# Notes and Guidance

# Reception



White Rose MATHS

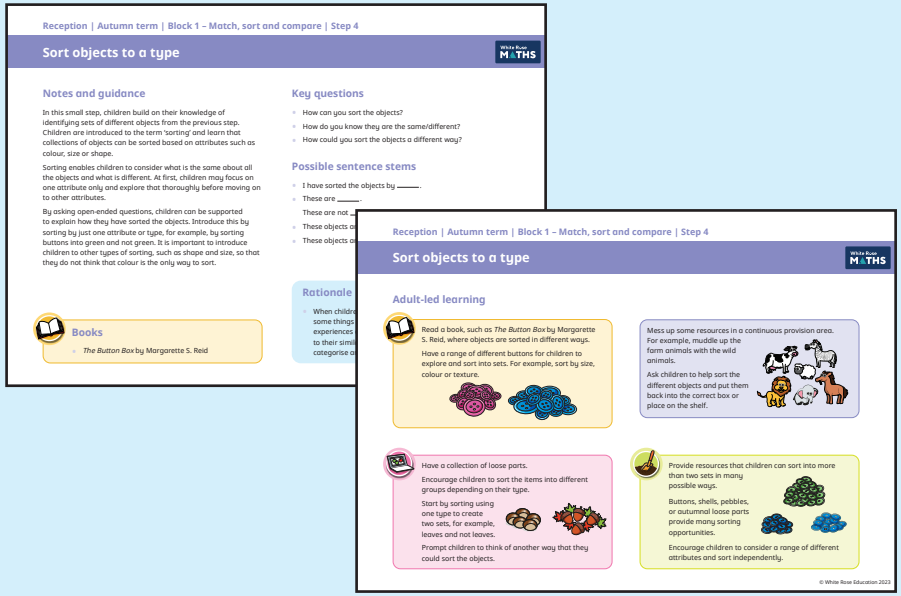
# The **White Rose Maths** schemes of learning

## 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.




## 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

# Reception – Notes and Guidance


## The Counting Principles

### 2 The stable-order principle.

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

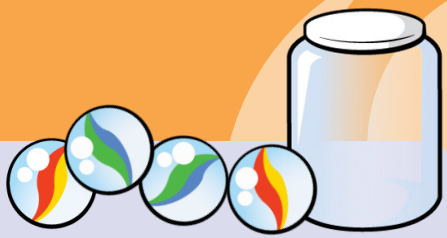
Children need to know all the number names for the amount in the group they are counting. Teachers can therefore encourage children to count aloud to larger numbers without expecting them to count that number of objects immediately.

### 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.

# Reception – Notes and Guidance



## 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.

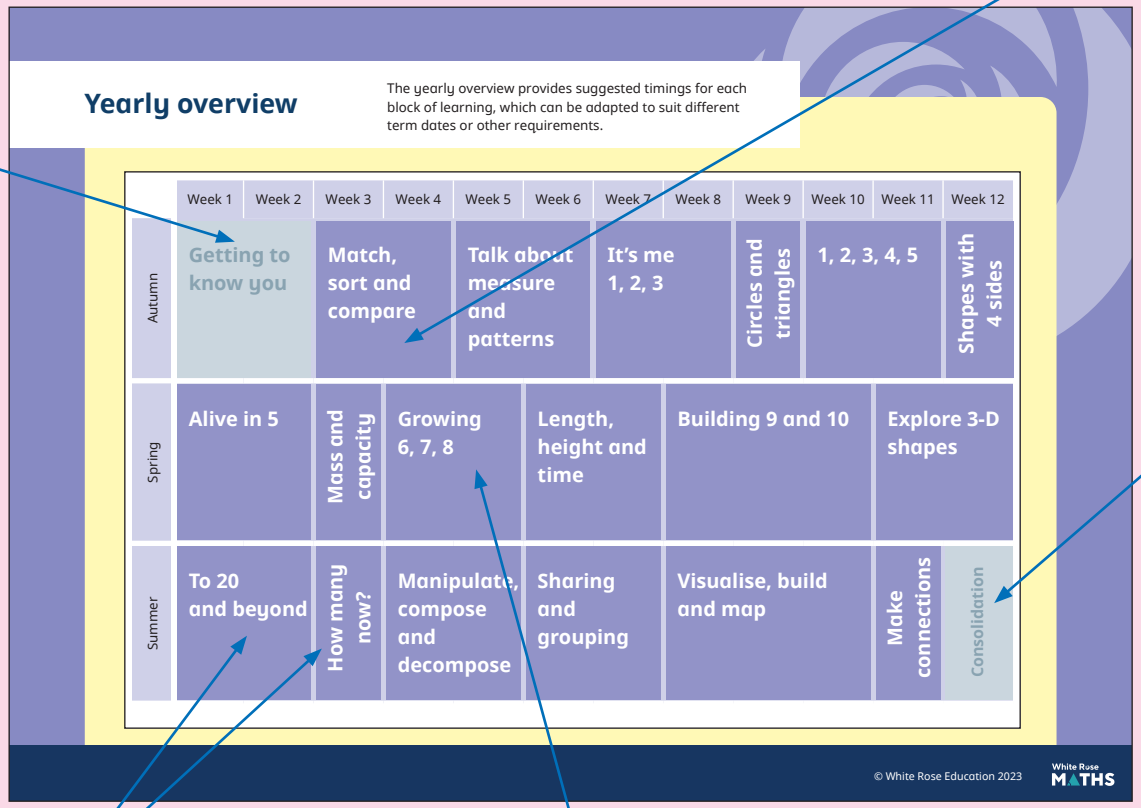
Encourage children to count objects, left to right, right to left, top to bottom and bottom to top. Once children have counted a group, move the objects and ask children how many there are. If they count them all again they have not fully grasped this principle.

# 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.




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

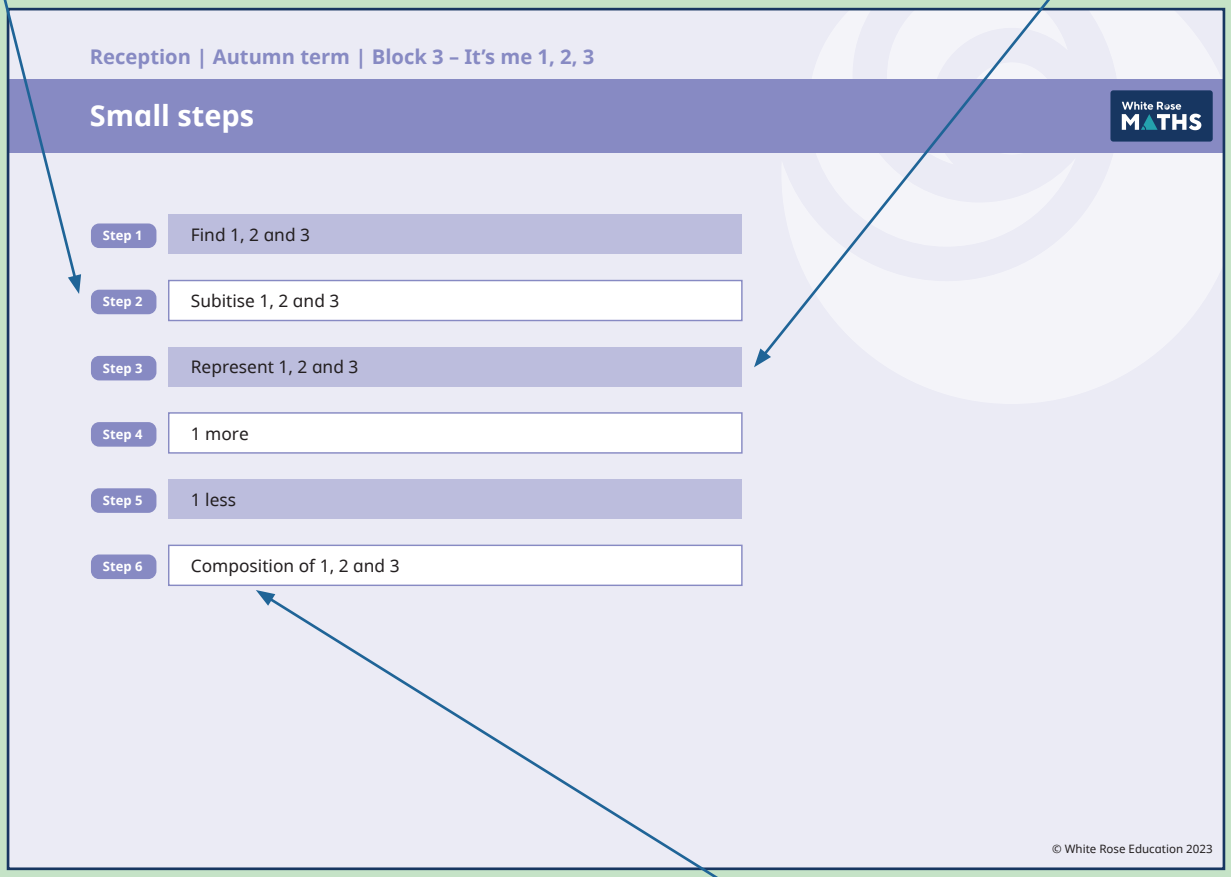
Content is consolidated so all concepts are explicitly taught before assessment for ELG.

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.




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?

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 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.

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.

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.

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

### 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

# 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)



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.



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# Adult-led learning

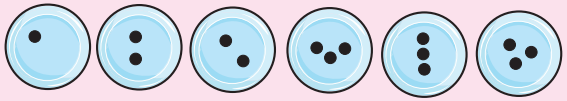
The adult-led learning section provides suggested activities that can be used when teaching this small step. These activities could be delivered to the whole class or in small groups.

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

## Subitise 1, 2 and 3

### 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.

# 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

Support children to make their own representation cards.

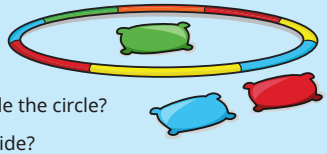
Provide them with a piece of paper and allow them to paint, draw or use collage materials to represent the numbers 1, 2 and 3

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.

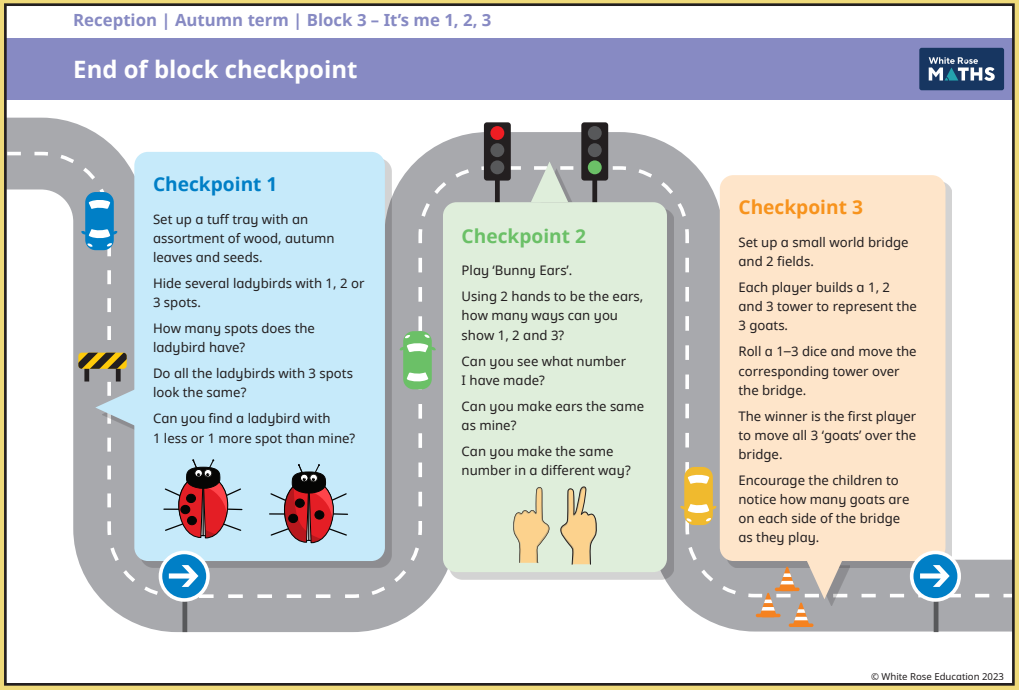

Include some unlabelled pots and encourage children to make their own labels to show how many they put inside.

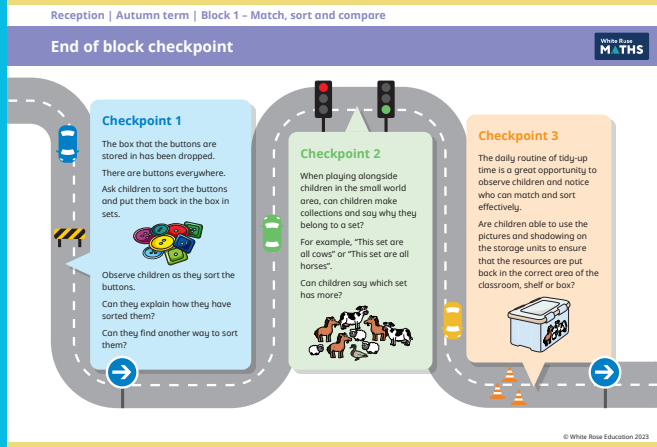
# End of block checkpoint

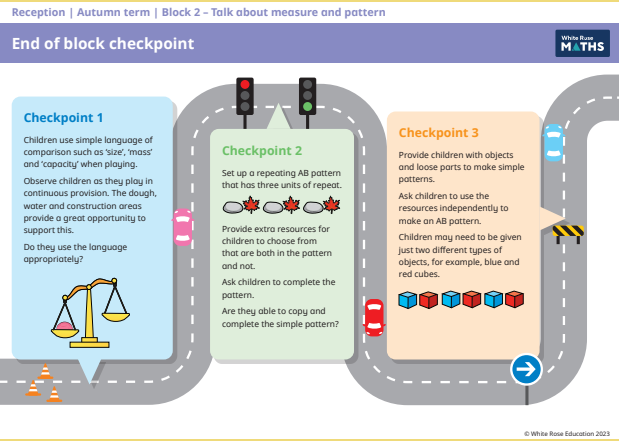
This section provides suggested activities that can be used to assess children's learning from the block.

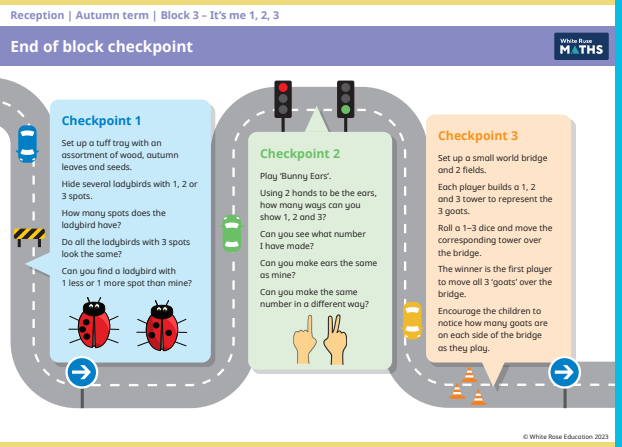
Each block has three end of block checkpoints where adults can observe children demonstrating the knowledge they have gained. These are designed to be fun games or activities to support play-based practical learning.

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



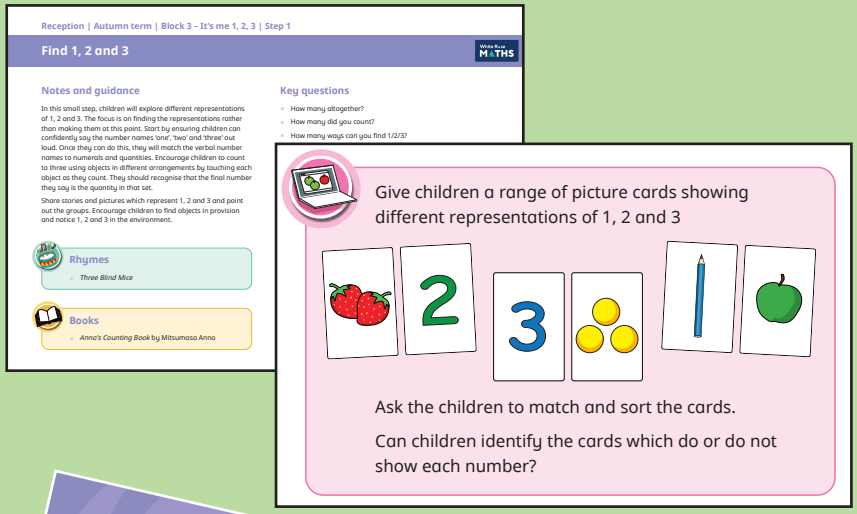



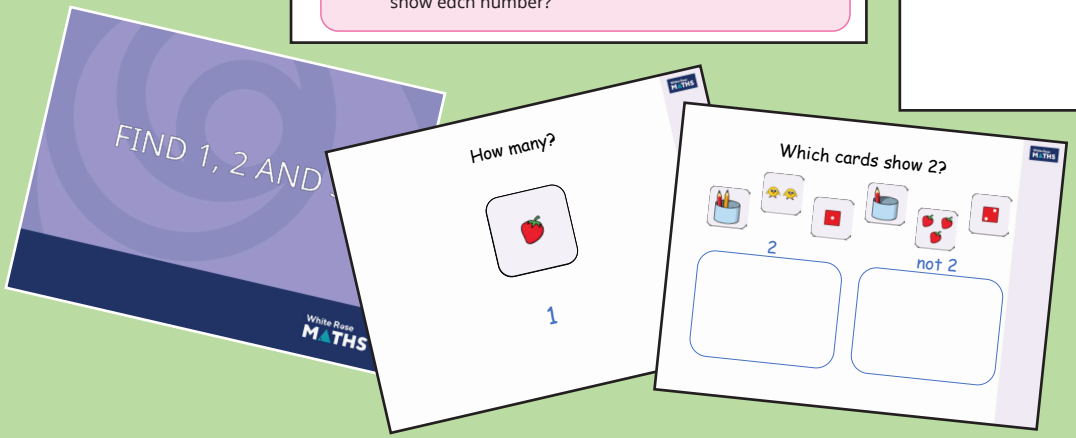
# Premium supporting materials

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.

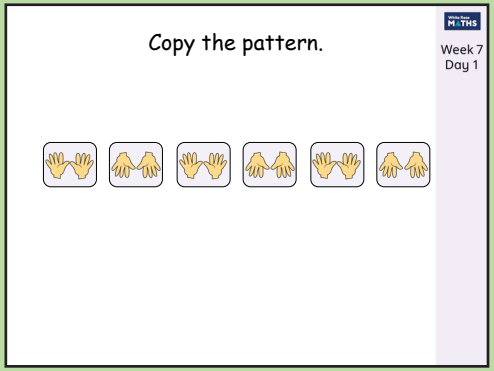
## Premium resources – Teaching slides

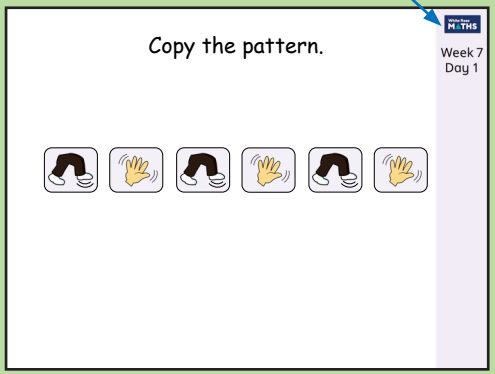



Each set of starters revisits the previous week's learning to support consolidation.

## Premium resources – Starter slides



# Autumn book list

These books are within the White Rose Maths Reception schemes of learning.
They are not an exclusive list, 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 Margarette 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

# Spring book list

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

**Block 1 – Alive in 5**

- *Zero is the Leaves on the Tree* by Betsy Franco
- *None the Number* by Oliver Jeffers
- *Anno's Counting Book* by Mitsumasa Anno
- *I Spy Numbers* by Jean Marzollo
- *The Ugly Five* by Julia Donaldson
- *Five Small Stars* by Elizabeth Matterson and Madge Bugden
- *Room on the Broom* by Julia Donaldson

**Block 2 – Mass and capacity**

- *Who Sank the Boat?* by Pamela Allen
- *Balancing Act* by Ellen Stoll Walsh
- *A Beach for Albert* by Eleanor May

**Block 3 – Growing 6, 7, 8**

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

**Block 4 – Length, height and time**

- *Superworm* by Julia Donaldson
- *Actual Size* by Steve Jenkins
- *Jim and the Beanstalk* by Raymond Briggs
- *I Can Only Draw Worms* by Will Mabbitt
- *Titch* by Pat Hutchins
- *Tall* by Jez Alborough
- *Jack and the Beanstalk*
- *The Giraffe Who Got in a Knot* by Paul Geraghty and John Bush
- *Five Minutes' Peace* by Jill Murphy
- *Mr Wolf's Week* by Colin Hawkins
- *A Dark, Dark Tale* by Ruth Brown
- *Jasper's Beanstalk* by Nick Butterworth

# Spring book list

**Block 5 – Building 9 and 10**

- *Nine Naughty Kittens* by Linda M. Jennings
- *Ten Little Fingers and Ten Little Toes* by Mem Fox
- *Cockatoos* by Quentin Blake
- *How Do Dinosaurs Count to Ten?* by Jane Yolen
- *The 'Ten Little ...' series* by Mike Brownlow
- *Anno's Counting Book* by Mitsumasa Anno
- *One Duck Stuck* by Phyllis Root
- *Mouse Count* by Ellen Stoll Walsh
- *Ten in the Bed* by Penny Dale
- *One Gorilla* by Anthony Browne
- *Mr Willy-Nilly and Zoey's Dream* by Ji-yun Shin
- *Pete the Cat and the Missing Cupcakes* by Kimberly and James Dean
- *Ten Black Dots* by Donald Crews
- *Two of Everything* by Babette Cole
- *Double the Ducks* by Stuart J. Murphy
- *One Odd Day* by Doris Fisher and Dani Sneed

**Block 6 – Explore 3-D shape**

- *Circle! Sphere!* by Grace Lin
- *Changes, Changes* by Pat Hutchins
- *Naughty Bus* by Jan Oke
- *Rapunzel*
- *Kitten Castle* by Ellen Weiss and Mel Friedman
- *Shapes, Shapes, Shapes* by Tana Hoban
- *Pattern Fish* by Trudy Harris
- *Pattern Bugs* by Trudy Harris
- *Busy, Busy, Busy* by Haneul Ddang
- *The Leopard's Drum* by Jessica Souhami
- *Jamil's Clever Cat* by Fiona French with Dick Newby

# Summer book list

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

**Block 1 – To 20 and beyond**

- *Anno's Counting Book* by Mitsumasa Anno
- *Monster Counting Book 1 to 20* by Frances Mackay
- *13 Ways to Eat a Fly* by Sue Heavenrich
- *The Real Princess* by Brenda Williams
- *One Moose, Twenty Mice* by Claire Beaton
- *20 Big Trucks in the Middle of the Street* by Mark Lee
- *Jack the Builder* by Stuart J. Murphy
- *Monster Math* by Anne Miranda
- *1 is One* by Tasha Tudor

**Block 2 – How many now?**

- *Mouse Count* by Ellen Stoll Walsh
- *One Ted Falls out of Bed* by Julia Donaldson
- *My Granny Went to Market* by Stella Blackstone
- *Mr Gumpy's Outing* by John Burningham
- *Splash!* by Ann Jonas
- *Tad* by Benji Davies
- *The Shopping Basket* by John Burningham

**Block 3 – Manipulate, compose and decompose**

- *Big Box of Shapes* by Wiley Blevins
- *Which One Doesn't Belong?* by Christopher Danielson
- *Mr Gumpy's Motor Car* by John Burningham
- *Tangram Cat* by Maranke Rinck and Martijn van der Linden
- *Three Pigs, One Wolf, and Seven Magic Shapes* by Grace Maccarone
- *Mouse Shapes* by Ellen Stoll Walsh
- *Pezzettino* by Leo Lionni
- *Jack and the Flumflum Tree* by Julia Donaldson
- *Perfect Square* by Michael Hall
- *Grandpa's Quilt* by Betsy Franco
- *Color Zoo* by Lois Ehlert
- *Cubes, Cones, Cylinders, & Spheres* by Tana Hoban
- *Boxitects* by Kim Smith

# Summer book list

**Block 4 – Sharing and grouping**

- *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

**Block 5 – Visualise, build and map**

- *I See a Pattern Here* by Bruce Goldstone
- *Pattern Fish* by Trudy Harris
- *Pattern Bugs* by Trudy Harris
- *Art Forms in Nature* by Ernst Haeckel
- *Rosie's Walk* by Pat Hutchins
- *What the Ladybird Heard* by Julia Donaldson
- *Disney's The Lion King* by Justine Korman Fontes
- *We're Going on a Bear Hunt* by Michael Rosen
- *Cockatoos* by Quentin Blake
- *Martha Maps It Out* by Leigh Hodgkinson
- *In Every House, on Every Street* by Jess Hitchman
- *If I Built a House* by Chris Van Dusen
- *The Secret Path* by Nick Butterworth
- *Me on the Map* by Joan Sweeney
- *Pirates Love Underpants* by Claire Freedman
- *My Map Book* by Sara Fanelli
- *Little Red Riding Hood*
- *The Once upon a Time Map Book* by B.G. Hennessy
- *The Gruffalo* by Julia Donaldson

**Block 6 – Make connections**

- *Billy's Bucket* by Kes Gray
- *Mr Gumpy's Outing* by John Burningham
- *How Many Legs?* by Kes Gray
- *Ants Rule: The Long and Short of it* by Bob Barner
- *Mr Archimedes' Bath* by Pamela Allen
- *Who Sank the Boat?* by Pamela Allen
- *You Can't Take an Elephant on the Bus* by Patricia Cleveland-Peck