different sizes. Model how to pair objects from different groups.
Children having difficulty with sharing objects fairly. For example, a child takes a handful of objects and puts them in one group then takes another handful to put in the other group.	Ask the child to check if it is 'fair'. *Does each group have the same number of objects?* Put all of the objects back in the centre and model sharing the objects one at a time, putting one object in one group then one object in the other group. Start with smaller groups such as four so the child relies more on subitizing. They may notice more quickly if one group has three objects and the other group has one.