Summer Block 4

Sharing and grouping

White Rose
MATHS

Teacher guidance

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Key books

- *The Last Marshmallow* by Grace Lin
- *The Squirrels Who Squabbled* by Rachel Bright
- *One Hungry Cat* by Joanne Rocklin
- *The Doorbell Rang* by Pat Hutchins
- *Ness the Nurse* by Nick Sharratt
- *The Gingerbread Man*
- *Bean Thirteen* by Matthew McElligott
- *Missing Mittens* by Stuart J. Murphy
- *Alison Hubble* by Allan Ahlberg

Key resources

Top tips

- Draw upon children's past experiences when discussing the idea of fair and equal groups. Children are more likely to notice when things are fair when it involves items that are of importance to them, such as food and toys. Try to use other non-food resources to prove 'fair' and 'not fair'.

Small steps

Step 1	Explore sharing
Step 2	Sharing
Step 3	Explore grouping
Step 4	Grouping
Step 5	Even and odd sharing
Step 6	Play with and build doubles

Explore sharing

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Notes and guidance

In this small step, children will begin to develop an understanding of sharing. They will investigate what sharing is and describe equal sharing as fair and unequal sharing as unfair.

Within this block, we explore sharing and grouping, which are both different methods of division. Sharing (see small steps 1 and 2) involves dividing a set equally between a certain number of groups. Grouping (see small steps 3 and 4) involves dividing a set by placing a certain number of items in each group.

Activities such as sharing snacks or playing group games are great opportunities for children to notice when it is fair. These practical activities help children see whether items have been shared equally and whether everyone has the same. Children may remember from previous steps the concepts of even and odd numbers relating to this, which will be focused on in later steps.

Exposing children to this concept of sharing into groups and beginning to identify when these groups are equal will ensure that children are ready to move on to the next step.

Books

- *The Last Marshmallow* by Grace Lin
- *The Squirrels Who Squabbled* by Rachel Bright

Key questions

- Is it fair? How do you know?
- Are the groups equal?
- Do all the groups have the same amount?

Possible sentence stems

- It is fair because…
- It is not fair because…
- The _____ have/have not been shared equally.

Links to the curriculum

- *Development Matters* – Reception
  - Compare numbers.
  - Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6
  - Estimates of numbers of things, showing understanding of relative size
 - Counts out up to 10 objects from a larger group

Explore sharing

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Adult-led learning

Show children a bowl of strawberries and two plates. Explain that you are going to share the strawberries so that each plate has the same number. Put a handful straight onto each plate without counting, making sure that one plate clearly has more strawberries than the other.
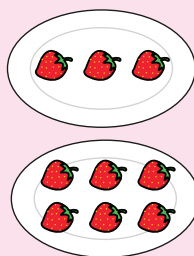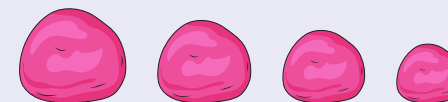
Ask children whether it is fair. Prompt them to show you how to share the strawberries fairly. What if there are three plates?

In the dough area, start off with all the dough in one ball. Break the dough and give each child a noticeably different amount of dough. Ask, "Is it fair? Does everyone have the same amount?"

How can we make it fair so that all children have the same amount of dough?

Provide opportunities for children to see items shared equally and unequally. Give each child a noticeably different handful of cards – is it fair?

Do all the children have an equal number of cards?

Read stories such as *The Squirrels Who Squabbled* by Rachel Bright. Outside, set up two tyres with one character in each. Provide children with a collection of natural materials, such as acorns, conkers or pinecones. Encourage them to explore whether these items can be shared equally between the two characters.

Prompt children to explain their reasoning.

Sharing

Notes and guidance

In this small step, children will build upon their knowledge of sharing from the previous small step and refine these skills further. Children will share practically for a purpose by having a number of objects to share between various people or groups.

Children will learn that to share we need to take one object at a time and give it to one child before taking the next object and giving it to the next child, repeating this process until all the objects are gone or each child has an equal amount.

This small step will also address what happens if an amount cannot be shared equally by the number of children that we have; they will identify that, at times, there will be leftover objects that cannot be shared fairly. Children may have ideas on what should be done with leftover objects.

Story books that relate to sharing can expose children to a range of scenarios and provide meaningful contexts. Encourage children to discuss their experience of sharing and how they know whether it is fair.

Books

- *One Hungry Cat* by Joanne Rocklin
- *The Doorbell Rang* by Pat Hutchins

Key questions

- How will you share the _____ equally?
- How do we make sure everyone has the same amount?
- Are there any left over?

Possible sentence stems

- The _____ have/have not been shared equally.
- There are _____ altogether.
- They are shared equally between _____ groups.

Links to the curriculum

- *Development Matters* – Reception
  - Compare numbers.
  - Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6
  - Estimates of numbers of things, showing understanding of relative size
  - Counts out up to 10 objects from a larger group

Sharing

Adult-led learning

Provide teddy bears, plates and small quantities of loose parts to represent different food items. Ask children to share out the loose parts fairly so that each teddy gets the same amount.
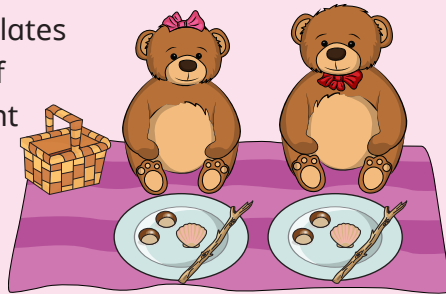
Are there any items left over? What will happen if another teddy joins the picnic?

In pairs, play a throwing game using quoits. Give children a bucket of quoits and tell them that each player needs to start the game with the same number. How will we share the quoits equally? How can we make it fair? Repeat with different numbers of quoits and different numbers of players.
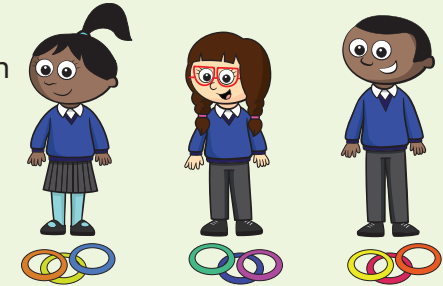
After reading stories such as *One Hungry Cat* by Joanne Rocklin, support children to bake cookies or make them in the dough area. Once they have made the cookies, encourage them to share them equally with a partner.
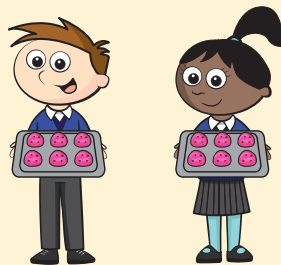
How many cookies does each child have? Have they shared the cookies equally?

After reading books such as *The Doorbell Rang* by Pat Hutchins, give children 12 cookies. Act out the story and encourage them to share the cookies between 2, then 3, then 4 people.

What will happen if one more person arrives?

Explore grouping

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Notes and guidance

In the previous small steps, children have explored the method of sharing and will now move on to the method of grouping. When exploring grouping in this small step, children will use their knowledge of equal and unequal groups to support them.

Remember that grouping involves dividing a set by placing a certain number of items in each group, whereas sharing (see small steps 1 and 2) involves dividing a set equally between a certain number of groups.

When grouping, children divide a set by placing a given number of objects in each group and investigate how many groups they will require. Provide varied opportunities for children to recognise and make equal groups. The use of stories can provide meaningful contexts for grouping.

To maximise children's opportunities to independently develop their grouping skills, ensure that classroom provision is enhanced with some labelled groups, for example, by labelling how many pencils belong in each pot. Tidy up time will then provide a relevant purpose for grouping.

Books

- *Ness the Nurse* by Nick Sharratt

Key questions

- How many do you have?
- How many are there in each group?
- Are the groups equal? How do you know?

Possible sentence stems

- The groups are equal/not equal because…
- There are _____ groups of _____
- There are _____ altogether.

Links to the curriculum

- *Development Matters* – Reception
  - Compare numbers.
  - Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6
  - Estimates of numbers of things, showing understanding of relative size
  - Counts out up to 10 objects from a larger group

Explore grouping

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Adult-led learning

After reading stories such as *Ness the Nurse* by Nick Sharratt, enact a similar scenario with children. Show them how many objects you have, such as 10 stickers. Give 1 sticker each to 7 children, then give the remaining 3 stickers to another child. Ask children, "Have I grouped the stickers equally?"

If we have 10 stickers and we give 1 to each child, how many children can we give stickers to?

Ask children to make groups using the small-world animals. If they have 6 sheep and 2 sheep need to go in each field, how many fields will they need?

What happens if they make groups of 3 and place 3 sheep in each field? Can they make more groups of 2 or more groups of 3?

Repeat this in different contexts.

Challenge children to help you reorganise the mark-making provision. Tell children that you would like to put 3 pencils in each pot. How many pots will you need?
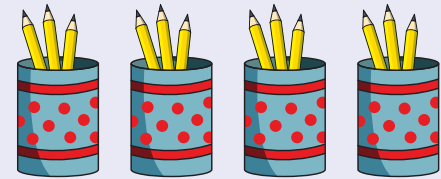
Repeat this and reorganise different areas of provision, such as paintbrushes in jars or books in baskets.
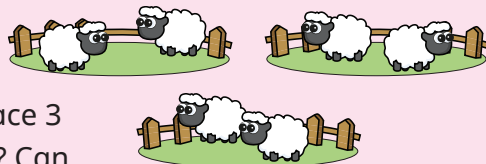
Encourage children to sit in small groups for a picnic outside and provide different quantities of food.
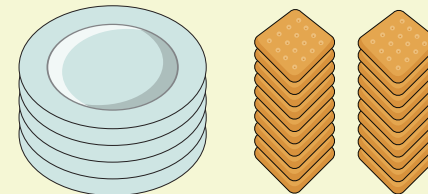
Prompt children to give out the food in different ways to encourage grouping. For example, if each child needs 3 cream crackers, how many children can eat at the picnic with us? How can we find out?

Grouping

Notes and guidance

In this small step, children build upon their knowledge of grouping from the previous step and refine these skills further. Children will group for a purpose and divide a set of objects by placing a certain number of them in each group. They will investigate how many groups they need in order to give out all their objects.

When making groups, encourage children to place their objects into pots, bowls or other containers to support them to make distinct groups and to see whether the groups are equal. Children could also explore grouping on a larger scale outside by placing objects into hoops or buckets. Further to this, they could be encouraged to play team games that require them to get into teams of certain numbers.

Provide a range of opportunities for children to explore grouping, initially prompting them to divide a number of objects that can be grouped equally. To further develop children's understanding, progress to exposing them to numbers of objects that cannot be grouped equally and so items are left over. Encourage them to come up with their own suggestions for how to resolve this.

Books

- *The Gingerbread Man*

Key questions

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

Possible sentence stems

- There are _____ altogether.
- The _____ can be put into equal groups of _____
- There are _____ groups of _____

Links to the curriculum

- *Development Matters* – Reception
  - Compare numbers.
  - Explore the composition of numbers to 10.
- *Birth to 5 Matters* – Range 6
  - Estimates of numbers of things, showing understanding of relative size
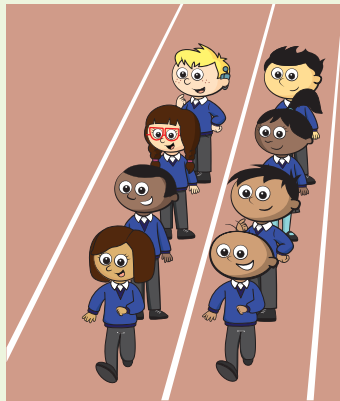 - Counts out up to 10 objects from a larger group

Grouping

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Adult-led learning

Play relay races in small groups, explaining that we need teams of 4 children to play the game. How many teams can we make?

Repeat with different numbers of children needed in each group. How many teams can we make this time?

Provide children with plant pots, soil and seeds for planting. Explain to children that we need to put 3 seeds in each pot. How many pots can be filled?

This could be repeated, by giving children a different number of seeds to be put in each pot. Does the number of pots change?

Read the story *The Gingerbread Man*. Give children a number of gingerbread biscuits and some raisins to use as buttons and prompt them to place 3 buttons on each gingerbread biscuit.

How many gingerbread biscuits can have buttons? Repeat this with different numbers of buttons – how many biscuits can have buttons this time?

Give children 12 cubes. If they put 2 cubes in each tower, how many towers will they make?
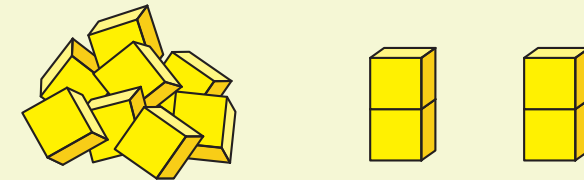
Ask them to investigate different ways of grouping their cubes into towers. Which numbers make equal groups? Which numbers don't?

Even and odd sharing

Notes and guidance

In previous small steps, children have explored sharing and experienced fair and unfair sharing by identifying whether objects are left over.

Children will now use these skills in this small step to identify whether a number is odd or even by sharing into two groups. Using language such as 'odd', 'even', 'equal' and 'unequal' will prompt children to make the links to the number of objects they are sharing.

Children are encouraged to talk through the sharing process, explaining what they notice and how they know whether an amount is odd or even. To do this, ensure that children are provided with a range of hands-on experiences that use varied resources and different numbers of objects.

Encourage children to model their thinking by asking questions such as, "Can you show me what you did?" and "How do you know?"

Books

- *Bean Thirteen* by Matthew McElligott
- *Missing Mittens* by Stuart J. Murphy

Key questions

- How many are there altogether?
- Do you have an odd or even number? How do you know?
- How many equal groups do you have? Do you have any left over?

Possible sentence stems

- There are _____ altogether.
- I have an odd/even number of _____. I know because…

Links to the curriculum

- *Development Matters* – Reception
  - Compare numbers.
  - 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
  - Counts out up to 10 objects from a larger group

Even and odd sharing

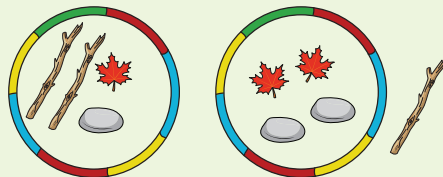White Rose MATHS

Adult-led learning

In pairs, children select a numeral card and count out the corresponding number of counters. Is this an even or odd number? Encourage them to share the counters between the two of them. Do they have two equal groups or is there one counter left over?
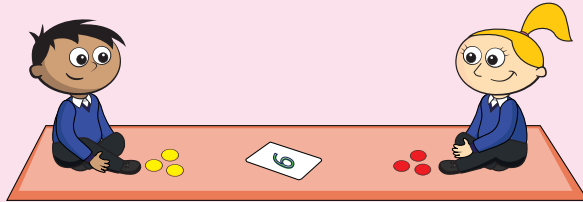
Children then bring their numeral card to the front and sort it into an odd or even hoop.

Encourage children to make an odd or even potion by collecting natural objects such as sticks, pebbles, leaves and petals. How many of each object do you have? Prompt children to try sharing the objects equally between two cauldrons or pots to check whether they have an odd or even potion.

Provide pairs of children with a 30-second timer. Outside, ask them to collect as many loose objects as they can. Have they collected an even number or an odd number? How do they know? Prompt children to share their objects into two groups to find out.
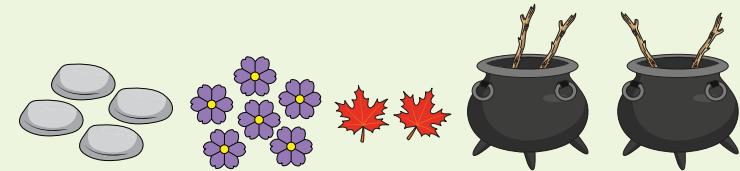
After reading stories such as *Bean Thirteen* by Matthew McElligott, give children a number of beans. Do they have an odd number or an even number? How do they know?
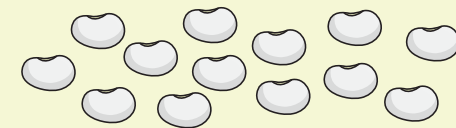
Prompt them to share the beans equally between two groups to investigate.

Play with and build doubles

Notes and guidance

In this small step, children consolidate their learning of finding and making doubles. Continue to prompt them to explore, investigate and build doubles in a range of different contexts.

Encourage children to double numbers but also progress this to showing children a double and asking them to say what number has been doubled, by finding the inverse. Prompt children to use sentence stems to support their mathematical talk.

In games and activities, promote and model the automatic recall of double facts, rather than always relying on building the doubles each time. Resources such as towers of cubes, counters on ten frames and dominoes will continue to support children who are not yet secure with recalling all double facts.

Drawing on knowledge of even and odd sharing from the previous small step, children may recall that all doubles are even numbers, as they are made up of two equal groups.

Books

- *Alison Hubble* by Allan Ahlberg

Key questions

- What is a double?
- What is double _____?
- How can you show me double _____?

Possible sentence stems

- Double _____ is _____
- I can see _____ and _____
- I can see _____ altogether.
- This is double _____

Links to the curriculum

- *Development Matters* – Reception – Automatically recall number bonds for numbers 0–5 and some 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

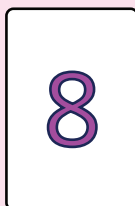# Play with and build doubles

Adult-led learning

Play a game of double bingo. Provide children with some counters and a numbered grid with numbers up to 5 on it. Show them a numeral card such as 8 and ask them which number is doubled to make 8

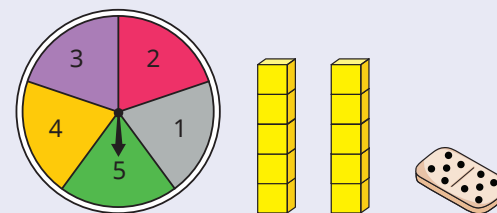They then place their counter on the corresponding number, such as number 4

To support children, give them cubes to use to work out the double.

Play caterpillar doubles. Provide children with a number track shaped as a caterpillar with the numbers 2, 4, 6, 8 and 10 displayed on it in a random order. Prompt children to roll a 1 to 5 dice, double the number and put a transparent counter on the double.

Ask children to spin a 1 to 5 spinner. Double the number the spinner lands on by building towers or drawing spots on blank dominoes.

What number did you land on? What is the double?
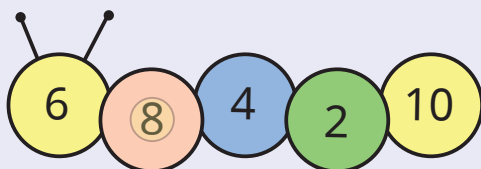
Show children a 'doubles town' in the small-world area. Explain that everything in the 'doubles town' shows a double. For example, there are 6 houses, which shows double 3

Ask children to reason why each object is part of the 'doubles town'. Do we have all the doubles to 10 in our town?

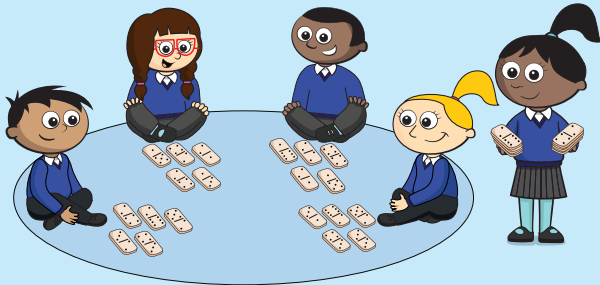Can children make their own 'doubles town'?

Continuous provision

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Enhance provision with games such as dominoes, where children need to share out all the resources equally before they play.

Does everyone have the same number of objects? Are the groups equal? Which group has an odd number of objects?

Reorganise resources in the outdoor provision by grouping. Tell children that we need to place the tyres in piles of 3. How many piles can we make? Repeat this for other resources, such as piles of crates, balls in buckets and towers of bricks.

Children could then make their own signs to label the groups.
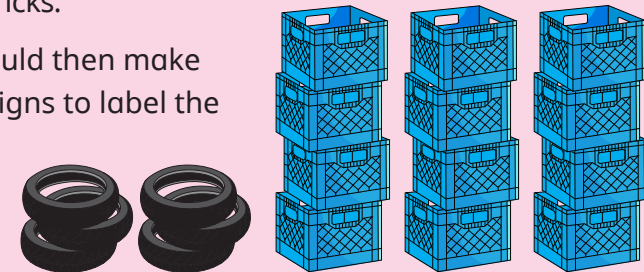
Set up a cake shop in provision with cupcake cases and boxes. Give children orders for certain numbers of cupcakes. If we put 2 cupcakes in each box, how many boxes will we need?

Repeat this with different numbers of cupcakes and boxes. Do we have an odd or even number? How do we know?
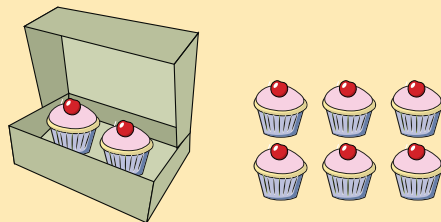
Lock two of the same number shapes together in a padlock. Write the double on the tag of the corresponding key. Repeat this for doubles to 10 and then prompt children to find the correct key to unlock the padlocks.

Once they have unlocked all the padlocks, children can lock the number shapes in the padlocks again for a partner to unlock.
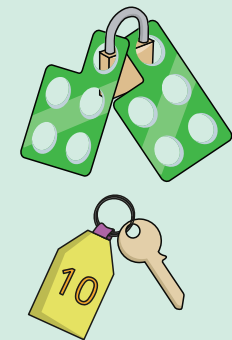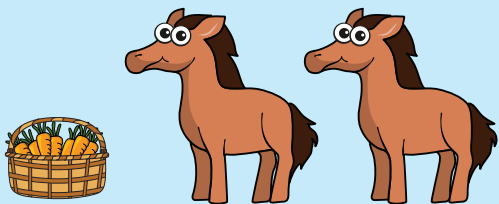
# End of block checkpoint

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Checkpoint 1

In the small-world area, encourage children to share objects equally between two or more groups. For example, can they share the carrots between 2 horses? Can they share the sheep between 3 fields? How many are there in each group? Are the groups equal? Do they have an odd number?
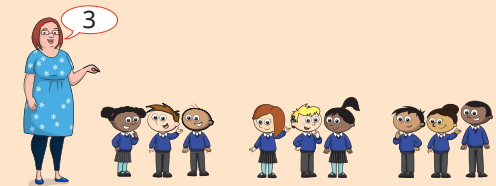
Checkpoint 2

Spread out numeral cards 2, 4, 6, 8 and 10 on the floor or around the classroom. Shout out a number and prompt children to double that number. Encourage them to race to swat the correct numeral with a swatter.
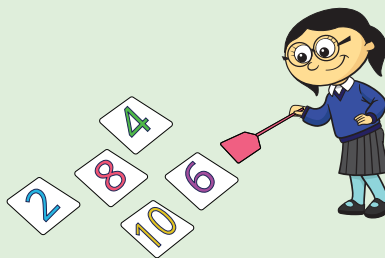
Checkpoint 3

Shout out a number and prompt children to get into groups of that number.

How many groups have we made? Are the groups equal? Is anyone not in a group?

Repeat this with different numbers of children and different numbers in each group. Is your group odd or even?