Spring Block 3

Growing 6, 7, 8

White Rose MATHS

Teacher guidance

Key books

- *Handa's Surprise* by Eileen Browne
- *Sidney the Silly Who Only Eats 6* by M.W. Penn
- *Six Dinner Sid* by Inga Moore
- *1, 2, 3 to the Zoo* by Eric Carle
- *Kipper's Toybox* by Mick Inkpen
- *Quack and Count* by Keith Baker
- *Simon Sock* by Sue Hendra and Paul Linnet
- *Missing Mittens* by Stuart J. Murphy
- *Noah's Ark*
- *Double Dave* by Sue Hendra
- *Minnie's Diner* by Dayle Ann Dodds
- *Two of Everything* by Lily Toy Hong
- *Don't Forget the Bacon!* by Pat Hutchins
- *The Snail and the Whale* by Julia Donaldson

Key resources

Small steps

Step 1	Find 6, 7 and 8
Step 2	Represent 6, 7 and 8
Step 3	1 more
Step 4	1 less
Step 5	Composition of 6, 7 and 8
Step 6	Make pairs – odd and even
Step 7	Double to 8 (find a double)
Step 8	Double to 8 (make a double)

Small steps

Step 9	Combine two groups
Step 10	Conceptual subitising

Find 6, 7 and 8

Notes and guidance

In this small step, children explore finding different representations of the numbers 6, 7 and 8

Support them to first match the verbal number names to quantities and then to numerals. Children should be encouraged to continue to apply the counting principles when they count to 8 and when they represent these numbers in different ways.

Provide opportunities for children to use one-to-one correspondence to count 6, 7 and 8 objects from a larger group. To further develop children's understanding of cardinality, support them to know when to stop counting and that the number they say is the total number of objects in the set.

Rhymes

- *One Potato, Two Potato*

Books

- *Handa's Surprise* by Eileen Browne

Key questions

- How many are there altogether?
- Where can you find 6/7/8? Where else?

Possible sentence stems

- There are 6/7/8 _____ .
- There are _____ altogether.
- I can see...

Links to the curriculum

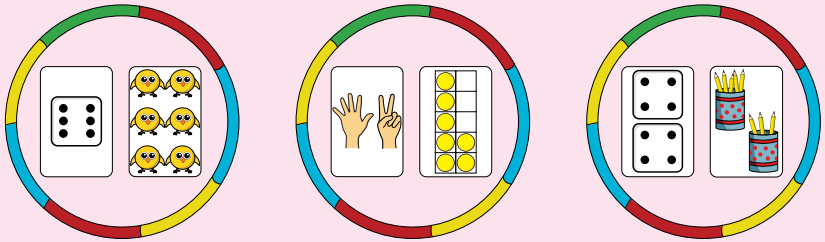
- *Development Matters* – Reception
  - Count objects, actions and sounds.
  - Link the number symbol (numeral) with its cardinal number value.
- *Birth to 5 Matters* – Range 6
  - Uses number names and symbols when comparing numbers, showing interest in large numbers
  - Estimates of numbers of things, showing understanding of relative size
  - Counts out up to 10 objects from a larger group

Find 6, 7 and 8

Adult-led learning

Provide children with a range of picture cards showing 6, 7 and 8

Give them three hoops to represent 6, 7 and 8 and ask children to sort the cards into the correct hoop.

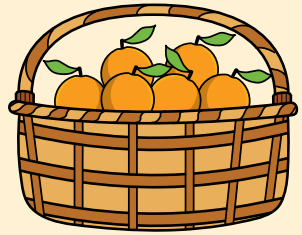


Give each child three dot plates showing a random number of dots from 0 to 8

Hold up numeral cards 0–8, one at a time. Children turn over a dot plate if it matches the numeral. The first child to turn over all their dot plates is the winner.

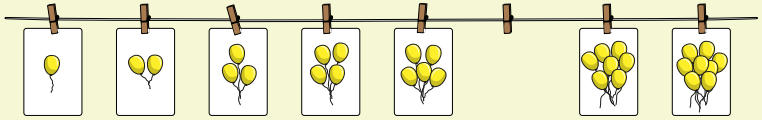
After reading stories such as *Handa's Surprise* by Eileen Browne, provide different pieces of fruit in the snack area. Encourage children to make their own baskets of fruit to show 6, 7 and 8

Prompt them to describe their collections.



Place birthday cards representing 1–8 on a washing line.

Without showing children, remove one of the cards.



Ask children to tell you which card is missing and explain how they know.

This can be extended to removing two cards.

Represent 6, 7 and 8

Notes and guidance

In this small step, children build on their learning of finding the numerals and quantities of 6, 7 and 8 by making their own representations. Encourage them to name their representations and prompt them to match numerals to these quantities. Ask children to draw their representations when noticing amounts, such as the colours in the rainbow or 8 legs on a spider. Prompt children to represent up to 8 objects by introducing them to using a ten frame. Support them to understand that we have 5 if the top row of the ten frame is full. Remind children to fill the ten frame in the five-wise pattern from left to right, so they can see the '5 and a bit' structure. Encourage children to subitise the 5 and start to recognise the pattern of 6, 7 and 8 on the ten frame.

Rhymes

- *I Can Sing a Rainbow*

Books

- *Sidney the Silly Who Only Eats 6* by M.W. Penn
- *Six Dinner Sid* by Inga Moore

Key questions

- How many are there? How many are there now?
- How many different ways can you show 6/7/8?
- How many are there altogether?

Possible sentence stems

- There are 6/7/8 _____. I know this because...

Links to the curriculum

- *Development Matters* – Reception
  - Count objects, actions and sounds.
  - Link the number symbol (numeral) with its cardinal number value.
- *Birth to 5 Matters* – Range 6
  - Uses number names and symbols when comparing numbers, showing interest in large numbers
  - Estimates of numbers of things, showing understanding of relative size
  - Counts out up to 10 objects from a larger group

Represent 6, 7 and 8

Adult-led learning

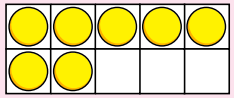
Share stories such as *Sidney the Silly Who Only Eats 6* by M.W. Penn with children. Encourage them to notice where they can see collections of 6

Prompt children to set up their own banquet with different items in sets of 6

To extend this, children could also make their own stories where their character only eats sets of 7 or 8

Hold up a dot plate showing 6, 7 or 8 dots.

Prompt children to represent this number on their ten frame using counters.



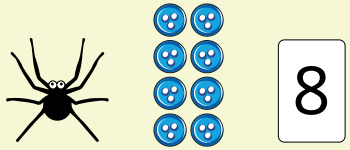
Encourage them to compare their ten frame to their partner's.

Do they look the same?

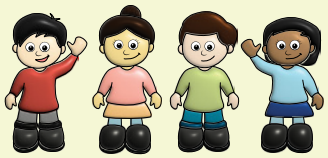
Go on a minibeast hunt outside with children. Use magnifying pots or hand lenses to observe the creatures carefully. How many legs can they see?

Provide non-fiction books to help them identify what they find. Ask children to draw the creatures they see.

Prompt children to make their own collections that represent 6, 7 or 8



Encourage them to explain why they have chosen those objects and why they belong in that collection.



Could an object represent more than one number?

1 more

Notes and guidance

In this small step, children are introduced to the concept of '1 more' when working with numbers up to and including 8

They begin to understand that as they count forwards beyond 5, each number is 1 more and the numbers still increase by 1

Prompt children to recognise the stable order of the numbers and use a range of representations, including '1 more' stories and rhymes, to support this understanding. This can be exemplified on a ten frame as children see the numbers filling more of the spaces and see the pattern of each number. Prompt children to represent the '1 more' pattern as they count and encourage them to act out rhymes and scenarios in places such as the small world area.

Rhymes

- *One Man Went to Mow*

Books

- *Six Dinner Sid* by Inga Moore
- *1, 2, 3 to the Zoo* by Eric Carle

Key questions

- How many are there?
- How many are there now?
- What is 1 more than _____?
- What is the number after _____?

Possible sentence stems

- There are _____
- There are _____ altogether.
- _____ is 1 more than _____
- 1 more than _____ is _____

Links to the curriculum

- *Development Matters* – Reception – Understand the 'one more than/one less than' relationship between consecutive numbers.
- *Birth to 5 Matters* – Range 6 – In practical activities, adds one and subtracts one with numbers to 10

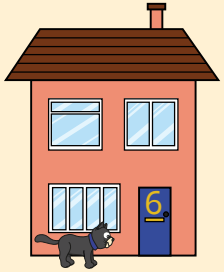
1 more

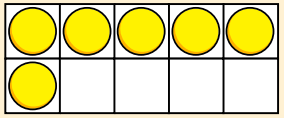
Adult-led learning

Read stories such as *Six Dinner Sid* by Inga Moore.

Use children and props to act out the story.

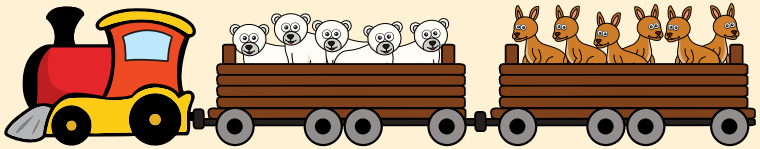
Encourage children to represent how many dinners Sid has eaten each time using counters on a ten frame.





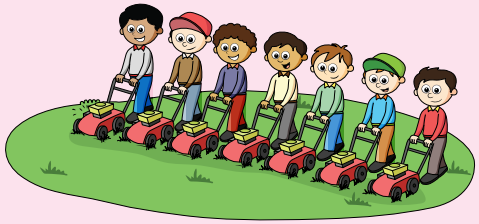
Read stories such as *1, 2, 3 to the Zoo* by Eric Carle with children and stop at the number 8

Act out the story using small world animals.



Encourage children to make their own train to the zoo.

Sing and act out the rhyme *One Man Went to Mow* with children.



Prompt them to build ascending towers to represent the '1 more' pattern.

Encourage children to act out the rhyme independently.

In pairs, children take it in turns to spin a 0–8 spinner.

Prompt them to represent the number with cubes or on a ten frame. Children encourage their partner to represent the number that is 1 more.

Extend this by asking one child to select a number and, without showing their partner, they represent the number that is 1 more. Can their partner tell them what number must be shown on the spinner?

1 less

Notes and guidance

In this small step, children are introduced to the concept of '1 less' with numbers from 0–8

Children begin to understand the relationships between these numbers and notice that, as we count backwards, the numbers get smaller, because we are taking 1 away. To consolidate the stable order principle, prompt children to recognise that the order of the numbers does not change when we count back.

Use stories, rhymes and scenarios that include finding and representing 1 less to support this concept from 8 to zero. Encourage children to count back from 8 to zero and then blast off like rockets to add enjoyment to the start of adult-led activities.

Rhymes

- *Eight in the Bed*

Books

- *Kipper's Toybox* by Mick Inkpen

Key questions

- How many are there?
- How many are there now?
- What is 1 less than _____?
- What is the number before _____?

Possible sentence stems

- There are _____
- There are _____ altogether.
- _____ is 1 less than _____
- 1 less than _____ is _____

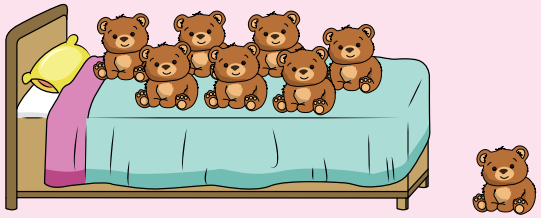
Links to the curriculum

- *Development Matters* – Reception – Understand the 'one more than/one less than' relationship between consecutive numbers.
- *Birth to 5 Matters* – Range 6 – In practical activities, adds one and subtracts one with numbers to 10

1 less

Adult-led learning

Act out the rhyme *Eight in the Bed* with children.



Use counters and a ten frame to represent what happens each time a bear rolls out of the bed. Prompt children to notice the '1 less' pattern as the number decreases. Can they predict what number will come next?

Read stories such as *Kipper's Toybox* by Mick Inkpen with children. Use props to retell the story, showing one toy leaving the toybox each time.

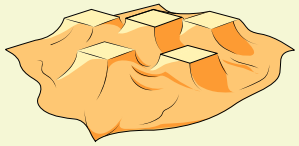
Represent the '1 less' pattern using cubes to make a decreasing staircase model.

Call out a number and prompt children to make a collection of natural objects that represents 1 less than your number.

6

Encourage children to repeat this game independently, with one child calling out the numbers.

Count out six cubes with children and then cover them up so they cannot be seen. Keep the cubes covered but tell children that you are taking away one cube. Ask children how many there are now.



What if we take two cubes away? Encourage children to mark-make to help them to solve the problem.

Composition of 6, 7 and 8

Notes and guidance

In this small step, children explore the composition of numbers to 8

They learn how their skills of perceptual subitising and counting can be used to see and represent the composition of larger numbers in different ways.

Children should be given the opportunity to explore partitioning in many ways with a wide range of objects. Encourage children to find all the ways that they can partition the same number. Prompt children to represent the parts they see, using concrete manipulatives or through mark-making. Providing birthday cards with images that show the cardinal number allows children to make their own number lines that have relevance to them. Children can then be encouraged to explore composition by making their own cards – for example, drawing out the composition of balloons on an 8 card.

Use well-known texts, such as *Quack and Count* by Keith Baker, to point out amounts and then ask children how they see the parts of that number.

Books

- *Quack and Count* by Keith Baker

Key questions

- How many ways can you make 6/7/8?
- What parts can you see?
- What is the whole?

Possible sentence stems

- _____ is a part and _____ is a part.
- The whole is _____
- If _____ is a part, then the other part must be _____
- _____ is a part of _____

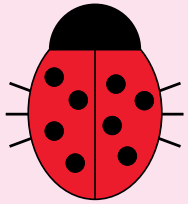
Links to the curriculum

- *Development Matters* – Reception – Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6 – Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects

Composition of 6, 7 and 8

Adult-led learning

Provide children with blank ladybird templates. Prompt them to use counters to place 6, 7 or 8 spots onto their ladybird.



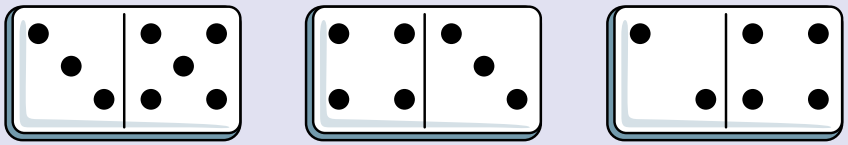
Encourage children to compare their ladybird to a partner's.

What is the same? What is different?

Ask children how many different compositions they can make.

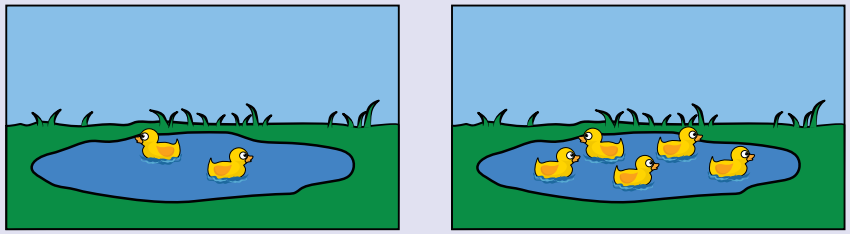
Provide children with a set of dominoes. Ask them to find all the dominoes with 6, 7 or 8 spots in total.

There are four dominoes that total 6, three dominoes that total 7 and three that total 8



What different compositions of 6, 7, or 8 can they find?

Set up a small world scene that includes two parts, such as two fields or two ponds. Prompt children to use sets of 6, 7 or 8 small world animals to explore different compositions. How many animals will go in each part?



Encourage children to find more than one possibility.

Give children 6, 7 or 8 beanbags.

Ask them to throw the beanbags into a bucket.

Prompt them to say how many landed outside the bucket.

Without looking inside, encourage children to say how many must have landed inside the bucket.

Make pairs – odd and even

Notes and guidance

In this small step, children build on their earlier work matching numerals to quantities by now finding and making pairs. They begin to understand that a pair is two. Provide collections of items that come in pairs. Encourage children to arrange quantities into pairs and to notice that some quantities will have an odd one left over with no partner.

Use everyday routines and practical activities, such as talking partners and P.E. games, to point out where we have odd or even amounts. Encourage children to notice pairs and odd and even numbers through games involving matching pairs, such as snap or memory games.

Show children the pair-wise pattern of filling a ten frame and how this can support them to notice odd and even numbers. When objects cannot make a pair, there is an odd number.

Books

- *Simon Sock* by Sue Hendra and Paul Linnet
- *Missing Mittens* by Stuart J. Murphy
- *Noah's Ark*

Key questions

- How many do you have?
- How many do we need to make a pair?
- Is this a pair? How do you know?
- Is this an odd number or an even number?

Possible sentence stems

- I know this is a pair because...
- _____ is an odd/even number because...
- I have _____ groups of 2

Links to the curriculum

- *Development Matters* – Reception – Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6 – Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects

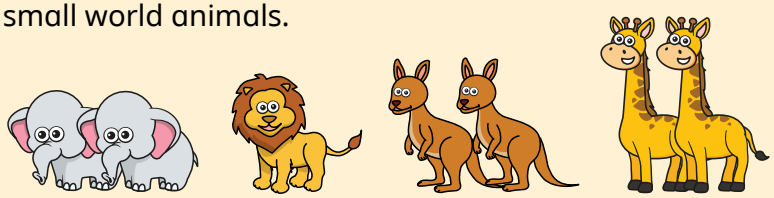
Make pairs – odd and even

Adult-led learning

Read stories such as *Simon Sock* by Sue Hendra and Paul Linnet. Model making pairs with objects such as socks and prompt children to understand that a pair means we have two. Children can make pairs that match or that do not match.

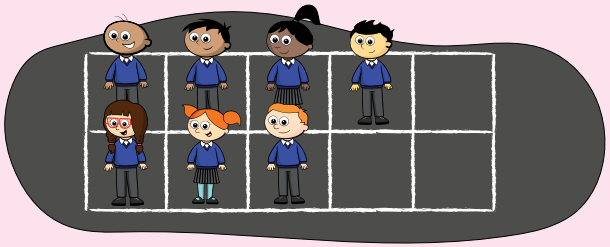
Provide opportunities for them to explore what happens when we have an even or an odd number of socks.

Read traditional stories such as *Noah's Ark*, where the animals go together in pairs. Act out this story with small world animals.

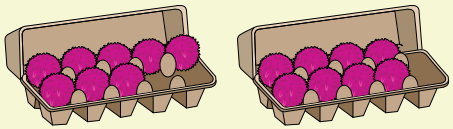


Prompt children to notice when they have an even number of animals and when they have an odd number of animals.

Chalk or tape a large ten frame on the ground. Use children to fill the ten frame in a pair-wise pattern. What do they notice? How many children are there altogether? Are all children in pairs or is there an odd one out?



Provide children with egg boxes with ten dimples and a collection of pom-poms. Prompt children to explore filling the egg boxes in both five-wise patterns and pair-wise patterns with 6, 7 or 8 pom-poms.



Encourage them to talk about what they notice.

What is the same? What is different?

Double to 8 (find a double)

Notes and guidance

In this small step, children are introduced to the concept of doubling and they learn that this means 'twice as many'. They should be given opportunities to see a range of visual representations of doubles and to find them in patterns, in pictures and in arrangements of manipulatives. Encourage children to use familiar equipment to find doubles and make double collections. Books involving doubles are a good way to introduce this concept. It is important for children to build on this skill over time using smaller numbers first.

Prompt children to notice doubles by playing games such as dominoes, where children can use their previous knowledge to match the same number of dots. Model finding doubles, for example, on a dice: "There are 3 here and 3 here, so double 3 makes 6!"

Key questions

- What does double mean?
- Where can you see a double?
- Is this a double or not a double? How do you know?
- What is double _____?

Possible sentence stems

- I have found double _____
- Double _____ is _____
- _____ is double _____

Books

- *Double Dave* by Sue Hendra
- *Minnie's Diner* by Dayle Ann Dodds

Links to the curriculum

- *Development Matters* – Reception – Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6 – Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects

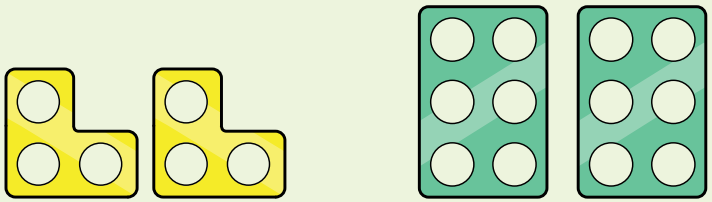
Double to 8 (find a double)

Adult-led learning

Show children images that represent doubles and not doubles.

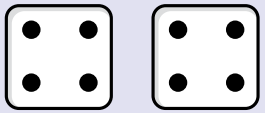
Prompt children to tell you if the representation shows a double or not. How do they know?

Hide a variety of number shapes outside. Give each child one number shape and prompt them to go and find a double by finding another number shape that is the same as theirs.



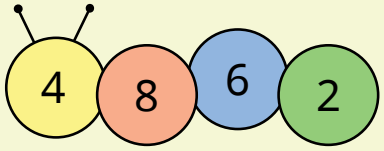
Encourage them to use the sentence stems to talk about the double they have made.

In pairs, provide children with two 0–4 dice. They take it in turns to roll both dice. Prompt children to notice if they have rolled a double or not.



If they do roll a double, then they collect a counter. The first child to collect three counters is the winner.

Play 'Caterpillar Doubles'. Provide a caterpillar game board with the numbers 2, 4, 6 and 8 on the body.



Children roll a 1–4 dice and double the number that the dice lands on. They then place a counter on that number on the caterpillar's body.

The first player to fill their board with counters wins.

Double to 8 (make a double)

Notes and guidance

In this small step, children build on their knowledge of finding a double by now physically making them using manipulatives and their own mark-making. They should be given opportunities to build doubles in many different contexts.

Encourage children to use their fingers and make the same amount on each hand then tap their hands together to show doubles during carpet times.

Building numbers using the pair-wise pattern on ten frames will help children to see the doubles. Mirrors and barrier games are a fun way for children to see doubles as they build and explore early symmetry. Encourage children to say the doubles as they build them, for example, "Double 2 is 4." It is important for children to do this practically and say the double as they are making the representation rather than just reciting number facts.

Provide examples that represent doubles and not doubles for children to sort and explain how they know.

Books

- *Two of Everything* by Lily Toy Hong

Key questions

- What does double mean?
- What double have you made?
- Is this a double or not a double? How do you know?
- What is double _____?

Possible sentence stems

- I have made double _____
- Double _____ is _____
- _____ is double _____

Links to the curriculum

- *Development Matters* – Reception – Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6 – Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects

Double to 8 (make a double)

Adult-led learning

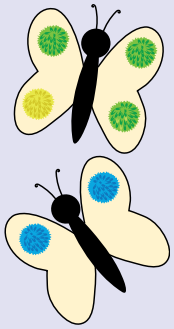
Explain to children that you have a magic doubling pot. When items go in, they are doubled.

As you put items into the pot, prompt children to predict what double will come out.

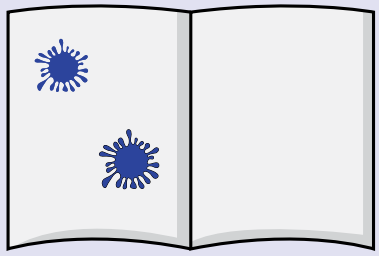
Provide butterfly templates and ask children to use tweezers to place pom-poms on to the wings.

Prompt them to make doubles by adding the same number of pom-poms to each side.

How many different doubles can they make?



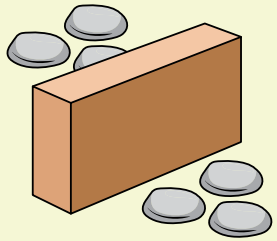
Provide a large piece of paper with a fold down the middle. Encourage children to make doubles by adding spots of paint to only one side of the paper.



Prompt them to fold the paper over to make a double.

Can children predict how many spots there will be now?

Prompt children to sit facing each other in pairs with a barrier between them. Provide them with collections of small items such as pebbles or cubes. Encourage one child to represent a number with the objects.



They show their partner quickly, by lifting the barrier, and then hide the objects again. Their partner then builds the same number. Children remove the barrier and check if they have made a double. Which double have they made?

Combine two groups

Notes and guidance

In this small step, children begin to combine two groups to find how many there are altogether. They should be given opportunities to do this in many contexts using different manipulatives and real-life objects.

Present interesting images for children to look at and point out where they may see the groups. Then encourage children to talk about the groups they see with a partner. Encourage children to subitise where possible, although they may still need to count in ones at this stage to find out how many there are altogether.

Use songs and stories to support bringing two groups of items together. In provision, use real-life objects, such as plates of cream crackers during snack time, to show how two groups can be combined. As children become more confident, support them to show you how they can combine their own groups and to explain their thinking.

Books

- *Don't Forget the Bacon!* by Pat Hutchins

Key questions

- How many can you see?
- How many are there in each group?
- How many are there altogether?

Possible sentence stems

- There are _____ here and there are _____ there.
- There are _____ altogether.
- _____ and _____ make _____

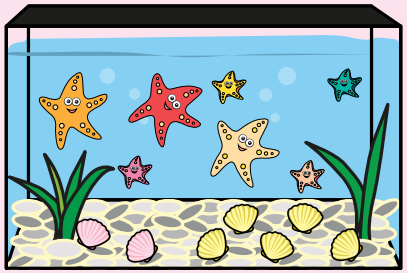
Links to the curriculum

- *Development Matters* – Reception – Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6 – Shows awareness that numbers are made up (composed) of smaller numbers, exploring partitioning in different ways with a wide range of objects

Combine two groups

Adult-led learning

Show children pictures that provide opportunities for combining two groups.



How many can children see in each group? How many are there altogether?

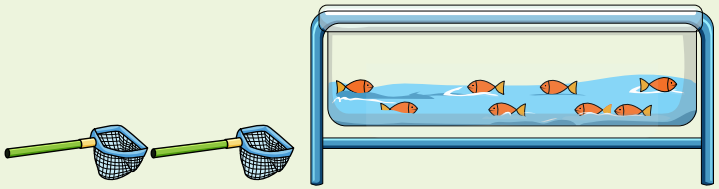
Provide a set of dominoes that include all those with a total of up to 8 spots. Also provide a 'car park' with numbered spaces.

0	1	2	3	4	5	6	7	8

Prompt children to take it in turns to select a domino and to find the total number of spots. They then place the domino in the correct parking space.

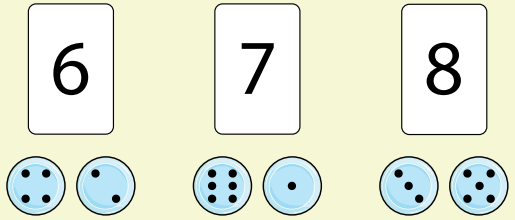
Place up to eight fish in a water tray.

In pairs, prompt children to use nets to scoop up some of the fish.



How many fish does partner 1 have? How many does partner 2 have? How many fish do they have altogether?

Provide children with dot plates that show 1–6 dots and numeral cards 6, 7 and 8



Prompt children to arrange all six dot plates so that they have two plates that total 6 dots, two plates that total 7 dots and two plates that total 8 dots. Encourage them to explore whether there is more than one way.

Conceptual subitising

Notes and guidance

In this small step, children are taught to use their skills of perceptual subitising to recognise the groups within numbers greater than 5, allowing them to conceptually subitise. This is the ability to identify a whole quantity by subitising the smaller quantities that make up the whole number. This skill will support children to develop mental images for addition and subtraction, which helps them to move away from counting on and counting back.

Prompt children to recognise a number by grouping it into small sets. Ask them to say the whole number first and then how they knew by naming the two parts or more that they saw. Model conceptual subitising to children by using stem sentences, for example, "I can see 8. There are 4 here and 4 there. There are 8 altogether."

Use dot plates with two colours to support children to see the two groups within the whole.

Books

- *The Snail and the Whale* by Julia Donaldson

Key questions

- What do you see?
- How do you see it?
- What parts can you see?
- How many are there altogether?

Possible sentence stems

- I can see _____ here and _____ there.
- There are _____ altogether.
- _____ is a part and _____ is a part.
- The whole is _____

Links to the curriculum

- *Development Matters* – Reception – Subitise.
- *Birth to 5 Matters* – Range 6 – Begins to conceptually subitise larger numbers by subitising smaller groups within the number, e.g. sees six raisins on a plate as three and three

Conceptual subitising

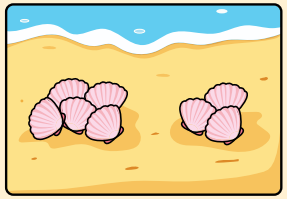
Adult-led learning

Provide children with a set of dot plates showing 0–8 dots arranged in different ways. Support children to see two parts by using two different-coloured dots.

Hold up the dot plates and ask children what groups they can see. How many dots are there altogether?

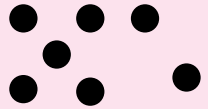
Encourage children to show the correct number of fingers or to show the correct numeral.

Read stories such as *The Snail and the Whale* by Julia Donaldson. Encourage children to subitise the smaller groups they can see and combine them to find how many there are altogether.



Show children different arrangements of dots up to 8

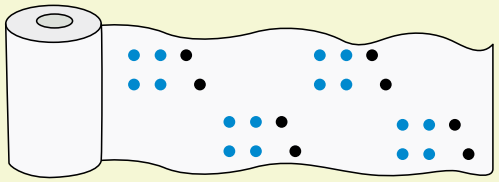
Ensure that you include the same number arranged in different ways.



Ask children what they see and how they see it. Does everyone see it the same way or are there different ways?

In pairs, encourage children to make their own dot arrangements using up to 8 counters. Can their partner say what they can see?

Provide children with different dot arrangements and two different coloured pens.

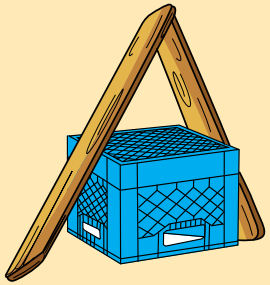


Prompt them to draw around the dots to show two groups. Is there more than one way to do this?

Children could also show more than two groups.

Continuous provision

Prompt children to make 8 houses on a street out of loose parts or construction resources.

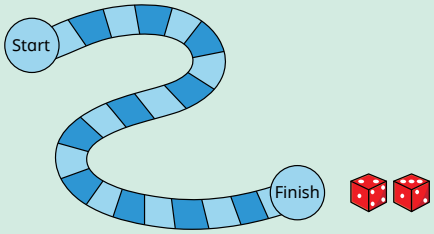


Encourage them to take on the role of a postal worker and deliver a number of parcels to each house on the street. Children recognise the numerals of the house numbers and deliver the corresponding number of parcels, for example, 7 parcels to house number 7

Enhance provision with a variety of resources with which children can make different arrangements. For example, they could pair up socks on a washing line, or arrange finger puppets or small world animals into pairs.

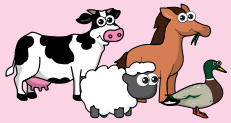
Prompt children to look at the different compositions they can see within groups. Also, encourage children to talk about odd and even numbers.

Provide simple board games and two 1–4 dice.



Children roll both dice and move the required number of spaces on the board. Ask them which two numbers they have rolled and prompt them to combine them to find the total number.

Provide children with mirrors for them to explore doubling quantities of objects or counters.



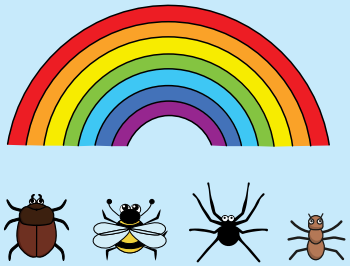
Children represent a number from 1 to 4 with objects and then use the mirror to double it.

Can they say what double they have made?

End of block checkpoint

Checkpoint 1

Provide images of rainbows, insects and spiders to inspire children to recreate these in mark-making and art provision.

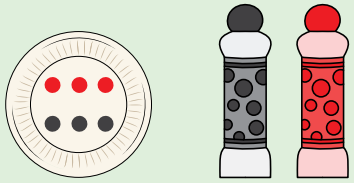


Can children represent 6, 7 and 8 and talk about their creations accurately? This could be used for looking at composition and doubling on ladybirds and butterflies.

Checkpoint 2

Provide children with paper plates and two different-coloured dabbers.

Prompt them to create their own dot plates for the numbers 0–8, using the two colours to show two parts within the whole.



Can children talk about the parts and the whole?

Checkpoint 3

Provide ladybirds with up to 8 spots in different arrangements.

Ask children to choose one ladybird. How many spots does it have altogether? Prompt children to find a ladybird with the same number of spots but in a different arrangement. Can they find a ladybird with 1 less spot and a ladybird with 1 more spot?