Unit 2 Comparing groups within 5

Mastery Expert tip! "Children need plenty of experiences where they can compare collections to talk about which group has more or fewer things. To begin with, focus on comparing familiar, identical objects, before moving on to familiar non-identical objects, to help children master and accurately apply the key vocabulary of *more*, *fewer* and *the same*."

Don't forget to watch the Comparing quantities video!

Early Learning Goals

This unit supports the following ELGs:

→ Number ELG

Have a deep understanding of number to 10, including the composition of each number Subitise (recognise quantities without counting) up to 5

WHY THIS UNIT IS IMPORTANT

This unit focuses on comparing two groups of objects and correctly identifying which has more, fewer or whether they have the same amount, using matching, representing and subitising strategies.

WAYS OF WORKING

Work as a whole class, in small groups or in pairs, as appropriate. Have countable objects and cubes available for children to use throughout this unit.

WHERE THIS UNIT FITS

- → Unit 1: Numbers to 5
- → Unit 2: Comparing groups within 5
- → Unit 3: Shape

In this unit, children will be introduced to the language of *more* and *fewer* by comparing groups of up to 5 objects presented in different ways, including dice formation. They will also learn that groups of objects can have the same amount in them, even if they look different.

Link to Key Stage 1

Number - number and place value

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number; count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
- identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least

ASSESSING MASTERY

Children who have mastered this unit will be able to:

- identify if a group has more or fewer objects: they can line up objects to check which group has more or fewer; they can say if groups are equal; given an amount, they can show more or fewer with support
- compare two groups of non-identical objects and match them in order to find out which group has more, fewer or the same

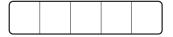
COMMON MISCONCEPTIONS	STRENGTHENING UNDERSTANDING	GOING DEEPER
Children may not understand that <i>more</i> refers to the actual number of objects in the group rather than the size of the objects or the space they take up.	Count a group of two differently sized objects to ascertain that there are more of the smaller objects. Spread out the larger objects to take up more space or make a longer line and move the smaller objects close together. Count again to compare.	Put out a group of up to 4 larger objects and ask children to show you <i>more</i> using smaller objects. Repeat with smaller objects, asking children to show you <i>fewer</i> of a larger object.
Children may think that to compare two groups, one group must either be <i>more</i> or <i>fewer</i> , and cannot be <i>equal</i> or <i>the same</i> .	Show children pairs of the same number of objects (1–5), arranged differently. So, for example, 4 in a dice formation and in a horizontal line. Discuss what is the same and what is different to ascertain that one is not more than the other but the same.	In pairs, ask children to each show you the 'same but different': the same number of objects but arranged differently. They check that their partner has the same number in each group.

STRUCTURES AND REPRESENTATIONS

Multlink cubes: Multilink cubes provide a physical representation of an amount, which children can handle and move as they count to support their early counting skills.



Five frame: Five frames help to give children a sense of number, and support their understanding of number bonds to 5.



RESOURCES

Mandatory: multilink cubes, selection of countable real-life objects

Optional: number tracks, conkers, buckets (for sorting and grouping), flashcards showing representations of 5 in different arrangements (photocopiable 8), fruit bowls, selection of fruit, bikes, parking spaces, bags, plates, cups, cutlery, napkins, fruit, fruit skewers, containers for collecting objects, small objects for counting, five frame (photocopiable 7)

TEACHING TOOLS

multilink cubes

KEY LANGUAGE

There is some key language that children will need to know as part of the learning in this unit:

- → one, two, three, four, five, 1, 2, 3, 45
- → more, fewer, same, different, every
- → count, represent, match, sort, compare
- → equal, less than, fewer than, greater than, more than, equal amount

Comparing quantities of identical objects

Learning focus

This week, children will compare groups of identical objects using the language *more*, *fewer* and *less*. Identical objects are compared in different orientations, and include equal-quantity groups to prompt more creative thinking about how identical groups can be compared.

Small steps

- Previous step: Counting to 5
- This step: Comparing quantities of identical objects
- → Next step: Comparing quantities of non-identical objects

COMMON MISCONCEPTIONS

Children may miscount the objects and so compare the groups inaccurately. Ask:

• What could you use to help you count the objects? How can you check your count?

Children may think that a longer line of objects is a greater number of objects, even if they are not spaced evenly. Ask:

• Can you line up the objects? Can you draw lines between them to match them one to one?

KEY LANGUAGE

In lesson: one, two, three, four, five, 1, 2, 3, 4 5, **more**, **fewer**, counting/counted

Other language to be used by the teacher: represent, match, sort, compare, count, equal, less than, fewer than, greater than, more than, same, different

STRUCTURES AND REPRESENTATIONS

multilink cubes

RESOURCES

Mandatory: multilink cubes, selection of countable real life objects

Optional: number tracks, conkers, buckets (for sorting and grouping), flashcards showing representations of 5 in different arrangements (photocopiable 8), fruit bowls, selection of fruit, bikes, parking spaces, bags

EXPLORE

Taking every opportunity throughout the school day to build and reinforce mathematical concepts gives children's learning purpose and meaning in the wider context of their lives.

ACTIVITY	AREA	DESCRIPTION	RESOURCES
Comparing fruit	Snack area	Put some of the same fruits in two fruit bowls. Ask: Which bowl has more bananas [or apples or oranges]? Encourage children to estimate first before lining the fruit up to check.	Two fruit bowls, selection of fruit
Comparing children	Hall or classroom	Arrange children to sit in two rows. Ask: Are there more children in the front row or the second row? Can you check by lining up?	Children
Comparing bikes	Outside	Make 5 parking spaces for some bikes. Before tidying up, ask: Are there more bikes in the parking spaces or in the playground? How can you check?	Bikes, parking spaces

Day I

Learning focus

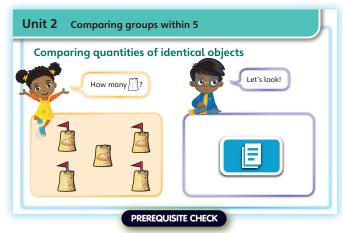
Noticing inequality of groups

Before you teach III



- Are children confident counting to 5?
- What resources and representations will you make available from previous lessons to support children's learning?

Starter



PREREQUISITE CHECK Picture of 5 sandcastles, some with flags, some with shells, some with both.

WAYS OF WORKING Whole class

IN FOCUS This **Prerequisite check** practises the Unit 1 skill of counting to 5 accurately.

ASK

- Can you remember how to count to 5?
- How many sandcastles have flags?
- How many sandcastles have shells and flags?
- How many sandcastles have a shell and no flag?
- How many sandcastles are there altogether?



STIMULUS Photograph prompting a guided activity

WAYS OF WORKING Whole class

IN FOCUS The **Stimulus** introduces the idea of spotting differences between two similar images and introduces children to the questions: What's the same? and What's different?, prompting children to make comparisons. They could talk about the colour of the flowers, the shape of the vases or the number of flowers in each.

ASK

- What is the same about the vases/flowers?
- What is different about the flowers/vases?
- How many flowers can you see in each vase?

GET ACTIVE Create a picture using one type of countable objects, such as pebbles. Children start by copying the picture exactly. Children then try to make a picture that is different. Ensure children are always using the same object. As with the **Stimulus** photograph, use the **Ask** questions to guide discussion about what is the same and what is different.

Learning focus

Comparing groups using more and fewer

Discover

WAYS OF WORKING Whole class or small groups
Ensure cubes or conkers, or objects to represent the conkers are available for children to use.

IN FOCUS Children count the items they can see in each picture and compare the groups using the language *more* and *fewer*. They can recreate the lines showing the conkers. Discuss and demonstrate, where necessary, the importance of starting both lines at the same place (you could use a ruler as a baseline) and of keeping the first, second and third conkers in each line level with each other.

ASK

- · How many conkers does each child have?
- Who has more? How many more do they have? How do you know?
- Can you compare the flowers? What else can you compare?



Share

WAYS OF WORKING Whole class
Children recreate the pictures using objects.

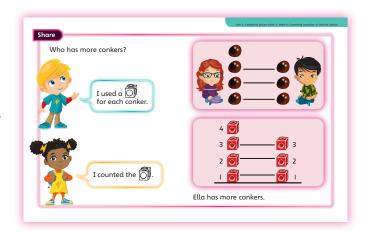
Order to compare the quantities. This is the first time that children are shown how a concrete object (a cube) can be used to represent something (a conker). Using the questions below as a prompt, ensure that children are comfortable with this representation. A baseline is shown under the cubes to illustrate the importance of lining objects up when comparing them.

ASK

- What does a cube represent?
- How many cubes do you need to represent Ella's conkers?
 How many cubes do you need to represent Tom's conkers?
- Why have you lined up the cubes? Who has more conkers?

represent an object (conker), use actual conkers to support them in their understanding. When the conkers are in the correct position, replace each conker with a cube, one at a time. If necessary, use five frames or number tracks to enable children to space the cubes equally.

DEEPEN Deepen children's thinking by showing them examples where items are not spaced out evenly so that



the smaller quantity looks as if it is more than the larger quantity. Challenge children to explain why this is not the case and to correct the problem by lining the objects up.

GET ACTIVE Provide children with two bags of identical objects (different amounts, up to 5). Challenge them to find out which bag has more. Children empty the contents of the bags and line up the objects inside, finding out which bag has more. Children can then create their own bags to challenge other children to find out which bag has more.

Learning focus

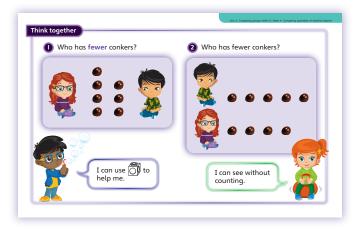
Identifying more and fewer in different representations

Think together

WAYS OF WORKING Whole class
Ensure cubes are available for children to use.

ASK

- Question **1**: How many conkers does each child have?
- Question **①**: Who has fewer conkers? Who has more conkers? How do you know without counting?
- Question 2: Refer children to what Astrid is saying: Can you see which is the longer line of conkers, without counting them? Will the longer line always be more? [Only if the objects in both lines are spaced out equally.]
- Question 2: What's different about the conkers now? [Changed to horizontal lines.]



STRENGTHEN Provide children with two bags of identical objects (different amounts, up to 5). Give children a five frame each and encourage them to line up the objects, asking them to work out which bag has fewer. Can they use the five frame to show the different layouts in Questions 1 and 2?

Show children a bag containing 4 identical items. Show them another bag and explain that this bag has fewer inside it. Ask: How many items could there be in the bag? How do you know?

Practice: Journal I

WAYS OF WORKING Independent thinking

IN FOCUS Children use their understanding of the language more and fewer to identify which character has more apples. Encourage children to justify their choice. Can they draw a child with fewer apples than Tom?

MASTERY CHECKPOINT Children who have mastered this concept can correctly identify the group that has more or fewer objects.



Learning focus

Realising that quantities can be equal

Challenge

WAYS OF WORKING Whole class or in pairs
Use cubes or real-life objects to support learning.

IN FOCUS This activity focuses on comparing two groups that are equal. Children can either subitise that the amount of conkers are the same or line them up to check. Children realise that two groups can be equal and one group does not have to be more or fewer.

ASK

- How many conkers does each child have?
- How did you count the conkers? Can you line them up?
- Can you use the words more or fewer to describe the groups?
 What words can you use?

STRENGTHEN Make an amount using cubes or real-life objects, using the dice formation or similar. Ask children to make the same size group as you. Prompt children to match up the items in vertical or horizontal lines to show that the number in each group is equal.

DEEPEN Show representations of numbers up to 5 in different arrangements on the **Multilink cubes teaching tool** or on flashcards (photocopiable 8). Children make the same number using counters or cubes in a straight line to show an equal amount.



GET ACTIVE Give children buckets with images of up to 5 conkers on the front of each. Children collect the same number of conkers that they can see on the front of their bucket. Choose two buckets and ask children to compare the amount of conkers in each bucket, including two buckets containing the same amounts.

Learning focus

Finding something that has more or fewer

Practical activities

WAYS OF WORKING Whole class

IN FOCUS These **Practical activities** build on children's understanding of more and fewer by finding more, fewer, or the same as something abstract. Children are given quantities and use them to find more or fewer.

GET ACTIVE More, fewer or the same

Clap three times. Ask: Can you clap more times than me? Hop four times. Ask: Can you hop fewer times than me? Can you find more dice than I have? Can you find fewer cubes than I have? Can you find the same number of conkers as I have? Repeat with a child doing an action up to 4 times and asking the other children to repeat with fewer, more or the same number.

Find the flashcard

Enlarge copies of the Numbers to 5 flashcards (photocopiable 8) and display around the classroom or outdoor area. Hold up one of the flashcards and call out *more*, *fewer* or *the same* and children run to a relevant flashcard.

Find a partner

Give half of the children a small number of objects and the other half a digit card from 0 to 5. Tell children to move around the space showing one another what they have. Explain that when you shout "more", "fewer" or "same" the children must find a partner who has more, fewer or the same as they have. Once all children are paired up, get them to identify and shout out a comparative statement such as "3 is more than 1".

Reflect: Journal 2

WAYS OF WORKING Independent thinking

IN FOCUS Children demonstrate their understanding of finding more or fewer by showing a ladybird with more spots. Can they draw a ladybird with fewer spots?

MASTERY CHECKPOINT Children who have mastered this

concept can identify if a group has more or fewer objects. They can line up objects to check which has more or fewer. They can say if groups are equal. Given an amount, they can show more or fewer with support.

Children who have not yet mastered this concept can identify if a group has more or fewer objects when groups are aligned.

Children who fully understand this concept may want to line objects up to show if a group has more or fewer items. They can say if groups are equal. Given an amount, they can show more or fewer independently.



Comparing quantities of non-identical objects

Learning focus

This week, children will compare two groups of non-identical objects saying which group of objects has more, fewer or the same. Children will build on learning from the previous week, matching objects to compare quantities, but focusing on matching non-identical objects to draw out the misconception that objects must be the same to compare them.

Small steps

- Previous step: Comparing quantities of identical objects
- This step: Comparing quantities of non-identical objects
- Next step: 3D shapes

COMMON MISCONCEPTIONS

Children may think that a small group of larger objects will be more than a larger group of small objects. Ask:

• Which group has more? Why do you think there are more in this group? How can you check which group has more?

Children may think that objects must be identical in order to compare them. Ask:

 How many (cups) are there altogether? How many cups are needed for 4 children? Does it matter if they are not the same colour?

Children may think that to compare two groups, one group must either have more or fewer, and cannot be equal or the same. Ask:

How many are in this group? How many are in this group?
 Is that the same number or different?

KEY LANGUAGE

In lesson: more, fewer, same, every, counting

Other language to be used by the teacher: different, more than, fewer than, equal amount, compare

STRUCTURES AND REPRESENTATIONS

multilink cubes

RESOURCES

Mandatory: multilink cubes

Optional: plates, cups, cutlery, napkins, clear bags, fruit, fruit skewers, containers for collecting objects, small objects for collecting, five frame (photocopiable 7)

EXPLORE

Taking every opportunity throughout the school day to build and reinforce mathematical concepts gives children's learning purpose and meaning in the wider context of their lives.

ACTIVITY	AREA	DESCRIPTION	RESOURCES
Set the table	Home corner	Children set the table for a given number of children (up to 5). Have up to 5 plates, cups, sets of cutlery, napkins.	Plates, cups, cutlery, napkins
Equal bags	Snack area	There are 5 apples in one bag and 2 in another bag. Ask: Can you make the bags equal?	Clear bags, fruit
Comparing collections	Classroom	Collections for children to sort and compare, identifying where there is more, less, fewer or the same.	Collection of small objects (toys, gems etc.)

Day I

Learning focus

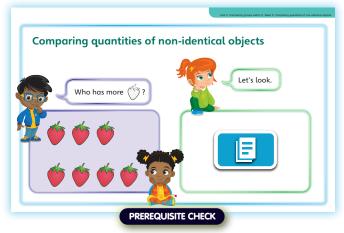
Comparing groups

Before you teach 🕕



- Can children accurately count up to 5 objects?
- Do children understand how many in terms of numbers to 5?
- Do children understand that 5 is more than 4, 4 is more than 2, for example?

Starter



PREREQUISITE CHECK Using the language more to compare two groups of identical objects.

WAYS OF WORKING Whole class

IN FOCUS This **Prerequisite check** practises the skill of comparing two groups of identical objects. Children can compare by looking, or can use cubes to represent the strawberries.

ASK

- How many strawberries does Ash have?
- How many strawberries does Flo have?
- Do you remember what 'more' means?
- Can you tell me who has more?



STIMULUS Photograph prompting a guided activity

WAYS OF WORKING Small groups

Using the photograph of a child helping to set the table as a stimulus for discussion, guide children towards a comparison of non-identical objects using the **Get Active** activity below.

IN FOCUS The focus of the **Stimulus** photograph and activity is to prompt understanding that one-to-one correspondence does not only apply to objects that are the same.

GET ACTIVE In small groups, ask children to seat 4 teddy bears at a table. Encourage children to set the table for snack time. Provide a pile of 5 plates and 3 cups for children to give out (you could expand the activity with forks, spoons, toy fruit). Each teddy needs a plate.

ASK

- Does every teddy have a plate?
- Are there more plates or more teddies?
- Each teddy also needs a cup. What's wrong? [Children should notice that one teddy doesn't have a cup.]
- Are there fewer teddies or fewer cups?
- Are there more plates or more cups?

Learning focus

Comparing groups of non-identical objects using one-to-one correspondence

Discover

WAYS OF WORKING Whole class or small groups
Ensure cubes are available for children to use to represent objects for comparison.

IN FOCUS The focus of the **Discover** is to start to compare two groups of objects where the items are not identical, but are the same size, and to begin to line up objects in two parallel lines in order to accurately match and then compare them. Children should be encouraged to match groups of objects as a strategy for comparison, and can practise representing objects with cubes, a core skill introduced in Week 5.

ASK

- How many oranges are there? How many apples are there?
- Can you say what 'more' means?
- How could you work out which fruit there are more of?

Children need lots of experiences where they can compare collections and begin to talk about which group has more items. Initially, the groups should be very obviously different, with one group having many more things than the other group. Include collections with items



that are different but similar in size (such as apples and oranges) to help develop the skill of visual comparison. The more difficult skill of comparing objects of different sizes will be introduced in a later unit.

DEEPEN Point out other groups of non-identical objects for comparison in the **Discover** picture, such as the plates and cups. Encourage children to compare these groups using similar questions to those in **Ask**.

Share

WAYS OF WORKING Whole class

Provide cubes and/or toy fruit to recreate the focus items from the **Discover** picture.

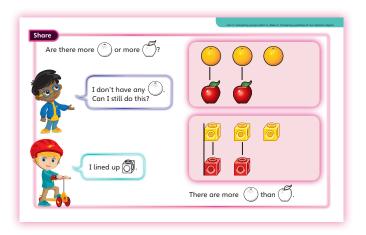
IN FOCUS The focus of **Share** is for children to begin matching in order to compare two groups of non-identical objects. Children need to have an understanding of the meaning of the word *matching* and how this can help to compare two groups of objects, identifying when there are more, fewer or the same.

ASK

- Refer children to what Ash is saying. What can you use to represent the oranges and apples?
- How can you line them up or match them up to help you compare?
- Can you see which fruit there are more of? How do you know?

STRENGTHEN Use the real fruits or a five frame and cubes to represent the fruits in the picture.

DEEPEN To extend thinking, use the classroom environment to sort and match non-identical objects such as pencils and felt-tip pens. Prompt children to line up and match their



groups. Ask: Which group has more? Which group has fewer? How can you check?

GET ACTIVE Give children collections of cubes in two colours for them to put into parallel lines to compare. Ask: *Are there more red or more yellow cubes?*

Learning focus

Comparing groups by matching or subitising

Think together

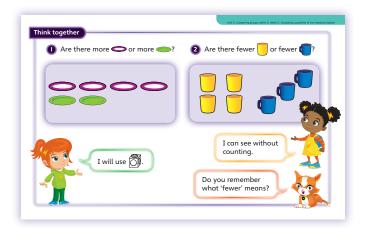
WAYS OF WORKING Whole class

The focus of the **Think together** is to practise the skill of comparing non-identical objects by matching them in lines, as modelled in **Share**. The small step of progression between Question 1 and Question 2 is the comparison of *fewer* rather than *more*, and that the objects in Question 2 are not aligned. Check that children understand the word fewer before attempting Question 2.

ASK

- Question
 • Question : How can you compare the purple plates and the green plates? Which group has more? How can you check?
- Question 2: What does 'fewer' mean? Can you see which group has fewer, without counting? How can you check?

comparing strategies by prompting them to decide what to do first. Ideally they should sort objects for comparison into two groups and then match them together, leading to a discussion about which has *more*, *fewer* or *an equal* amount.



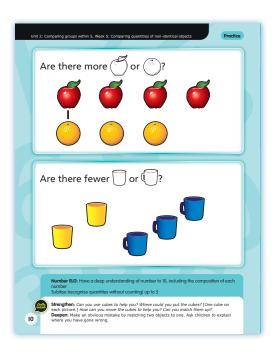
DEEPEN Challenge children to compare two non-identical groups without matching, but rather by seeing (subitising). Set up two groups of similarly sized non-identical objects (such as fruit, toy vehicles or animals) in familiar patterns (dice formations). Ask children to say which group has *more*, *fewer* or the *same* by looking, not counting or matching.

Practice: Journal I

WAYS OF WORKING Independent thinking

IN FOCUS Children will need to decide how to work out the answer. The apples and oranges are presented in two parallel lines prompting children to draw lines to match them up. In the second part, the two groups of objects are displayed in familiar formations, encouraging children to see (subitise) which group has fewer.

MASTERY CHECKPOINT Children who have mastered this concept can sort and match non-identical objects into two groups in order to identify which group has more, fewer or the same. Children can subitise (where groups are displayed in familiar patterns) to accurately compare, without the need to match or count.



Learning focus

Representing groups to compare using cubes

Challenge

WAYS OF WORKING Whole class or in pairs

Provide cubes for children to use to represent the objects.

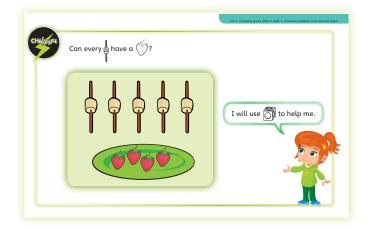
IN FOCUS The focus of this **Challenge** is to apply the skill of matching to a new type of question. Children first need to work out that this is a comparison question, and then choose a strategy to help them make the comparison. The strawberries are in an irregular arrangement, so it is more difficult to see which group has more. Children apply the methods of representing objects with cubes and then matching them, as prompted by Astrid.

ASK

- What do you need to do to answer this question? [Make a comparison.]
- How could you work this out?
- Refer to what Astrid is saying: Can you use cubes to help you? How?
- What should you do first? What should you do next?
- How can you check your answer?

STRENGTHEN For children who have not yet acheived mastery, use real skewers and strawberries in the same quantities as the **Challenge**. Guide children to unpick the question by asking them to first line up the skewers and then line up the strawberries underneath. Ask: Is this still a comparison question? How do you know? Show me how you can compare the skewers and the strawberries.

DEEPEN Deepen understanding by taking opportunities to ask children to compare groups in everyday situations. For example, ask: Are there more children in the reading corner or at the sand tray? Can every bowl have a spoon? Does every bike have a parking space?



GET ACTIVE Provide wooden skewers and a selection of fruit (larger fruits can be cut up into pieces). Make fruit skewers with children, leaving some pieces of fruit spare. Compare some of the skewers, ask: Which one has more fruit pieces on it? Which one has fewer fruit pieces on it? Are there enough strawberries left over for each skewer to have another strawberry?

Learning focus

Representing and comparing groups in a variety of ways

Practical activities

WAYS OF WORKING Whole class

IN FOCUS Working in the outside area, collect natural treasures. Children compare each other's collections, using the key mathematical vocabulary of more, fewer or the same.

GET ACTIVE Natural object treasure hunt

Give each child a bucket, basket or other container and ask them to go outside and find up to 5 natural objects each for a collection. When they have finished their treasure hunt, ask children to compare their collection with a partner. Whose collection has more or fewer, or are they the same? If helpful, ask children to empty their collection onto a table or the carpet and line it up under their partner's collection, to support their matching comparison. To extend the activity, ask children to swap partners and compare their collection with a different collection. Can they find a partner who has more, one who has less and one who has the same amount?

Reflect: Journal 2

WAYS OF WORKING Independent thinking

IN FOCUS Children decide how many more apples than oranges they will draw in their journals. To successfully complete this activity, children will need to be comfortable with their understanding of *more*, and then be able to transfer that understanding accurately onto the page.

Children who have mastered this concept can compare two groups of non-identical objects and match them in order to find out which has more, fewer or the same

Children who have not yet mastered this concept need support when comparing two groups of non-identical objects, rely on teacher support and matching to compare and are not confident using the terms *more*, *fewer* and *the same*.

Children who fully understand this concept may want to compare two groups of non-identical objects using various strategies, including matching, representing and subitising. They are confident with the comparison language of *more*, *fewer* and *the same* and can apply this in various contexts.

