RECEPTION MATHS MEDIUM TERM PLAN
Small Steps to Mastery

(A spiral curriculum based on a mastery approach with links to White Rose Maths, NRICH, NCETM Mastering Number and Master the Curriculum)

Additional Resources…

Reception Long-Term Plan

Reception Google Drive Planning Folder

EYFS Statutory Framework

Development Matters Non-Statutory Guidance for EYFS

NCETM EYFS

Link to NRICH Primary Curriculum Mapping Document

WRM Digital Tools

Link to Vocabulary Progression

Link to Manipulatives Progression document

Link to Additional Resources

Maths Website Page

Prior Learning

At Grappenhall Heys Primary School we have our own Nursery. However, not all children entering our Reception have been in our Nursery or any Nursery setting so we cannot assume this learning has taken place.

Nursery Maths Curriculum

The **Development Matters Non-Statutory Curriculum Guidance for the Early Years Foundation Stage p88-92** has been covered within our Nursery curriculum.

Children at the expected level (three to four years) of development will:

- Develop fast recognition of up to 3 objects, without having to count them individually ('subitising')
- Recite numbers past 5
- Say one number for each item in order: 1,2,3,4,5
- Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle')
- Show 'finger numbers' up to 5
- Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5
- Experiment with their own symbols and marks as well as numerals
- Solve real world mathematical problems with numbers up to 5
- Compare quantities using language: 'more than', 'fewer than'
- Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'
- Understand position through words alone – for example, "The bag is under the table," – with no pointing
- Describe a familiar route
- Discuss routes and locations, using words like 'in front of' and 'behind'
- Make comparisons between objects relating to size, length, weight and capacity
- Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc.
- Combine shapes to make new ones – an arch, a bigger triangle, etc.
- Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc.
- Extend and create ABAB patterns – stick, leaf, stick, leaf
- Notice and correct an error in a repeating pattern
- Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...

Reception Maths Curriculum

Mathematics Early Learning Goals (Statutory)

Early Years Foundation Stage Profile, 2022 Handbook
Statutory Framework for the Early Years Foundation Stage

Number ELG
Children at the expected level of development will:
- **Have a deep understanding of number to 10, including the composition of each number**

- **Subitise (recognise quantities without counting) up to 5**

- **Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.**

Numerical Patterns ELG
Children at the expected level of development will:
- **Verbally count beyond 20, recognising the pattern of the counting system**

- **Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity**

- **Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally**

Development Matters for Reception (Non-Statutory guidance)

Development Matters Non-Statutory Curriculum Guidance for the Early Years Foundation Stage p92-98 objectives are covered within our curriculum.

- Count objects, actions and sounds
- Subitise
- Link the number symbol (numeral) with its cardinal number value
- Count beyond ten
- Compare numbers
- Understand the 'one more than/one less than' relationship between consecutive numbers
- Explore the composition of numbers to 10
- Automatically recall number bonds for numbers 0–5 and some to 10
- Select, rotate and manipulate shapes to develop spatial reasoning skills
- Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can
- Continue, copy and create repeating patterns
- Compare length, weight and capacity

Autumn Small Steps in Progression in Reception

Getting to know our children

The first two weeks are spent getting to know our children and completing baseline assessments to accurately assess their starting points.
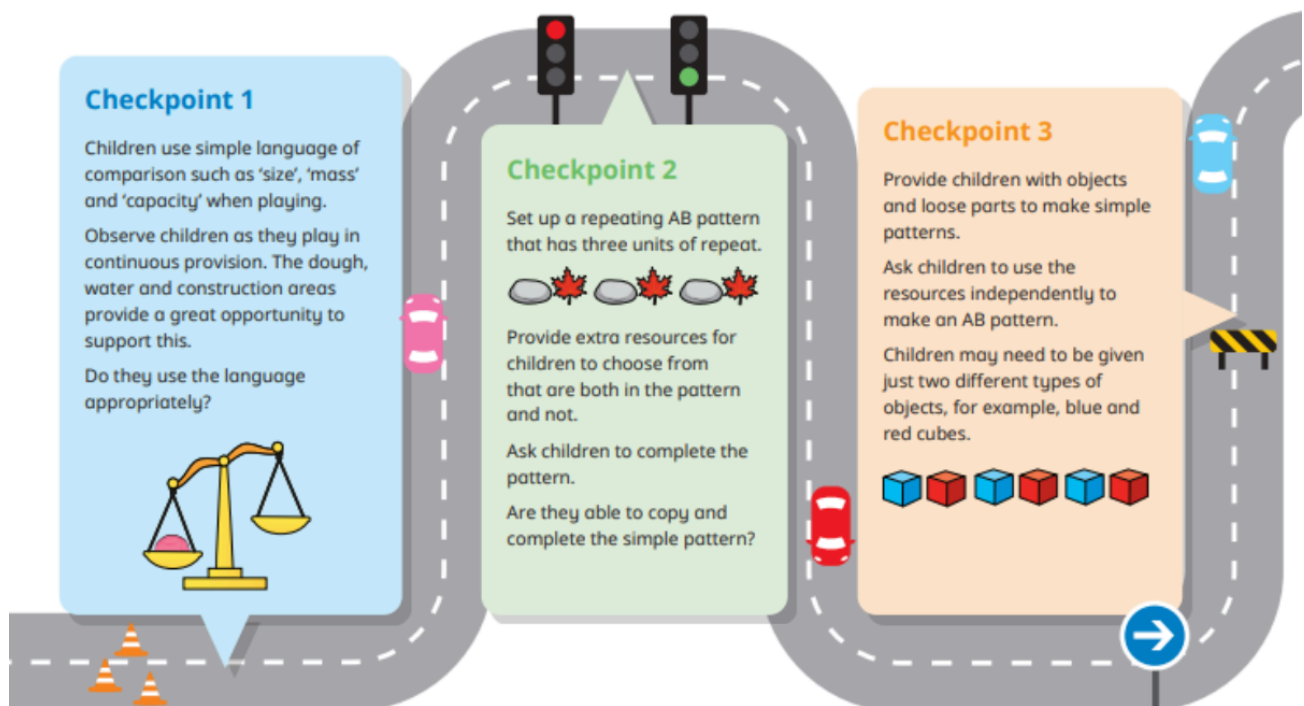
Block 1 – Match, sort and compare

Small steps	Possible stem sentences
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 **Linked books** ● 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	• The ___ matches the ___. • The ___ are the same. • The ___ are different. • The ___ does not match because... • The ___ and the ___ are a set because… • The ___ and the ___ are not a set because… • This set is the same/different because... • I have sorted the objects by ___. • These are ___. • These are not ___. • These objects are the same because... • These objects are not the same because... • I have sorted my objects like this because… • Another way to sort my objects is… • All my objects are... • This does not belong in my set because… • All the objects in my rule have… • My rule is ... • This set has ___ objects than this set. • These sets have ___. • This set has ___ because…

End of block checkpoints

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?

Block 2 – Talk about measure and patterns

Small steps

Step 1 Compare size
Step 2 Compare mass
Step 3 Compare capacity
Step 4 Explore simple patterns
Step 5 Copy and continue simple patterns
Step 6 Create simple patterns

Linked books

- 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
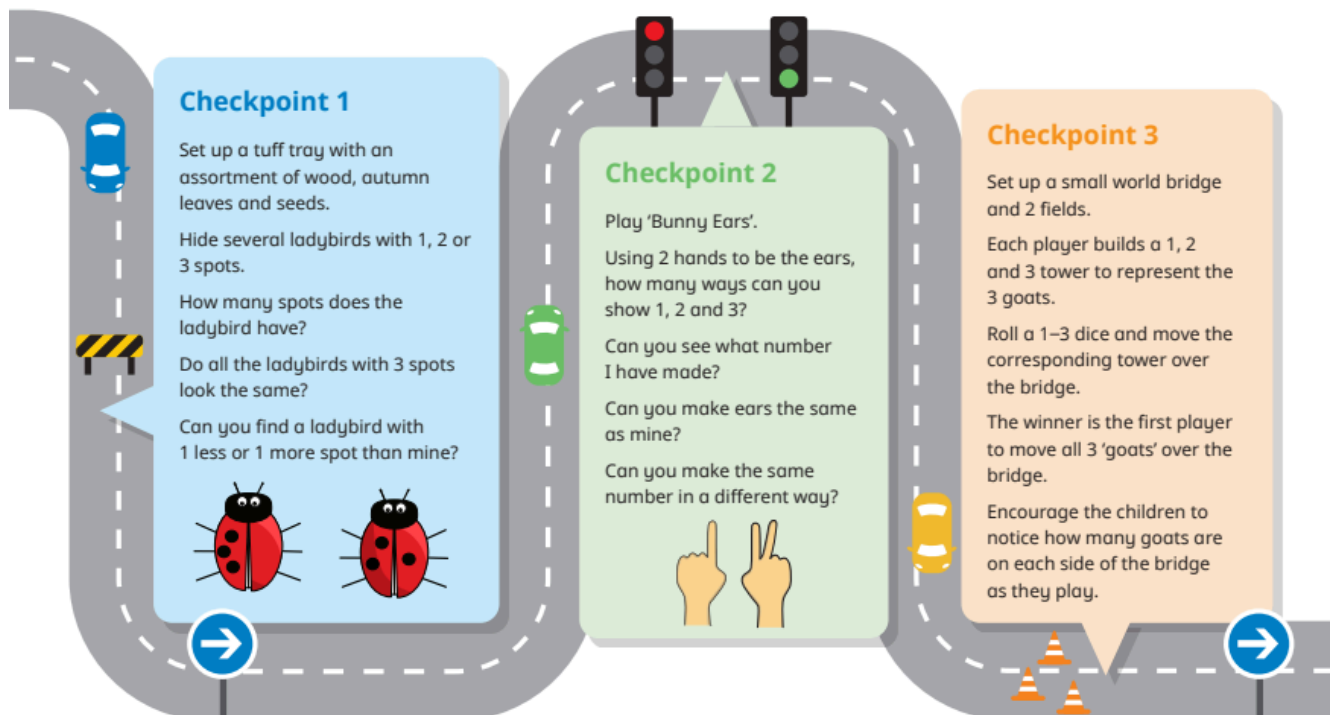- A-B-A-B-A – A Book of Pattern Play by Brian P. Cleary

Possible stem sentences

- The ___ is bigger/smaller than the ___.
- The ___ is larger/smaller than the ___.
- The ___ is longer/shorter than the ___.
- The ___ is taller/shorter than the ___.
- The ___ is heavier than the ___.
- The ___ is lighter than the ___.
- The heavier object is ___ on the balance scale.
- The lighter object is ___ on the balance scale.
- The ___ holds more.
- The ___ holds less.
- The ___ has the same capacity as the ___.
- I can see a ___ pattern.
- I can hear a ___ pattern.
- This is a ___ pattern.
- The ___ comes next in the pattern.
- The pattern is ___, ___.
- I have used ___ to make my pattern.
- Next, I need ___ to continue my pattern.
- I need ___ to finish my pattern.
- The ___ is in the wrong place.

End of block checkpoints

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.

Block 3 – It's me, 1, 2, 3

Small steps	Possible stem sentences
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 **Linked books** ● 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	• I counted ___ • There is 1 ___ . • There are 2/3 ___ . • There are ___ altogether. • I can see... • There are ___ dots altogether. • I can see ___ without counting. • I can subitise ___ • We jumped/clapped/twirled ___ times. • I counted ___ • There are ___ • There are ___ altogether. • ___ is 1 more than ___ • ___ is 1 less than ___ • I can see ___ is made up of ___ and ___ • I can see ___ is made up of ___ , ___ and ___ • There is ___ here and ___ there so there must be ___ altogether.

End of block checkpoints

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.

Block 4 – Circles and triangles

Small steps

Step 1 Identify and name circles and triangles
Step 2 Compare circles and triangles
Step 3 Shapes in the environment
Step 4 Describe position

Linked books

- 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

Possible stem sentences

- This shape is a ___ .
- I know this shape is a ___ because…
- This shape is the same/different because…
- These shapes have been sorted by ___.
- I can see a ___.
- I know this shape is/is not a ___ because…
- The ___ is ___ the ___.
- Go ___ the ___.
- Next, go ___ the ___ .

End of block checkpoints

Checkpoint 1

Hide different-sized circles and triangles around the classroom and outdoor area.

Place two hoops on the carpet.

Can children identify the triangles and circles and sort the shapes by placing them into the hoops?

Are they able to explain why they have placed each shape in the chosen hoop?

Checkpoint 2

Place a toy, such as a bear, on top of your head. Where is the bear?

Position the bear in different areas of the classroom, for example, under the chair, next to the box and on the shelf.

Are children able to identify where the bear is positioned in relation to other objects?

Checkpoint 3

Set up a small world area related to children's interests. While playing, check that children are able to follow and use the language related to position, for example, "The cow is walking around the pond", or "The elephant is standing next to the giraffe".

Give children different instructions to follow, and encourage them to give you instructions.

Block 5 – 1, 2, 3, 4, 5

Small steps	Possible stem sentences
Step 1 Find 4 and 5 **Step 2** Subitise 4 and 5 **Step 3** Represent 4 and 5 **Step 4** 1 more **Step 5** 1 less **Step 6** Composition of 4 and 5 **Step 7** Composition of 1−5 **Linked books** ● 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	• I counted ___ • There are 4/5 ___ . • There are ___ altogether. • I can see… • There are ___ dots altogether. • There are 4/5 ___. • I can see ___ without counting. • I can subitise ___ • I know there are ___ because... • There are ___ altogether. • I counted ___ • There are ___ • There are ___ altogether. • ___ is 1 more than ___ • 1 more than ___ is ___ • ___ is 1 less than ___ • 1 less than ___ is ___ • ___ is a part and ___ is a part. • If ___ is a part, then the other part must be ___ • ___ is a part of ___ • The whole is ___

End of block checkpoints

Checkpoint 1

Show children a range of dot plates with different arrangements of 1, 2, 3, 4 and 5 dots.

Are they able to subitise how many they can see and represent the amount on their fingers?

Is there more than one way to show the number using both their hands?

Checkpoint 2

Provide digit cards labelled from 1–5 and a range of objects to count with.

Prompt children to pick a digit card and represent the amount with objects.
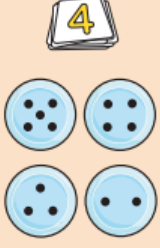
1 less	Number	1 more

Are they able to find 1 more and 1 less than the number using different representations?

Checkpoint 3

Lay a selection of dot plates showing 1–5 on the floor.

Show children a digit card from 1 to 5. Prompt them to take it in turns to find dot plates that make that number.
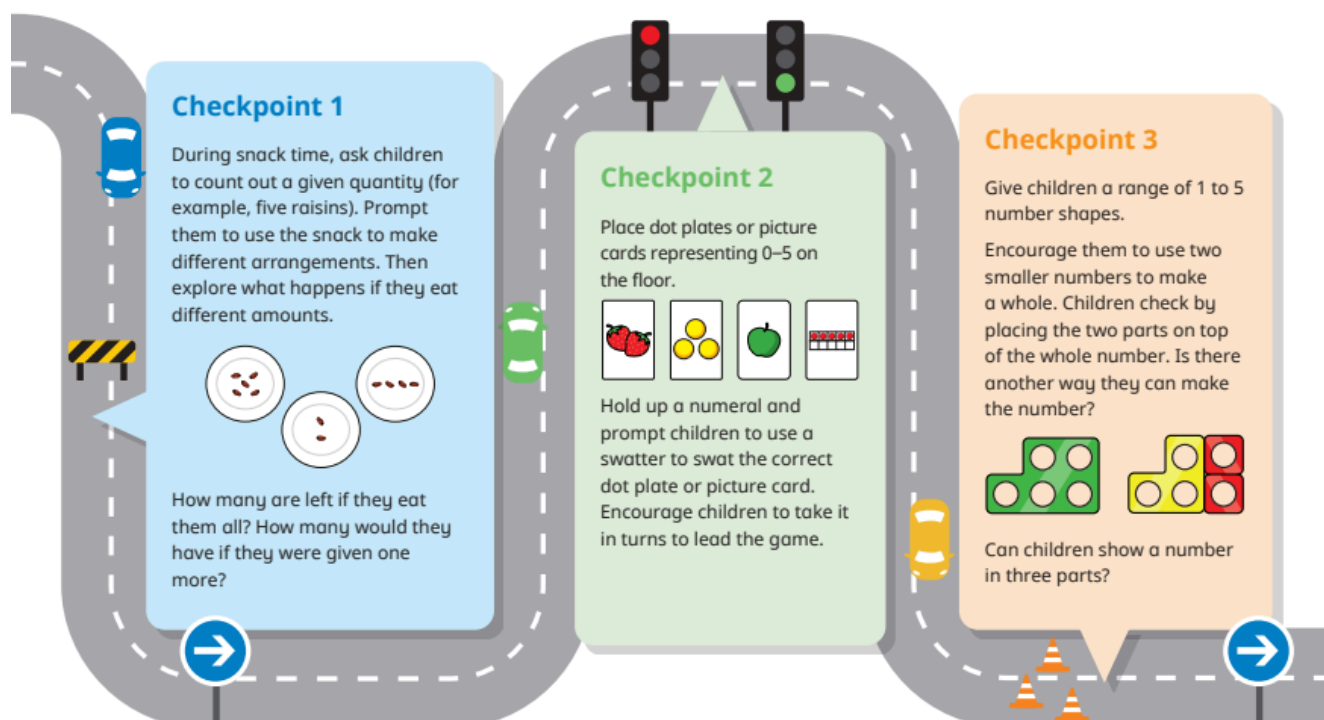
Block 6 – Shapes with 4 sides

Small steps	Possible stem sentences
Step 1 Identify and name shapes with 4 sides Step 2 Combine shapes with 4 sides Step 3 Shapes in the environment Step 4 My day and night **Linked books** ● 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 ●	• This shape is a ___. • This shape is the same/different because… • This shape has ___ sides/corners. • The shapes make a ___. • I can fold this shape to make a ___. • I need ___ to build a square/rectangle. • I can see a ___. • I know this shape is/is not a)__ because… • First/then we will… • Before/after ___ we will… • There are ___ days/sleeps until… • During the day we… • At night-time/lunchtime we…

End of block checkpoints

Checkpoint 1

Hide a range of flat 2-D shapes in a feely bag or underneath a cloth.

Partially reveal a shape, encouraging children to say what different shapes it could be or could not be and why.

Pull the shape out further. Do they still think it could be the same shape?

What has changed about the shape? What is the same?

Checkpoint 2

Provide children with a selection of paper squares and rectangles in various sizes and colours.

Prompt them to combine two shapes to make a rectangle or a square.

Are they able to combine three or four shapes?

Which ways will work?

Which ways will not work?

Checkpoint 3

Label a daytime and night-time area outside.

Call out an activity familiar to children and ask them to run to the daytime or night-time area. For example, stars appear, we put on our pyjamas, we get dressed, we eat lunch or owls wake up.

Encourage children to suggest some of their own daytime and night-time activities.

Spring Small Steps in Progression in Reception

Block 1 – Alive in 5

Small steps	Possible stem sentences
Step 1 Introduce zero **Step 2** Find 0 to 5 **Step 3** Subitise 0 to 5 **Step 4** Represent 0 to 5 **Step 5** 1 more **Step 6** 1 less **Step 7** Composition **Step 8** Conceptual subitising to 5 **Linked books** ● 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	• I can see zero ___. • There are zero ___. • I know this is zero because... • I know this is not zero because... • I counted ___ • There is/are ___ • I can see… • There are ___ dots altogether. • There are ___ • I can see ___ without counting. • I can subitise ___ • ___ is 1 more than ___ • 1 more than ___ is ___ • The number that comes after ___ is ___ • ___ is 1 less than ___ • 1 less than ___ is ___ • The number that comes before ___ is ___ • The whole is ___ • ___ is a part and ___ is a part (and ___ is a part). • I see ___ and ___ • There are ___ altogether. • If ___ is a part, then the other part must be ___

End of block checkpoints

Checkpoint 1

During snack time, ask children to count out a given quantity (for example, five raisins). Prompt them to use the snack to make different arrangements. Then explore what happens if they eat different amounts.

How many are left if they eat them all? How many would they have if they were given one more?

Checkpoint 2

Place dot plates or picture cards representing 0–5 on the floor.

Hold up a numeral and prompt children to use a swatter to swat the correct dot plate or picture card. Encourage children to take it in turns to lead the game.

Checkpoint 3

Give children a range of 1 to 5 number shapes.

Encourage them to use two smaller numbers to make a whole. Children check by placing the two parts on top of the whole number. Is there another way they can make the number?

Can children show a number in three parts?

Block 2 – Mass and capacity

Small steps	Possible stem sentences
Step 1 Compare mass Step 2 Find a balance Step 3 Explore capacity Step 4 Compare capacity **Linked books** ● Who Sank the Boat? by Pamela Allen ● Balancing Act by Ellen Stoll Walsh ● A Beach for Albert by Eleanor May	• The ___ is heavier/lighter than the ___. • I think the ___ is heavier/lighter than the ___ because... • The heavier/lighter object is ___ on the balance scale. • The scale is balanced because… • The mass of the ___ is ___ cubes. • I know the ___ is heavier/lighter than the ___ because… • The container holds more/less ___ than ___. • The ___ has the same capacity as ___ cubes/pine cones/marbles. • The container holds ___ cupfuls/spoonfuls of ___. • The ___ holds more/the most. • The ___ holds less/the least.

End of block checkpoints

Checkpoint 1

Can children use the language 'heavy' and 'light' to explore and compare mass when playing?

Observe children as they play in provision. The dough and construction areas provide great opportunities to support this.

Are children able to describe what they notice when they place objects on a balance scale?

Are they able to find a balance?

Checkpoint 2

In the snack area, provide a variety of jugs of milk and some beakers. Encourage children to take drink orders and make these for other children in the class.

Are they able to use the language 'full', 'empty', 'nearly full' and 'nearly empty'?

Checkpoint 3

Observe children in continuous provision as they explore and compare capacity. The sand, water and mud kitchen provide great opportunities to support these skills.

Encourage children to explore how much water or sand (or how many objects) different containers hold.

Can children predict how many of one container it takes to fill another? Can they explore which containers hold more and explain why?

Block 3 – Growing 6, 7, 8

Small steps

Step 1 Find 6, 7 and 8
Step 2 Represent 6, 7 and 8
Step 3 1 more
Step 4 1 less
Step 5 Composition of 6, 7 and 8
Step 6 Make pairs – odd and even
Step 7 Double to 8 (find a double)
Step 8 Double to 8 (make a double)
Step 9 Combine two groups
Step 10 Conceptual subitising

Linked books

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

Possible stem sentences

- There are 6/7/8 ___.
- There are ___ altogether.
- I can see...
- There are 6/7/8 . I know this because…
- There are ___
- There are ___ altogether.
- ___ is 1 more than ___
- 1 more than ___ is ___
- ___ is 1 less than ___
- 1 less than ___ is ___
- ___ is a part and ___ is a part.
- The whole is ___
- If ___ is a part, then the other part must be ___
- ___ is a part of ___
- I know this is a pair because…
- ___ is an odd/even number because…
- I have ___ groups of 2
I have found double ___
I have made double ___
- Double ___ is ___
- ___ is double ___
- There are ___ here and there are ___ there.
- There are ___ altogether.
- ___ and ___ make ___
- I can see ___ here and ___ there.
- There are ___ altogether.
- ___ is a part and ___ is a part.
- The whole is ___

End of block checkpoints

Checkpoint 1

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

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

Checkpoint 2

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

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

Can children talk about the parts and the whole?

Checkpoint 3

Provide ladybirds with up to 8 spots in different arrangements.

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

Block 4 – Length, height and time

Small steps

Step 1 Explore length
Step 2 Compare length
Step 3 Explore height
Step 4 Compare height
Step 5 Talk about time
Step 6 Order and sequence time

Linked books

- 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

Possible stem sentences

• The ___ is long/short.
• This is the longest ___.
• This is the shortest ___.
• The ___ is longer/shorter than the ___.
• The ___ is the same length as the ___.
• The ___ is tall/short.
• This is the tallest ___.
• This is the shortest ___.
• The ___ is taller/shorter than the ___.
• The ___ is the same height as the ___.
• I can do ___ in one minute.
• It takes me ___ to...
• Tomorrow we will...
• Yesterday we ...
• Tomorrow is/yesterday was ___.
• First/then/after we will...
• There are ___ days/sleeps until ___.

End of block checkpoints

Checkpoint 1

Support each child to make their own footprint. Are they able to find items which are longer than, shorter than or the same size as their foot?

Are children able to use the language of length to compare and order the footprints?

Checkpoint 2

Measure the height of some children using string. Choose one of the pieces of string and play a game of 'Who could it be?'.

Are children able to use the language of height to talk about who is the same height as the piece of string?

Checkpoint 3

Provide children with a range of picture cards showing different obstacles. Encourage children to sequence the pictures to make a set of instructions for a partner using the language 'first', 'then', 'next', 'after', and 'finally'.

Children follow the instructions in the correct order to complete the obstacle course.

Block 5 – Building 9 and 10

Small steps

Step 1 Find 9 and 10
Step 2 Compare numbers to 10
Step 3 Represent 9 and 10
Step 4 Conceptual subitising to 10
Step 5 1 more
Step 6 1 less
Step 7 Composition to 10
Step 8 Bonds to 10 (2 parts)
Step 9 Make arrangements of 10
Step 10 Bonds to 10 (3 parts)
Step 11 Doubles to 10 (find a double)
Step 12 Doubles to 10 (make a double)
Step 13 Explore even and odd

Linked books

- 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

Possible stem sentences

- I counted/I see ___
- There are 9/10 ___
- ___ has more/fewer than ___.
- There are more/fewer ___ than ___.
- There are the same number of ___.
- There are ___ altogether.
- The whole is ___
- ___ is a part and ___ is a part (and ___ is a part).
- I see ___ and ___
- There are ___ altogether.
- If ___ is a part, then the other part must be ___
- The number after ___ is ___
- ___ is 1 more than ___
- 1 less than is ___
- ___ is 1 less than ___
- ___ and ___ are a bond to 10
- I can see ___ here and ___ here.
- ___ and ___ are always
- I know there are ___ altogether because ...
- I can see that ___ is made up of ___, ___ and ___
- There is ___ here, ___ there and ___ there, so there must be ___ altogether.
- I have found double ___
- I have made double ___
- There are ___ here and ___ there.
- Double ___ is ___
- ___ is double ___
- I know this in an equal/unequal group because ...
- ___ is odd/even because ...

End of block checkpoints

Checkpoint 1

Make a caterpillar by threading up to 10 beads onto a pipe cleaner.

Are children able to make caterpillars with more and fewer beads than you?

Which caterpillar is the longest?

Which is the shortest?

Can we arrange the caterpillars in

Checkpoint 2

Provide children with 9 cubes. Prompt them to work in pairs where one person holds the 9 cubes behind their back and breaks them into two parts. They reveal just one part.

The other child in the pair has

Checkpoint 3

Hand out a range of 1 to 10 number shapes so that each child has one shape.

Ask questions and give instructions such as, "Stand up if you have an odd number." Can you find someone with a number shape that is double your number? Can you find someone who has an even number shape or someone who has an odd number shape? Encourage children to

Block 6 – Explore 3D shape

Small steps

Step 1 Recognise and name 3-D shapes
Step 2 Find 2-D shapes within 3-D shapes
Step 3 Use 3-D shapes for tasks
Step 4 3-D shapes in the environment
Step 5 Identify more complex patterns
Step 6 Copy and continue patterns
Step 7 Patterns in the environment

Linked books

- 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

Possible stem sentences

- This shape is a ___.
- This shape is the same/different because ...
- The ___ has flat faces/a flat face/a curved surface.
- I can see a ___ on the ___.
- This shape has a ___ face.
- I have chosen this shape because …
- This shape has ___.
- I can see a ___.
- This shape is the same/different because …
- I know this shape is/is not a ___ because …
- I can see/hear a ___ pattern.
- This is a ___ pattern.
- The ___ comes next in the pattern.
- The pattern is ___, ___, ___ , (___).
- ___ will come next in the pattern.

End of block checkpoints

Checkpoint 1

Show children a range of 3-D shapes of various sizes and colours. Cover the shapes with a piece of material, ask children to close their eyes and remove one of the shapes.

Lift off the material and encourage children to identify which shape has been removed. Ask them to explain how they know by referring to the properties of the shapes.

Checkpoint 2

Show children a pattern that uses a more complex structure, such as ABCD, AAB, ABB or ABBA. Can they identify the pattern?

Can they copy and then continue your pattern?

Provide children with the resources, such as pattern blocks, for them to use to copy and continue the patterns.

Checkpoint 3

Provide children with objects and loose parts to make more complex patterns.
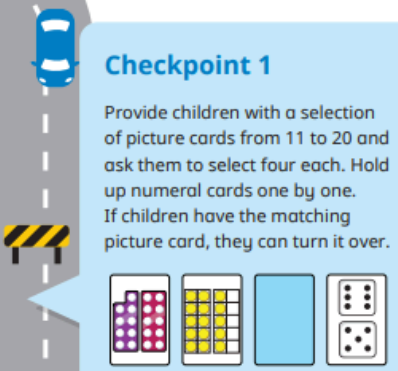
Ask children to use the resources independently to make an ABCD, AABB, AAB, ABB or ABBA pattern. Encourage them to talk about the pattern and its structure.

Summer Small Steps in Progression in Reception

Block 1 – To 20 and Beyond

Small steps

Step 1 Build numbers beyond 10 (10−13)
Step 2 Continue patterns beyond 10 (10−13)
Step 3 Build numbers beyond 10 (14−20)
Step 4 Continue patterns beyond 10 (14−20)
Step 5 Verbal counting beyond 20
Step 6 Verbal counting patterns

Linked books

- 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

Possible stem sentences

- I can see
- I can build
- 10/11/12/13 has ten and ___
- I can see 1 ten and ___
- ___ and ___ makes ___
- ___ comes after ___
- I have made ___
- ___ has ten and ___
- ___ comes before ___
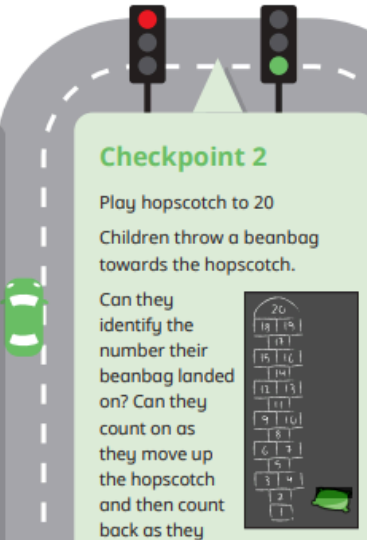- I will start counting from ___

End of block checkpoints

Checkpoint 1

Provide children with a selection of picture cards from 11 to 20 and ask them to select four each. Hold up numeral cards one by one. If children have the matching picture card, they can turn it over.

Can children recognise what number is represented on each picture card?
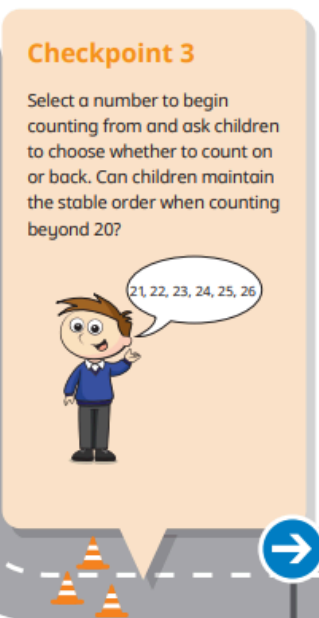
Checkpoint 2

Play hopscotch to 20

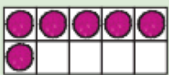Children throw a beanbag towards the hopscotch.

Can they identify the number their beanbag landed on? Can they count on as they move up the hopscotch and then count back as they return?

Checkpoint 3

Select a number to begin counting from and ask children to choose whether to count on or back. Can children maintain the stable order when counting beyond 20?
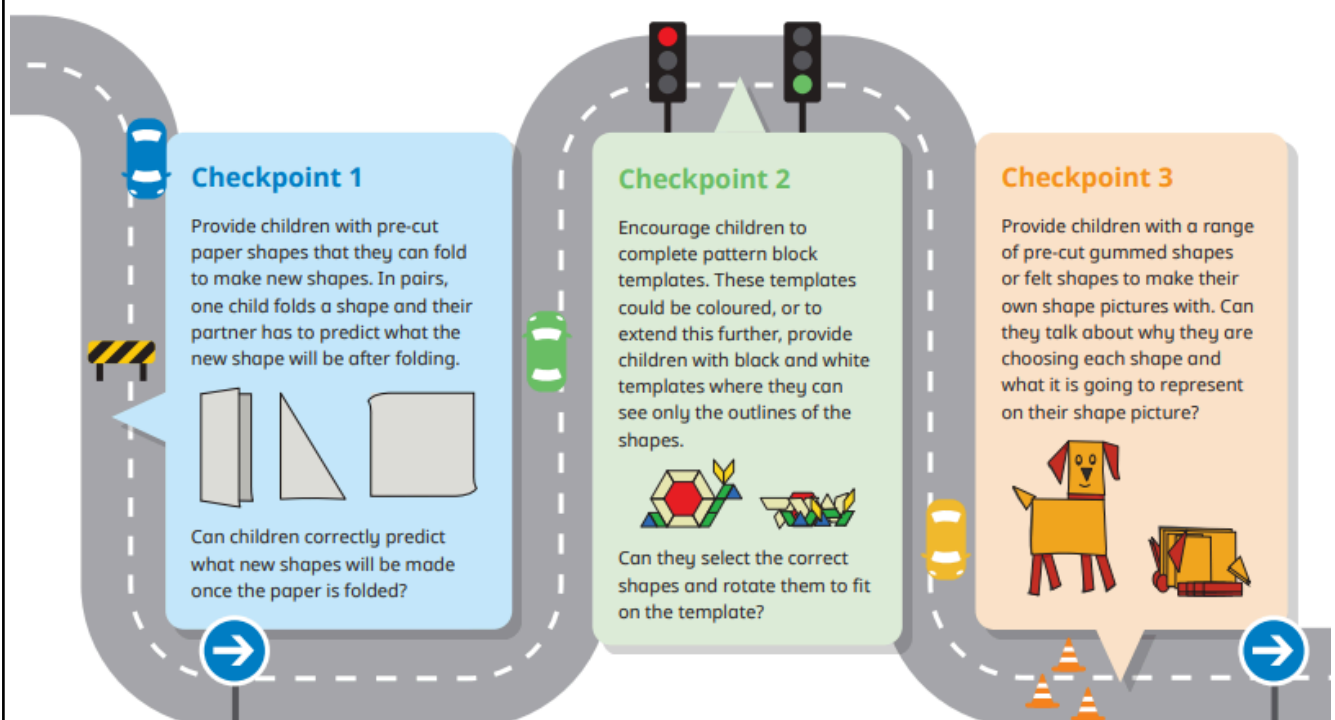
21, 22, 23, 24, 25, 26

Block 2 – How Many Now?

Small steps	Possible stem sentences
Step 1 Add more Step 2 How many did I add? Step 3 Take away Step 4 How many did I take away? **Linked books** ● 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 ●	• First there were ___ • Then ___ more were added. • Now there are ___ • There are ___ altogether • I added ___ • First there were ___ • Then were ___ taken away. • Now there are ___ • There are ___ left. • I have ___, how can you show me ___? • ___ were taken away. • I took ___ away and now there are ___

End of block checkpoints

Checkpoint 1

Provide children with a 1 to 3 dice and cubes. Children take it in turns to collect 1, 2 or 3 cubes to add to their tower.

Can children say how many were added? How many cubes do they have now? How tall can they build their towers before they topple over?

Checkpoint 2

Play a game of 'pass it on' in small groups. Each child starts with 6 loose parts. They roll a 1 to 3 dice and pass the corresponding number of objects to the child on their left. The winner is the first child to give away all their objects.

Can children say how many they have taken away? How many do they have left?

Checkpoint 3

Provide children with a 5 to 10 dice, beanbags and a bucket. Encourage one child to roll the dice and place the corresponding number of beanbags into the bucket. Prompt another child to take some of the beanbags out of the bucket without the group seeing how many. Tip the remaining beanbags out of the bucket. How many are left now? Can children work out how many beanbags must have been taken?

Block 3 – Manipulate, Compose and Decompose

Small steps

Step 1 Select shapes for a purpose
Step 2 Rotate shapes
Step 3 Manipulate shapes
Step 4 Explain shape arrangements
Step 5 Compose shapes
Step 6 Decompose shapes
Step 7 Copy 2-D shape pictures
Step 8 Find 2-D shapes within 3-D shapes

Linked books

- 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

Possible stem sentences

- I have chosen a ___ because ___
- This one doesn't belong because ___
- I need a ___ to complete my picture
- This shape is a ___.
- I need to ___ the shape to make it fit
- This will not fit because ___
- The ___ is next to the ___
- The ___ is in front of the ___
- The ___ is behind the ___
- Move around the ___
- Move under/over the ___
- I used ___ shapes to make a ___
- To make the smallest/largest ___, I used ___ pieces
- I can make a ___ using ___
- I used a ___ to make ___
- I can see ___
- I can see a ___ within a ___
- I can see a ___ in the ___
- I know it is a ___ because it has a ___
- I can feel that this shape is a ___ because ___

End of block checkpoints

Checkpoint 1

Provide children with pre-cut paper shapes that they can fold to make new shapes. In pairs, one child folds a shape and their partner has to predict what the new shape will be after folding.

Can children correctly predict what new shapes will be made once the paper is folded?

Checkpoint 2

Encourage children to complete pattern block templates. These templates could be coloured, or to extend this further, provide children with black and white templates where they can see only the outlines of the shapes.

Can they select the correct shapes and rotate them to fit on the template?

Checkpoint 3

Provide children with a range of pre-cut gummed shapes or felt shapes to make their own shape pictures with. Can they talk about why they are choosing each shape and what it is going to represent on their shape picture?

Block 4 – Sharing and Grouping

Small steps

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

Linked books

- The Last Marshmallow by Grace Lin
- The Squirrels Who Squabbled by Rachel Bright
- One Hungry Cat by Joanne Rocklin T
- 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

Possible stem sentences

• It is fair because ___
• It is not fair because ___
• The ___ have/have not been shared equally
• There are ___ altogether.
• They are shared equally between ___ groups
• The groups are equal/not equal because ___
• There are___ groups of ___
• They can be put into ___ equal groups of ___
• I have an odd/even number of ___ . I know because ___
• Double ___ is ___
• I can see ___ and ___
• I can see ___ altogether
• This is double ___

End of block checkpoints

Checkpoint 1

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

Checkpoint 2

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

Checkpoint 3

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

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

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

Block 5 – Visualise, Build and Map

Small steps

Step 1 Identify units of repeating patterns
Step 2 Create own pattern rules
Step 3 Explore own pattern rules
Step 4 Replicate and build scenes and constructions
Step 5 Visualise from different positions
Step 6 Describe positions
Step 7 Give instructions to build
Step 8 Explore mapping
Step 9 Represent maps with models
Step 10 Create own maps from familiar places
Step 11 Create own maps and plans from story situations

Linked books

- 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

Possible stem sentences

• This is a ___ pattern
• The ___ comes next in the pattern
• The repeat is ___
• I have made a ___ pattern
• I need ___ to finish my pattern
• My pattern is a ___ pattern. I know this because___
• The rule is ___
• The scene of the___ is the same because ___
• The scene of the ___ is different because ___
• I used ___ to build ___
• ___ is here because___
• I can see ___. If I move, now I can see ___
• The ___ is next to/above/below the ___
• I have put the ___ next to the ___
• The ___ is positioned ___
• I have put the ___ behind/in front of/next to the ___
• Next, you need to ___
• I can see ___
• I have drawn ___ on my map because ___
• I have made a ___
• The ___ is next to the ___
• First, I need to ___
• Go straight until you get to the ___
• I have followed the map and it has led me to ___
• Next to the ___ is ___

End of block checkpoints

Checkpoint 1

Place a bear or a puppet on a chair in a focal point of the classroom.

Prompt children to create their own pattern and go to tell the bear on the chair about their pattern and what the rule is.

Checkpoint 2

Encourage children to build models and then draw and explain what they have built. Photographs of these can be taken and placed in the construction area for other children to see, discuss and recreate.

Can children build, visualise and map out their thinking?

Checkpoint 3

Create maps of places that children are familiar with on tuff trays. Prompt children to add different objects, such as cars, people and buildings. Can they describe a journey through the map?

Block 6 – Make Connections

Small steps	Possible stem sentences
Step 1 Deepen understanding Step 2 Patterns and relationships **Linked books** ● 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	• There are ___ altogether • I can see ___ here and ___ there • The ___ worked because ___ • I used ___ because ___ • I know my idea has worked because ___ • To make a ___ I need ___ • My plan is ___ • I decided this because ___

End of block checkpoints

Checkpoint 1

After reading stories such as *You Can't Take an Elephant on the Bus* by Patricia Cleveland-Peck, encourage children to make their own vehicles for toy or small-world animals by planning out what they will need and using simple, non-standard units of measure.

Encourage children to test their vehicles and explain their designs. Why have they worked or not worked?

Checkpoint 2

Provide floor spots with numerals 0 to 10 displayed on them and a 6-sided dice with the words 'double', 'one more', 'one less', 'even', 'equal', and 'odd'.

Children stand on a number and roll the dice. Can children move to a floor spot that matches the instruction on the dice?

Checkpoint 3

In pairs, child 1 covers their eyes while child 2 selects two numeral cards and collects the corresponding number of cubes for each card.

Child 2 then combines all the cubes and turns over one of the numeral cards. Child 1 opens their eyes. Can they work out what numeral is on the hidden card using the cubes to help them? Children then swap roles.

Observe children as they play. Can they find the hidden number without counting out all the cubes?

Six Key Areas of Early Maths

Progression by looking at the NCETM progression maps for EYFS
[Click here for NCETM EYFS resources](#)

Reception – CARDINALITY AND COUNTING
[Click here for the progression chart and activities](#)
Understand that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents.

Reception – COMPARISON
[Click here for the progression chart and activities](#)
Understand that comparing numbers involves knowing which numbers are worth more or less than each other.

Reception – COMPOSITION
[Click here for the progression chart and activities](#)
Understanding that one number can be made up from (composed form) two or more smaller numbers.

Reception – PATTERN
[Click here for the progression chart and activities](#)
Looking for and finding patterns helps children notice and understand mathematical relationships.

Reception – SHAPE AND SPACE
[Click here for the progression chart and activities](#)
Understanding what happens when shapes move, or combine with other shapes, helps develop wider mathematical thinking.

Reception – MEASURES
[Click here for the progression chart](#)
Comparing different aspects such as length, weight and volume, as a preliminary to using to compare later.

Number ELG

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number

Hidden Jewels (NRICH)
Subitising (NRICH)
Number Talks (NRICH)
Dice (NRICH)
Golden Beans (NRICH)
Owl's Packing List (NRICH)
Show Me (NRICH)

- Subitise (recognise quantities without counting) up to 5

Hidden Jewels (NRICH)
Subitising (NRICH)
Number Talks (NRICH)

- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Double Trouble (NRICH)
Shopping - Pirate Poundland (NRICH)

Numerical Patterns ELG

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system

Tidying (NRICH)
Incey Wincey (NRICH)
Number Book (NRICH)
Beat the Clock (NRICH)
Counting Collections in the Early Years (NRICH)
Counting Collections (NRICH)

- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity

Estimation Station (NRICH)
The Voting Station (NRICH)

- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

Mathematical Problem Solving in the Early Years (NRICH)
Mathematical Problem Solving in the Early Years: Developing Opportunities, Strategies and Confidence
The Box Game (NRICH)

Next Steps - Year 1 Maths Curriculum Statutory Objectives

Year 1 NUMBER – NUMBER AND PLACE VALUE

Pupil end points for this unit of work: (Year 1 statutory requirements) See additional small steps for specific end points for Year 1 in each unit as place value in numbers to 10, 20, 50 and 100 is split across the year

- 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

- given a number, identify one more and one less

- 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

- read and write numbers from 1 to 20 in numerals and words

Year 1 NUMBER – ADDITION AND SUBTRACTION

Pupil end points for this unit of work: (Year 1 statutory requirements) See additional small steps for specific end points for Year 1 in each unit as addition and subtraction in numbers to 10 and 20 is split across the year

- read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs

- represent and use number bonds and related subtraction facts within 20

- add and subtract one-digit and two-digit numbers to 20, including zero

- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ − 9

Year 1 NUMBER – MULTIPLICATION AND DIVISION

Pupil end points for this unit of work: (Year 1 statutory requirements)

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher

Year 1 NUMBER – FRACTIONS

Pupil end points for this unit of work: (Year 1 statutory requirements)

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

Year 1 MEASUREMENT

Pupil end points for this unit of work: (Year 1 statutory requirements)

- compare, describe and solve practical problems for:

- lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]

- mass/weight [for example, heavy/light, heavier than, lighter than]

- capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]

- time [for example, quicker, slower, earlier, later]

- measure and begin to record the following:

- lengths and heights

- mass/weight

- capacity and volume

- time (hours, minutes, seconds)

- recognise and know the value of different denominations of coins and notes

- sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]

- recognise and use language relating to dates, including days of the week, weeks, months and years

- tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Year 1 GEOMETRY – PROPERTIES OF SHAPE

Pupil end points for this unit of work: (Year 1 statutory requirements)

- recognise and name common 2-D and 3-D shapes, including:
- 2-D shapes [for example, rectangles (including squares), circles and triangles]
- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]

Year 1 GEOMETRY – POSITION AND DIRECTION

Pupil end points for this unit of work: (Year 1 statutory requirements)

- describe position, direction and movement, including whole, half, quarter and three-quarter turns