

Autumn  
Scheme of learning  
**Reception**

# The White Rose Maths schemes of learning

## Reception guidance

The schemes cover the DfE statutory framework for the EYFS and Educational Programme for Mathematics and will support you to deliver a curriculum that embeds mathematical thinking and talk.

Our schemes support the ethos of the EYFS whilst at the same time enabling teachers to create a mathematically rich curriculum. Additionally, they allow for key mathematical concepts to be revisited and developed throughout the year.

The guidance has been divided into 18 blocks and provides a variety of opportunities to develop the understanding of number, shape, measure and spatial thinking.

The screenshot shows a page from the White Rose Maths scheme of learning. The page is titled 'Reception | Autumn term | Block 1 – Match, sort and compare | Step 4' and 'Sort objects to a type'. It includes sections for 'Notes and guidance', 'Key questions', 'Possible sentence stems', 'Rationale', and 'Adult-led learning'. The 'Notes and guidance' section explains that children build on their knowledge of identifying sets of different objects and learn to sort based on attributes like colour, size, or shape. The 'Key questions' section lists three questions: 'How can you sort the objects?', 'How do you know they are the same/different?', and 'How could you sort the objects a different way?'. The 'Possible sentence stems' section provides three stems: 'I have sorted the objects by \_\_\_\_\_', 'These are not \_\_\_\_\_', and 'These objects are \_\_\_\_\_'. The 'Rationale' section lists two points: 'When children have some things they can sort them into sets' and 'When children have some things they can sort them into sets'. The 'Adult-led learning' section includes three activities: 1. Read a book, such as 'The Button Box' by Margarette S. Reid, where objects are sorted in different ways. 2. Mix up some resources in a continuous provision area. 3. Provide resources that children can sort into more than two sets in many possible ways.

## Teaching and learning

Our reception schemes support you in teaching the key aspects of the EYFS curriculum. The scheme supports specific teaching through small steps with adult-led activities and continuous provision. The focus is on building up the numbers slowly, so children gain a deep understanding of them and how they are composed. However, this does not mean children should not be counting and discussing larger numbers in routines such as lining up. It is also important that teachers are aware of, and children are supported in gaining an understanding of, the counting principles.

1. The one-to-one principle.
2. The stable-order principle.
3. The cardinal principle.
4. The abstraction principle.
5. The order-irrelevance principle.

These principles are covered in more detail on the following pages.

# Reception – Notes and Guidance

## The Counting Principles

Following research from Gelman and Gallistel in 1978, it is vital that teachers understand the five counting principles. (Gelman, R. & Gallistel, C. (1978) *The Child's Understanding of Number*. Cambridge, MA. Harvard University Press.)

### 1 The one-to-one principle.

This involves children assigning one number name to each object that is being counted. Children need to ensure that they count each object only once, ensuring they have counted every object.

Children will sometimes count objects more than once or miss an object out that needs to be counted. Encourage children to line up objects and touch each one as they count, saying one number name per object. This will also help to avoid children counting more quickly than they touch the objects which again shows they have not grasped one-to-one correspondence.



1



2



3



4



5



## The Counting Principles

### 2 The stable-order principle.

Children understand that, when counting, the numbers have to be said in a certain order.

Children need to know all the number names for the amount in the group they are counting. Teachers can therefore encourage children to count aloud to larger numbers without expecting them to count that number of objects immediately.

### 3 The cardinal principle.

Children understand that the number name assigned to the final object in a group is the total number of objects in that group.

In order to grasp this principle, children need to understand the one-to-one and stable-order principle. From a larger group, children select a given number and count them out. When asked 'how many?', children should be able to recall the final number they said. Children who have not grasped this principle will recount the whole group again.



## The Counting Principles

### 4 The abstraction principle.

This involves children understanding that anything can be counted, including things that cannot be touched, such as sounds and movements e.g. jumps.

When starting to count, many children rely on touching the objects in order to count accurately. Teachers can encourage abstraction on a daily basis by counting claps or clicks. They can also count imaginary objects in their head to encourage counting on. This involves the children visualising objects.

### 5 The order-irrelevance principle.

This involves children understanding that the order in which we count a group of objects is irrelevant. There will still be the same number.

Encourage children to count objects, left to right, right to left, top to bottom and bottom to top. Once children have counted a group, move the objects and ask children how many there are. If they count them all again they have not fully grasped this principle.

# Yearly overview

Overview with suggested weekly timings. Block titles are clear and show progress through number and spatial reasoning.

Early blocks focus on use of provision to support key early maths and routines.

The first 2 weeks are for you to get to know children, develop routines and give you the flexibility to complete baseline assessments.

**Yearly overview**

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Getting to know you		Match, sort and compare		Talk about measure and patterns		It's me 1, 2, 3		Circles and triangles	1, 2, 3, 4, 5		Shapes with 4 sides
Spring	Alive in 5		Mass and capacity	Growing 6, 7, 8		Length, height and time		Building 9 and 10		Explore 3-D shapes		
Summer	To 20 and beyond		How many now?	Manipulate, compose and decompose		Sharing and grouping		Visualise, build and map		Make connections	Consolidation	

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Consolidation weeks allow for a degree of flexibility in the suggested block lengths or to consolidate learning based on the needs of your children.

Content is consolidated so all concepts are explicitly taught before assessment for ELG.

Subitising is taught both perceptually and conceptually through the blocks. Concepts such as doubling and 1 more / 1 less is focused on in the progression of the numbers.

# Small step breakdown

Each block has sequenced small steps.

Step titles are in the same sequence to help embed learning.

Reception | Autumn term | Block 3 – It's me 1, 2, 3

## Small steps

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- Step 1 Find 1, 2 and 3
- Step 2 Subitise 1, 2 and 3
- Step 3 Represent 1, 2 and 3
- Step 4 1 more
- Step 5 1 less
- Step 6 Composition of 1, 2 and 3

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Step titles clearly explain what the teaching focus is.

# Activities and symbols

An activity introduced by a reading from a fiction or non-fiction book.



Show children the illustrations from pages 1, 2 and 3 of the story *Anno's Counting Book* by Mitsumasa Anno.

Encourage them to look at the pictures and identify where they can see the different representations of 1, 2 and 3

Where do they see each representation?

How do they see it?

An activity which includes a rhyme or musical instrument.



Have a pile of beanbags.

Beat a drum either 1, 2 or 3 times.



Children listen carefully and count out 1, 2 or 3 beanbags from a larger group to match the number of beats.

A suggested daily routine to be supported by a teacher.



## Daily routine

- When lining up in the day, ask children to join the line depending on different attributes, for example, line up if you have a sister.

An outside activity or one that uses resources from nature.



Go outside and model how to make simple large-scale patterns, such as stick, leaf, stick, leaf, stick, leaf.

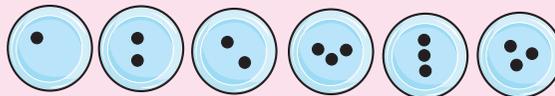


Support children to copy the patterns and see if they can continue them. Encourage children to use loose parts to make simple patterns for a partner to copy and continue.

An activity that has accompanying teaching slides to support adult-led learning as part of a premium subscription.



Prepare a set of dot plates or number cards which have 1, 2 or 3 dots in different arrangements.



Hold up the dot plates and ask the children how many dots.

Can children show the correct number of fingers?

Ask children if they can match the numerals 1, 2 and 3 to the dot plates.

A digging deeper activity to deepen children's understanding is provided for each small step.



Wrap up a range of boxes, each with a different mass.

Ensure that some of the small boxes are heavy and some of the large boxes are light.

Pick up a box and ask children to predict if it will be heavy or light.

Ask them to test their predictions using a balance scale.



Are all small boxes light?

# Teacher guidance

Teacher guidance pages are provided at the start of each block of learning.

Suggested resources that will support children's learning throughout the block, although other resources can be used.

A suggested list of books that can be used to support and spark learning within the block.

Useful ideas to consider when teaching this block to give a practical helping hand.

Reception | Autumn term | Block 3 - It's me 1, 2, 3

## Teacher guidance

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### Key books

- *Anno's Counting Book* by Mitsumasa Anno
- *How to Count to One* by Caspar Salmon
- *Goldilocks and the Three Bears*
- *The Gingerbread Man*
- *A Squash and a Squeeze* by Julia Donaldson
- *The Three Billy Goats Gruff*

### Key resources



### Top tips

- Having a set of teacher resources available for children in provision will encourage them to independently demonstrate their learning.
- A great alternative to double-sided counters are dried butterbeans. Spray these on one side or decorate as minibeasts for activities in checkpoint 1
- Blank paper plates could be left out for children to design their own dot plates.
- If you do not have a 1-3 dice, you can use a standard 1-6 dice and cover the numbers 4, 5 and 6



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# Small step guidance

An overview of the content that provides key vocabulary to introduce, relevant subject knowledge and advice on progression.

Reception | Autumn term | Block 3 – It's me 1, 2, 3 | Step 2

## Subitise 1, 2 and 3

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### Notes and guidance

In this small step, children perceptually subitise. This form of subitising refers to instantly recognising the number of objects or items in a group without needing to count them.

Encourage children to subitise groups of 1, 2 and 3 items. This will allow them to develop an understanding of what each number looks like, and what it is made up of. Use images and stories that include groups of 1, 2 and 3 characters or objects to point out and encourage children to subitise. Dice and spinners with dots are useful in helping support children to develop their subitising skills. It is important that they see the dots or other objects in different arrangements so that they don't think a number representation such as 3 always appears in the same way.



### Rhymes

- *When I Was One, I Banged My Thumb*



### Books

- *How to Count to One* by Casper Salmon

### Key questions

- How many can you see?  
How do you know?
- How many are there in each group?
- What can you show me?
- What can you see?

### Possible sentence stems

- There are \_\_\_\_\_ dots altogether.
- There is 1 \_\_\_\_\_.
- There are 2/3 \_\_\_\_\_.
- I can see \_\_\_\_\_ without counting.
- I can subitise \_\_\_\_\_.

### Links to the curriculum

- *Development Matters* – Reception – Subitise
- *Birth to 5 Matters* – Range 5 – Subitises one, two and three objects (without counting)

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Key questions that can be used to develop children's mathematical talk and reasoning skills.

Key sentence stems to further support children's mathematical talk and the use of mathematical vocabulary.

Indicate the statement(s) from Development Matters and Birth to 5 Matters that are covered in the small step.

# Adult-led learning

The adult-led learning section provides suggested activities that can be used when teaching this small step. These activities could be delivered to the whole class or in small groups.

Reception | Autumn term | Block 3 – It's me 1, 2, 3 | Step 2

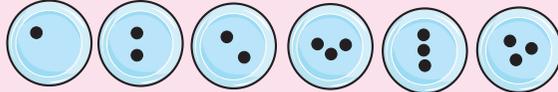
## Subitise 1, 2 and 3

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### Adult-led learning



Prepare a set of dot plates or number cards which have 1, 2 or 3 dots in different arrangements.



Hold up the dot plates and ask the children how many dots.

Can children show the correct number of fingers?

Ask children if they can match the numerals 1, 2 and 3 to the dot plates.



Share stories such as *How to Count to One* by Casper Salmon.

Encourage them to subitise and notice where they see 1, 2 and 3

Where can they see 1, 2 and 3 groups of objects or characters from the story?

Can they show you 1, 2 and 3?

Play a simple track game with small world creatures or characters.

Children take it in turns to roll a 1-3 dice, or a spinner, and subitise the number of dots.

They move the creature or character the corresponding number of jumps.

Who will be the first to reach the finish?



Represent 1, 2 and 3 using small objects.

Cover each amount with a bowl or cup.



Quickly reveal one group of objects and ask children how many there are.

Swap the positions around.

When you stop, can they point to the bowl with 3?

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

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# Continuous provision

This section provides suggested ways that continuous provision could be used or enhanced to consolidate children's learning from the block.

Reception | Autumn term | Block 3 – It's me 1, 2, 3

## Continuous provision

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Support children to make their own representation cards.

Provide them with a piece of paper and allow them to paint, draw or use collage materials to represent the numbers 1, 2 and 3

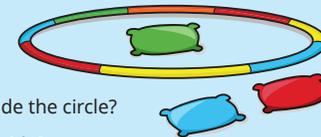


Children can create their own dots, dice patterns, or create a picture of something that interests them.

These can then be used to play games such as 'Snap'.

Place a hoop on the ground.

Ask the children to collect 3 beanbags and to take turns to throw them into a circle.



How many land inside the circle?

How many land outside?

Provide an easel or clipboard so that they can record their own scores.

Make dough. Use a recipe that involves measuring using 1, 2 or 3 cups.

Ask children to measure out the ingredients and count the cups.

2 cups of plain flour  
1 cup of salt  
2 cups of water  
2 tablespoons of oil  
1 teaspoon of cream of tartar  
3 drops of food colouring

Provide a collection of various loose parts or natural objects and some small pots labelled 1, 2 and 3 for children to fill.



Include some unlabelled pots and encourage children to make their own labels to show how many they put inside.

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# End of block checkpoint

This section provides suggested activities that can be used to assess children's learning from the block.

Each block has three end of block checkpoints where adults can observe children demonstrating the knowledge they have gained. These are designed to be fun games or activities to support play-based practical learning.

The end of block assessments from each block can be printed out and joined together on display to show the children's learning journey.

Reception | Autumn term | Block 3 - It's me 1, 2, 3

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### End of block checkpoint

**Checkpoint 1**

Set up a tuff tray with an assortment of wood, autumn leaves and seeds.

Hide several ladybirds with 1, 2 or 3 spots.

How many spots does the ladybird have?

Do all the ladybirds with 3 spots look the same?

Can you find a ladybird with 1 less or 1 more spot than mine?



**Checkpoint 2**

Play 'Bunny Ears'.

Using 2 hands to be the ears, how many ways can you show 1, 2 and 3?

Can you see what number I have made?

Can you make ears the same as mine?

Can you make the same number in a different way?



**Checkpoint 3**

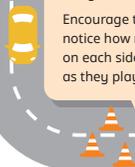
Set up a small world bridge and 2 fields.

Each player builds a 1, 2 and 3 tower to represent the 3 goats.

Roll a 1-3 dice and move the corresponding tower over the bridge.

The winner is the first player to move all 3 'goats' over the bridge.

Encourage the children to notice how many goats are on each side of the bridge as they play.



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Reception | Autumn term | Block 1 - Match, sort and compare

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### End of block checkpoint

**Checkpoint 1**

The box that the buttons are stored in has been dropped. There are buttons everywhere. Ask children to sort the buttons and put them back in the box in sets.



Observe children as they sort the buttons.

Can they explain how they have sorted them?

Can they find another way to sort them?

**Checkpoint 2**

When playing alongside children in the small world area, can children make collections and say why they belong to a set?

For example, "This set are all cows" or "This set are all horses".

Can children say which set has more?



**Checkpoint 3**

The daily routine of tidy-up time is a great opportunity to observe children and notice who can match and sort effectively.

Are children able to use the pictures and shadowing on the storage units to ensure that the resources are put back in the correct area of the classroom, shelf or box?



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Reception | Autumn term | Block 2 - Talk about measure and pattern

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### End of block checkpoint

**Checkpoint 1**

Children use simple language of comparison such as 'size', 'mass' and 'capacity' when playing.

Observe children as they play in continuous provision. The dough, water and construction areas provide a great opportunity to support this.

Do they use the language appropriately?



**Checkpoint 2**

Set up a repeating AB pattern that has three units of repeat.



Provide extra resources for children to choose from that are both in the pattern and not.

Ask children to complete the pattern.

Are they able to copy and complete the simple pattern?

**Checkpoint 3**

Provide children with objects and loose parts to make simple patterns.

Ask children to use the resources independently to make an AB pattern.

Children may need to be given just two different types of objects, for example, blue and red cubes.



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Reception | Autumn term | Block 3 - It's me 1, 2, 3

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### End of block checkpoint

**Checkpoint 1**

Set up a tuff tray with an assortment of wood, autumn leaves and seeds.

Hide several ladybirds with 1, 2 or 3 spots.

How many spots does the ladybird have?

Do all the ladybirds with 3 spots look the same?

Can you find a ladybird with 1 less or 1 more spot than mine?



**Checkpoint 2**

Play 'Bunny Ears'.

Using 2 hands to be the ears, how many ways can you show 1, 2 and 3?

Can you see what number I have made?

Can you make ears the same as mine?

Can you make the same number in a different way?



**Checkpoint 3**

Set up a small world bridge and 2 fields.

Each player builds a 1, 2 and 3 tower to represent the 3 goats.

Roll a 1-3 dice and move the corresponding tower over the bridge.

The winner is the first player to move all 3 'goats' over the bridge.

Encourage the children to notice how many goats are on each side of the bridge as they play.



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# Premium supporting materials

Within the Reception premium resources, there are teaching slides that can be used to support children's learning in each small step. These teaching slides can be used alongside concrete resources.

Within the Reception premium resources, there are also daily starters available to help children revisit and consolidate previous learning.

## Premium resources – Teaching slides

Reception | Autumn term | Block 3 – It's me 1, 2, 3 | Step 1

### Find 1, 2 and 3

**Notes and guidance**

In this small step, children will explore different representations of 1, 2 and 3. The focus is on finding the representations rather than making them at this point. Start by ensuring children can confidently say the number names 'one', 'two' and 'three' out loud. Once they can do this, they will match the verbal number names to numerals and quantities. Encourage children to count to three using objects in different arrangements by touching each object as they count. They should recognise that the final number they say is the quantity in that set.

Share stories and pictures which represent 1, 2 and 3 and point out the groups. Encourage children to find objects in provision and notice 1, 2 and 3 in the environment.

**Key questions**

- How many altogether?
- How many did you count?
- How many ways can you find 1/2/3?

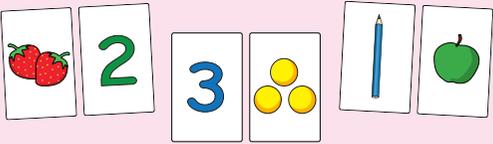
**Rhymes**

- Three Blind Mice

**Books**

- Anna's Counting Book by Mitsumasa Anno

Give children a range of picture cards showing different representations of 1, 2 and 3



Ask the children to match and sort the cards.

Can children identify the cards which do or do not show each number?

## Premium resources – Starter slides

Each set of starters revisits the previous week's learning to support consolidation.

Copy the pattern.

Week 7 Day 1



Copy the pattern.

Week 7 Day 1



FIND 1, 2 AND 3

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How many?



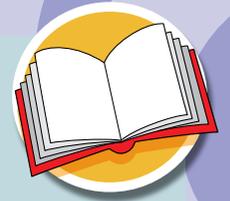
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Which cards show 2?



2 not 2

# Autumn book list



These books are within the White Rose Maths Reception schemes of learning. They are not an exclusive but support the learning in each step.

## **Block 1 – Match, sort and compare**

- *A Pair of Socks* by Stuart J. Murphy
- *Seaweed Soup* by Stuart J. Murphy
- *The Button Box* by Margarete S. Reid
- *Beep Beep, Vroom Vroom!* by Stuart J. Murphy

## **Block 2 – Talk about measure and pattern**

- *Where's My Teddy?* by Jez Alborough
- *It's the Bear!* by Jez Alborough
- *The Blue Balloon* by Mick Inkpen
- *Dear Zoo* by Rod Campbell
- *My First Book of Patterns* by Bobby and June George
- *We're Going on a Bear Hunt* by Michael Rosen
- *A-B-A-B-A – A Book of Pattern Play* by Brian P. Cleary

## **Block 3 – It's me 1, 2, 3**

- *Anno's Counting Book* by Mitsumasa Anno
- *How to Count to One* by Casper Salmon
- *Goldilocks and the Three Bears*
- *The Gingerbread Man*
- *A Squash and a Squeeze* by Julia Donaldson
- *The Three Billy Goats Gruff*

## **Block 4 – Circles and triangles**

- *Circle, Triangle, Elephant! A Book of Shapes and Surprises* by Kenji Oikawa and Mayuko Takeuchi
- *Triangle* by Mac Barnett and Jon Klassen
- *Shapes, Shapes, Shapes* by Tana Hoban
- *We're Going on a Bear Hunt* by Michael Rosen
- *Rosie's Walk* by Pat Hutchins

## **Block 5 – 1, 2, 3, 4, 5**

- *Witches Four* by Marc Brown
- *Five Little Fiends* by Sarah Dyer
- *Pete the Cat and his Four Groovy Buttons* by Eric Litwin
- *Kipper's Birthday* by Mick Inkpen
- *The Very Hungry Caterpillar* by Eric Carle
- *Stella to Earth!* by Simon Puttock and Philip Hopman
- *Anno's Counting Book* by Mitsumasa Anno

## **Block 6 – Shapes with 4 sides**

- *Bear in a Square* by Stella Blackstone
- *Square* by Mac Barnett and Jon Klassen
- *Shapes, Shapes, Shapes* by Tana Hoban
- *Night Monkey, Day Monkey* by Julia Donaldson
- *The Fox in the Dark* by Alison Green

Autumn Block 1

# Match, sort and compare

# Teacher guidance



## Key books

- *A Pair of Socks* by Stuart J. Murphy
- *Seaweed Soup* by Stuart J. Murphy
- *The Button Box* by Margarett S. Reid
- *Beep Beep, Vroom Vroom!* by Stuart J. Murphy

## Top tips

- Providing children with a wide range of the same objects allows them to explore sorting and matching at a deeper level.
- Think about colour, size, shape and texture of objects to support children’s language development and descriptions. When looking at buttons, think about the number of holes.
- Use practical ‘chance observations’ in provision to see where children have sorted, matched and compared.
- Continue to praise children for taking sorting and matching ideas further and point out when they use their skills beyond this first block.

## Key resources



# Small steps

Step 1

Match objects

Step 2

Match pictures and objects

Step 3

Identify a set

Step 4

Sort objects to a type

Step 5

Explore sorting techniques

Step 6

Create sorting rules

Step 7

Compare amounts

# Match objects

## Notes and guidance

In this small step, children are introduced to the concept of matching. They will start by matching physical objects with other physical objects.

Provide many opportunities for children to recognise the attributes of familiar objects and point out how they are the same. Encourage children to say why they match and how they know. For example, children should recognise that two cars in the small world area are the same because they are both the same colour and have the same number of wheels.

It is important to also identify objects that do not match using the language 'same' and 'different' to extend children's vocabulary.

Opportunities for matching will naturally occur in all areas of the classroom. Through observations and play both inside and outside, recognise where children naturally match objects and point this out to the children.

## Key questions

- Can you find a match?
- Why do the objects match?
- How do you know that they match?
- What is the same about these objects?
- What is different about these objects?
- Can you find one that is different to mine?

## Possible sentence stems

- The \_\_\_\_\_ matches the \_\_\_\_\_.
- The \_\_\_\_\_ are the same.
- The \_\_\_\_\_ are different.
- The \_\_\_\_\_ does not match because...



## Daily routine

- Point out to children where objects such as water bottles or book bags belong around the classroom to help with routines of the day.

## Rationale

- Matching is a simple form of sorting and is the beginning of logical thinking. Through matching, children learn one-to-one correspondence.

# Match objects

## Adult-led learning



Set up a feely bag with lots of different classroom objects inside it, for example, a car, book, dice, pen, cow, pig or pencil.

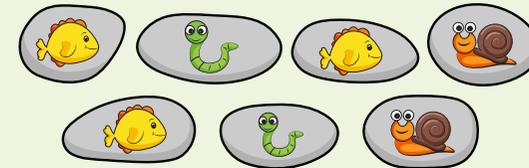
Duplicate the resources that are in the bag and line them up where all children can see them.

Take one item at a time out of the bag.

Ask children which object it is the same as.



Paint a collection of pebbles, wooden discs or butter beans with duplicates of creatures such as worms, snails or fish.



Ask children to match the creatures and explain why they match and why others do not match.

What is the same about the creatures?

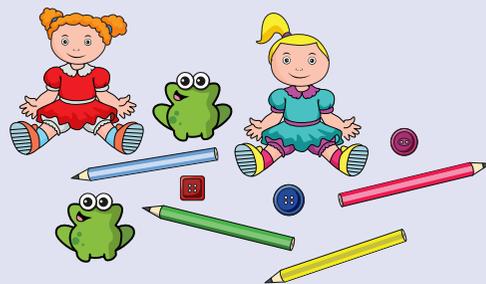
What is different about them?

Provide children with a collection of objects.

Ensure there are multiple examples of each object, such as three buttons or four pencils.

Mix up the items so that the objects are not together.

Ask children to match the objects.



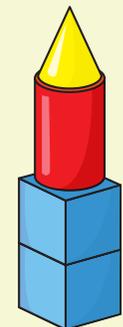
Prompt children to build towers in the construction area.

Encourage them to challenge each other to build towers that are the same.

Do the towers match?

How do you know?

Do they look the same?



# Match pictures and objects

## Notes and guidance

In this small step, children move from matching objects with other physical objects to matching objects with pictures, before matching pictures with pictures.

Having labelled resources in the classroom will support children in developing this skill as they can match the resources they are using to the photographs on the shelves. Shadowing equipment is also useful, where children can match objects to a picture outline or silhouette.

Quality adult interactions during tidy-up time are a great opportunity for children to practise this skill.

## Key questions

- Which object matches the picture?
- How do you know that the picture matches the object?
- What is the same about the picture and the object?
- Why is the picture different from the object?

## Possible sentence stems

- The \_\_\_\_\_ matches the \_\_\_\_\_.
- The \_\_\_\_\_ are the same.
- The \_\_\_\_\_ are different.
- The \_\_\_\_\_ does not match the \_\_\_\_\_ because ...



### Daily routine

- At tidy-up time, encourage children to match resources to pictures to ensure that they are put away in the correct place. Where does this belong?



### Books

- *A Pair of Socks* by Stuart J. Murphy

## Rationale

- Matching is a simple form of sorting and is the beginning of logical thinking. Through matching, children learn one-to-one correspondence. Matching objects to pictures develops children's understanding that objects can be represented by pictures.

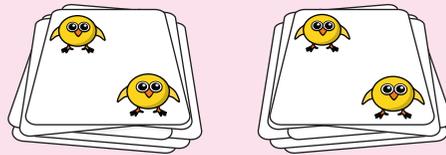
# Match pictures and objects

## Adult-led learning



Provide each child with a pile of different picture cards.

Encourage children to each turn over their cards one by one.

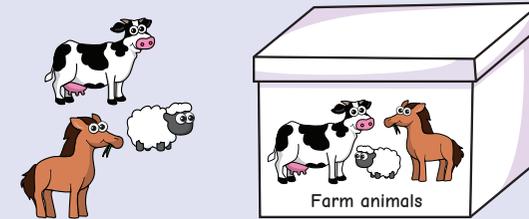


When two of the pictures match, children shout “match” and place their hand on top of the cards.

The child who shouts “match” first wins the cards placed in the piles.

Support children to ensure that tidy-up time is effective.

Give each child an object, and ask them to match it to the place it belongs in provision.



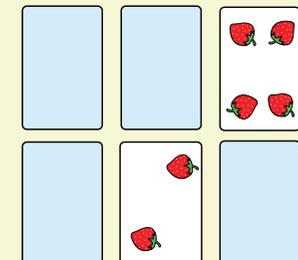
Play a memory game.

Give out six picture cards face down on the table.

Children take turns to turn over two cards.

If the two cards have the same pictures, then they keep the cards, otherwise they turn the cards face down again.

The winner is the child with the most cards when all the cards have been taken.

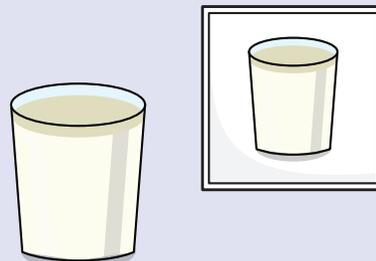


Prepare a set of pictures of different objects from around the classroom. Have the resources that match the pictures in front of the children.

Show children a picture.

Which object does this match?

Repeat for the other pictures.



# Identify a set

## Notes and guidance

In this small step, children are introduced to the concept of identifying sets of different objects. Encourage them to see groups of objects as sets by pointing these out in images, stories and in the classroom provision.

Model making sets with children in daily routines such as snack time. Children learn that we can make sets of objects and pictures through practical activities and games. For example, we all need a spoon and bowl for cereal, and we all need a knife, fork and plate for lunch.

It is important for teachers to model making these sets correctly at first but then to make deliberate mistakes, which children should correct. For example, you could tell children you need a bowl and a knife to eat ice cream.

A great way to continue this is to use domestic role-play and arrange resources in sets to then tidy up.

## Key questions

- How do you know this is a set?
- Why is this not a set?
- What else do you need to make it a set?
- Is this set correct?
- Does your set match mine?
- What is the same about these sets?

## Possible sentence stems

- The \_\_\_\_\_ and the \_\_\_\_\_ are a set because ...
- The \_\_\_\_\_ and the \_\_\_\_\_ are not a set because ...
- This set is the same/different because ...



### Books

- *Seaweed Soup* by Stuart J. Murphy

## Rationale

- Identifying and making sets is a precursor to counting. Children need this for the basis of the counting principles of cardinality and one-to-one correspondence.

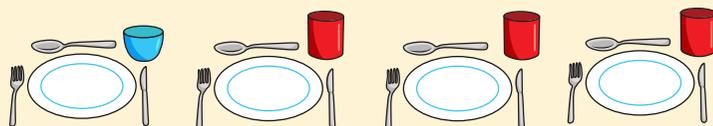
# Identify a set

## Adult-led learning



Show children the illustrations in stories such as *Seaweed Soup* by Stuart J. Murphy.

Children look at the pictures and identify where they can see sets of objects that are the same and sets that are different.



Encourage children to notice which set does not match. Where have they gone wrong?

Have a collection of buttons on a table or tuff tray. Can everyone find a red, blue and yellow button?



Have you got your set? How do you know?

Have we all got the same?

What other sets can we make? How can we check?

Children should tell a friend what sets they have made.



Task children to pack a lunch box so that everyone has a lunch consisting of the same set of items.

Children should ensure that each lunch box has a sandwich, a drink and a piece of fruit.



Present children with an incorrect lunch box.

Why is this set wrong? What do we need to do to make it right?



Provide children with images of different sets.

Some of the sets should have objects missing from the set.

Ask children to identify which sets have missing objects.

How do they know?

Encourage children to create other sets.



# Sort objects to a type

## Notes and guidance

In this small step, children build on their knowledge of identifying sets of different objects from the previous step. Children are introduced to the term 'sorting' and learn that collections of objects can be sorted based on attributes such as colour, size or shape.

Sorting enables children to consider what is the same about all the objects and what is different. At first, children may focus on one attribute only and explore that thoroughly before moving on to other attributes.

By asking open-ended questions, children can be supported to explain how they have sorted the objects. Introduce this by sorting by just one attribute or type, for example, by sorting buttons into green and not green.

It is important to introduce children to other types of sorting, such as shape and size, so that they do not think that colour is the only way to sort.

## Key questions

- How can you sort the objects?
- How do you know they are the same/different?
- How could you sort the objects a different way?

## Possible sentence stems

- I have sorted the objects by \_\_\_\_\_.
- These are \_\_\_\_\_.  
These are not \_\_\_\_\_.
- These objects are the same because ...
- These objects are not the same because ...

## Rationale

- When children sort objects, they are learning that some things are alike, and some are different. Early experiences of sorting objects into groups according to their similarities helps children to learn how to categorise and is a precursor to classifying.



### Books

- *The Button Box* by Margarett S. Reid

# Sort objects to a type

## Adult-led learning

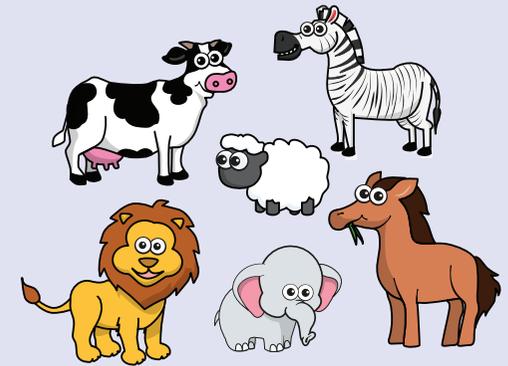


Read a book, such as *The Button Box* by Margarette S. Reid, where objects are sorted in different ways. Have a range of different buttons for children to explore and sort into sets. For example, sort by size, colour or texture.



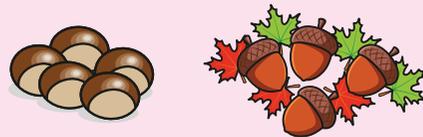
Mix up some resources in a continuous provision area. For example, muddle up the farm animals with the wild animals.

Ask children to help sort the different objects and put them back into the correct box or place on the shelf.



Have a collection of loose parts. Encourage children to sort the items into different groups depending on their type.

Start by sorting using one type to create two sets, for example, leaves and not leaves.

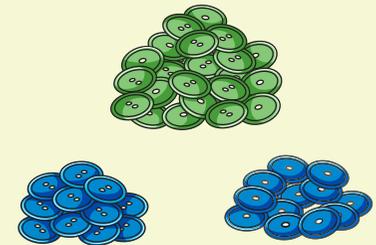


Prompt children to think of another way that they could sort the objects.



Provide resources that children can sort into more than two sets in many possible ways.

Buttons, shells, pebbles, or autumnal loose parts provide many sorting opportunities.



Encourage children to consider a range of different attributes and sort independently.

# Explore sorting techniques

## Notes and guidance

Within this small step, children will use the simple sorting skills they have developed so far to now explore different sorting techniques. Encourage children to sort objects and discuss how they have sorted them. Ask children if they can sort the same set of objects in a different way.

Support children to sort using more than one attribute, for example, big and round. It is important to model to children that the same set of objects can be sorted in lots of different ways and by different attributes. Spend time with children sorting objects and discussing their different sorting techniques.



### Daily routine

- When lining up during the day, ask children to join the line depending on different attributes, for example, line up if you have a sister.



### Books

- *The Button Box* by Margarett S. Reid

## Key questions

- How could you sort the objects?
- Is there a different way to sort them?
- How have you sorted the objects?
- How can you sort the objects in a different way?
- Have you sorted the objects the same way as your partner?
- Can you sort the objects the same way as me?

## Possible sentence stems

- I could sort my objects by ...
- I have sorted my objects like this because ...
- Another way to sort my objects is ...
- All my objects are ...

## Links to the curriculum

- *Birth to 5 Matters* – Range 6 – Spots patterns in the environment, beginning to identify the pattern “rule”.

# Explore sorting techniques

## Adult-led learning



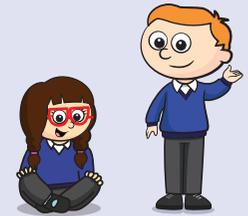
Present children with a collection of different buttons.

Explain to children how you have sorted the buttons, for example by the number of holes.

Encourage children to have a go at thinking of different ways we could sort the same buttons. Are there more than two ways to sort them?

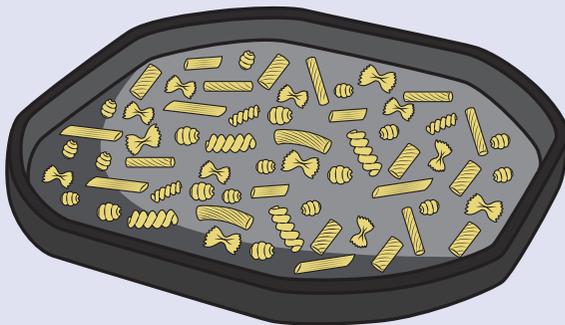


Encourage children to sort themselves into different groups with different attributes, for example, if you are wearing a jumper, if you have your hair tied up or if you are wearing glasses.



Discuss the fact that children may have more than one of the attributes, so may fit into more than one group.

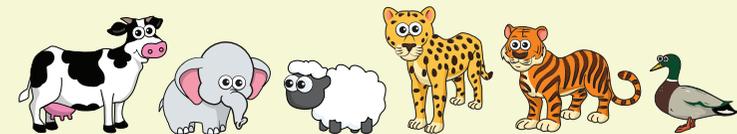
Provide children with different kinds of pasta shapes, such as penne, fusilli and macaroni, in a tuff tray.



Encourage children to sort the pasta in different ways.



In the small world area, set children a challenge to sort the animals.



How many ways can they be sorted?

Prompt the other children to guess or explain how they think the animals have been sorted.

Who can find the best or funniest sorting technique?

For example, the animals can be sorted into those that roar and those that do not roar.

# Create sorting rules

## Notes and guidance

In this small step, children will use what they have learned about sorting techniques to now create their own sorting rules. Model games such as ‘Guess my rule’, where children must figure out why certain objects have been sorted into a group.

Encourage children to ignore the differences between the items in a shown set and just focus on the one aspect they have in common.

In classroom provision, demonstrate different sorting rules to children and ask them to challenge you by making up their own.

Show children collections containing one incorrect item so that they can spot the odd one out and correct you.

Make a display of photographs of children’s sorted collections to showcase their sorting rules. Ask other children to explain the different rules.

## Key questions

- What is your rule for sorting the objects?
- Is there another way you could have sorted the objects?
- Can you guess my rule?
- How do you know that is my rule?
- Which is the odd one out?

## Possible sentence stems

- I have sorted my objects like this because ...
- This does not belong in my set because ...
- All the objects in my rule have ...
- My rule is ...

## Links to the curriculum

- *Birth to 5 Matters* – Range 6 – Spots patterns in the environment, beginning to identify the pattern “rule”.



### Books

- *The Button Box* by Margarett S. Reid

# Create sorting rules

## Adult-led learning



Introduce the game 'Guess my rule'.

Begin with a large pile of items, such as buttons.

Tell children you have a sorting rule, and that they need to guess what it is.

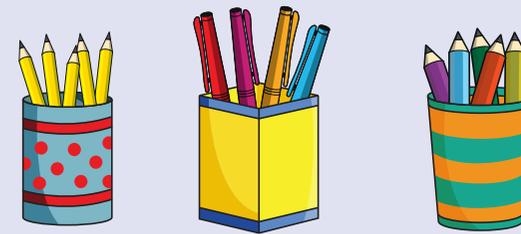
One at a time, place buttons into your set, for example, buttons with four holes.

Continue to add different buttons to your set and encourage children to suggest what the rule could be.



With children, redesign an area of the classroom.

Encourage children to come up with different rules for the specific area, for example the mark-making area.



How could we sort the pencils and pens? What will the rule be?

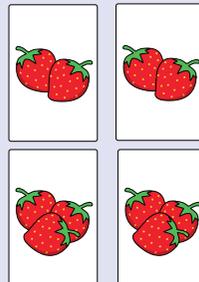
Encourage children to reason and explain why the objects are sorted in that way.

Encourage children to sort some picture cards into sets.

How have they sorted the cards?

How do they know that they are the same?

How do they know they are different?



Choose four objects, each with one attribute that makes it different from the others.



Encourage children to suggest which object could be the odd one out and explain their reasoning to a friend.

# Compare amounts

## Notes and guidance

In this small step, children should build on their previous skills of sorting. They will learn that sets can be compared and ordered. Children use the language 'more' and 'fewer' when comparing sets of objects.

Explain to children that, when making comparisons between some pairs of sets, one can have more items, fewer items or the same amount of items as another.

The focus of this small step is on comparing sets of objects specifically, but if comparing other sets, such as amounts of liquid, children should use the language 'more' and 'less'.

It is easier for children to make comparisons when the difference between the sets is greater. Start by asking children to compare sets of 5 and 2 objects rather than sets of 5 and 6 objects. This can be done through daily routines when tidying up or through opportunities at snack time.

## Key questions

- Which set has more?
- Which set has fewer?
- Which sets have the same?
- How do you know?

## Possible sentence stems

- This set has \_\_\_\_\_ objects than this set.
- These sets have \_\_\_\_\_.
- This set has \_\_\_\_\_ because...

## Links to the curriculum

- *Development Matters* – Reception – Compare numbers.
- *Birth to 5 Matters* – Range 5 – Compares two small groups of up to five objects, saying when there are the same number of objects in each group.



## Books

- *Beep Beep, Vroom Vroom!* by Stuart J. Murphy

# Compare amounts

## Adult-led learning



Provide objects for children to sort into two sets.



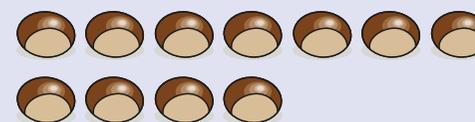
Ask children which set has more. Which set has fewer?

Can children make two sets which are the same?

How do they know they are the same?

Encourage children to line the objects up to check.

In pairs, children grab a handful of objects, such as cubes, beads or conkers.



Can your partner hold more than you, fewer than you or the same amount as you?

Support children to line up their objects, with one line underneath the other.

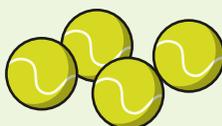


Hide a selection of balls of varying sizes around the outdoor area, for example, footballs and tennis balls.

Challenge children to hunt for as many balls as they can find.

Ask children to sort them into two groups by size.

Provide more tennis balls than footballs to avoid children confusing size with quantity.



Encourage children to build a tower using large outdoor blocks, cushions or crates.

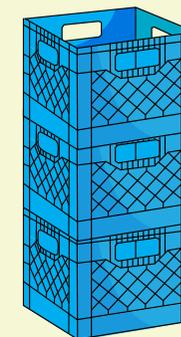
Challenge children to make a shorter tower or taller tower.

Encourage children to compare towers with their friends.

Who has used the most objects?

Who has used the fewest?

Do more objects always make a taller tower?



## Continuous provision

Provide children with a selection of different-sized lids.

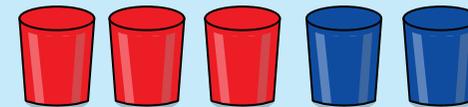
Have a large sheet of paper with outlines of the lids drawn on.

Ask children to match each lid to the correct outline on the paper.



This can also be done with different-sized containers and lids, where children have to match the lid to the correct container.

In the home corner, provide children with a range of plates, bowls, cups, cutlery and food.



Explore sorting them in different ways.

Can they find more than one way?

Lunch boxes could also be added for children to make a packed lunch.

Do all the boxes have the same set of items?

Provide a large collection of beads in a range of colours, shapes and sizes. Children will also need several small pots.



Encourage children to sort the beads into the different pots and explain how they have sorted them.

Provide children with a large amount of dough and encourage them to break it up and roll it into balls.

Ask children to share the balls of dough.

Encourage them to compare their amounts.

Who has more? Who has fewer?

Can they share it so that they both have the same amount?

# End of block checkpoint

## Checkpoint 1

The box that the buttons are stored in has been dropped.  
There are buttons everywhere.  
Ask children to sort the buttons and put them back in the box in sets.



Observe children as they sort the buttons.

Can they explain how they have sorted them?

Can they find another way to sort them?

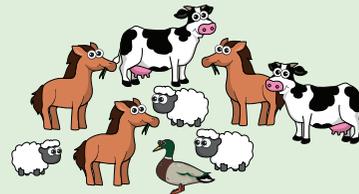


## Checkpoint 2

When playing alongside children in the small world area, can children make collections and say why they belong to a set?

For example, "This set are all cows" or "This set are all horses".

Can children say which set has more?



## Checkpoint 3

The daily routine of tidy-up time is a great opportunity to observe children and notice who can match and sort effectively.

Are children able to use the pictures and shadowing on the storage units to ensure that the resources are put back in the correct area of the classroom, shelf or box?

