New Invention Infant School

We can...we will...together

Maths Syllabus

To empower our children to be the change-makers of the future.

#WecanWewillTogether

NII is a safe, secure and nurturing school where children develop positive relationships.

Our children are confident, articulate and resilient both in education and attitude to life.

They are compassionate, empathetic and supportive of others.

Our staff are motivated, tenacious and committed working with integrity to ensure the best outcomes for our children and families.

They strive for excellence in all that they do.

We are the focal point of our community where families feel supported, respected and are partners in their children's journey.

Everyone in our school community contributes and is both heard and valued.

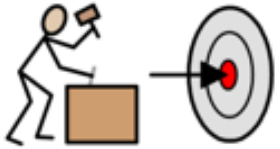
Our high aspirations, forward thinking, innovative approach inspires our children to be change-makers of the future.

inclusivity

Diversity
Equity
Respect
Acceptance

integrity

Moral
Principles
Honesty
Fairness



tenacity

Resilience
Hard working
Perseverance
Never give up

collaboration

Partnerships
Working together
Supportive
'Families'

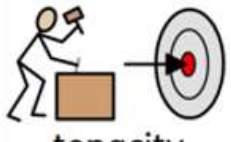
ambition

Excellence
High expectations
Creative
Innovative
Risk taking

How our Mission, Vision and Values are reflected in Maths

Careful planning in Maths ensures every child feels valued and supported. The use of flexible grouping encourages collaboration while supporting individual needs, and integrate opportunities for mixed-ability peer tutoring to build empathy and shared achievement. Visual aids, varied manipulatives and pre-teaching ensure all children are fully integrated into Maths lessons alongside celebrating children's effort, persistence, and creativity alongside accuracy to make achievement feel attainable for everyone. A classroom ethos is nurtured where every child's thinking is valued and they are encouraged to achieve.

Integrity is embedded in classrooms by creating an environment where honesty, fairness, and responsibility are modelled and celebrated. Children are encouraged to explain their thinking clearly, own their mistakes, and appreciate that struggle is part of learning. Sharing different methods and celebrating varied approaches helps children see that there isn't always one "right" way and gives value to truth over perfection. Teachers promote respectful dialogue in partner talk and group work, ensuring learners listen to and challenge each other respectfully with an avoidance of overemphasis on speed and competitiveness. Children are praised for effort, reasoning, and collaboration, not just correct answers.



Children's perseverance is encouraged when facing challenges during Maths lessons. Activities are planned that balance difficulty with accessibility but ensuring that tasks stretch but don't overwhelm. Teachers plan problem solving acitivties that encourage sustained thinking, celebrating multiple attempts and strategies rather than quick answers. Teachers ensure to model resilience by narrating their own problem-solving process and inviting children to "have another go" without fear of failure. During discussions teachers incorporate growth mindset language ensuring that effort, resilience, and improvement and praised. Mistakes are encouraged to be seen as stepping stones and peer support is encouraged.

Collaboration in maths empowers children to learn with and from one another, building both confidence and communication skills. Teachers plan a range of tasks that naturally encourage shared problem-solving, such as open-ended investigations or maths games that require teamwork. Flexible grouping helps to encourage empathy, peer teaching, and collective growth.
Established talk partners and the use of taught STEM sentences support all children to share their learning. Teachers encourage reflection after joint tasks to assist children with think about what they learnt from their partner as well what worked well as a team.

Ambition in Maths helps to inspire children to dream big, tackle challenges, and take pride in their growth. Teachers set high expectations for all learners where it is made clear that everyone is capable of mathematical thinking, regardless of their starting point. Activities are planned that encourage and stretch curiosity. The use of growth mindset language like "yet," "imagine," and "what if" encourages children to push boundaries and continue to explore. Teachers consistently celebrate progress in various forms, not just correct answers, but ensuring they celebrate creativity, perseverance, and depth of thinking. Children are encouraged to set goals and reflect on their work to help them begin to take ownership of their learning. By making ambition visible and attainable, we encourage our young learners to see themselves not just as mathematicians—but as change-makers in the making.

Maths Curriculum Intent

At New Invention Infants School, we believe every child is a capable mathematician, full of curiosity and potential. Our Maths curriculum is designed to ignite a love of numbers, patterns, and problem-solving from the earliest stages. We aim to develop confident, resilient learners who explore mathematical ideas through engaging, hands-on experiences that build fluency, reasoning, and critical thinking.

Our curriculum fosters inclusivity, creativity, and collaboration. We ensure all children access rich opportunities to apply Maths in meaningful contexts, including real-life scenarios, cross-curricular links, and imaginative challenges. Core values—tenacity, integrity, ambition, collaboration and inclusivity—are embedded throughout, shaping a learning culture where effort and growth are celebrated.

Through progressive, coherent teaching, we empower children to build secure foundations and embrace challenge. By nurturing mathematical thinking alongside personal development, we prepare our learners not just for KS2, but for a lifetime of confident problem-solving and joyful exploration.

Maths Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Comparing objects, exploring shapes and patterns	Number names- 1, 2 and 3, Ordering and counting 1, 2 and 3	Exploring repeats, position and direction, Number- showing 1, 2 and 3, labelling 1, 2 and 3	Position and direction, patterns, Number- take and give 1, 2, 3, Shape arrangements	Compare and sort, repeats, puzzling, making patterns and games	The number 5, own patterns, match sort and compare
Reception	Number- Subitise, count and compare 1-4 Wider Maths- Match, sort, compare, measure and pattern	Number- counting and comparing 1-5, part and whole, quantities to 10 Wider Maths- Shape	Number- subitise, composition of 6 an 7. Wider Maths- measure and capacity, length, height and time	Number- ordering to 8, doubles, odds and evens Wider Maths- length, height and time, 3D shapes	Number- count larger sets, composition of 10, comparison. Wider Maths- manipulate, compose, decompose	Number- subitise, bonds to 5, composition to 10, comparison. Wider Maths- Visualise, build and map
Year 1	Place Value to 10 and 20, Addition and Subtraction within 10.	Addition and Subtraction within 10. Naming 2D and 3D shapes.	Addition and Subtraction within 20, Place value to 50 and 100,	Multiplication and Division	Measure (length, height, mass and volume) and fractions	Position and direction, Measure (time, money),
Year 2	Place Value to 100, Addition and Subtraction	Addition and Subtraction, 2D and 3D shape properties	Multiplication and Division, Measure (money)	Fractions, Measure (time)	2D and 3D shape, Mixed calculations	Measure (Length, height, capacity, mass, temperature)

Maths

Disciplinary Concepts – (Areas of the Subject)

- Number and Place Value
- Calculation
- Shape, space and measure
- Statistics

Maths

Implementation

Number and Place Value

Nursery

Singing songs and rhymes for numbers to 5, copy and clap out 1-5, collect and count out objects up to 5, show up to 5 on fingers, recognise and label 1-5, find number cards, find the number of objects, say and label 'more' and 'fewer' amounts of objects, find/ point to amounts that are the same, make arrangements of amounts that are same, recognise different arrangements of objects 1-5, subitise to 3, count out 5 from a larger amount

Reception

Count objects, actions and sounds beyond 10, compare numbers, sing songs and rhymes beyond 10, use number names and cardinal numbers, find and identify the digit, order numbers, fix the number line, label amounts of objects, count out objects from a larger group, use part whole models, matching and finding numicon, making numbers on tens frames, subitising activities

Year One

Counting objects, actions and sounds from a larger set, write numbers to 100 in numerals, count forwards and backwards within 10/ 20/ 50 and 100, count on and back from any number, compare numbers and quantities, one more and one less activities within 20/ 50 and 100, order objects and numbers, fix the number line to 20/ 50 and 100, part whole models for tens and units for numbers to 100, represent numbers using tens frame, numicon, bead strings and rekenreks, counting in 10s to 100, count in 2s, 5s and 10s.

Year Two

Count forwards and backwards within 10/ 20/ 50 and 100 from any number, write numerals and words for numbers to 100, compare and order to 100, one more and one less activities within 20/ 50 and 100, order objects and numbers, fix and estimate on the number line to 100, part whole models for tens and units for numbers to 100, partition in different ways using diennes, represent numbers using tens frame, numicon, bead strings and rekenreks, count in 2s, 5s and 10s,

Maths

Implementation

Calculation

Nursery

Count how many to 5, collect number of objects, find one more through stories songs and rhymes, take one away through stories songs and rhymes

Reception

1 more and 1 less through stories songs and rhymes up to 10, composition activities for numbers to 10 using tens frames/ objects/ numicon/ cubes/ fingers, combine two groups to find a total using practical objects and Maths apparatus, add more to a quantity and find out how many altogether, partition a number into two parts, take away from a quantity and find out how many are left, find doubles to 10 using range of apparatus cubes/ dominoes/ tens frames/ objects, make equal groups with objects by grouping together and sharing out

Year One

Add together and add more and find the total activities number lines/ counting on, take away and find a part to find out how many are left, addition and subtraction problems, bonds to and within 10 and creating fact families, writing number bonds systematically, find related facts within 20 and use to help adding or subtracting ones, find the difference between numbers, missing number problems, recognise, find and make equal groups and add them together, share into equal groups, make arrays, know doubles facts, recognise and find half and quarter of object and quantity.

Year Two

Add and subtract ones to any number using related facts, add three one-digit numbers (dots, tens frames), add and subtract tens and two 2-digit numbers using diennes/ bead strings/ jottings/ expanded column, missing number problems, count in 2s, 5s and 10s and use this to solve problems, link repeated additions to multiplication and to arrays (using peg boards and drawing sets and drawing arrays), 2, 5 and 10 times tables, divide by 2, 5 and 10, problem solving for 2s, 5s and 10s, find unit and non-unit fractions of shapes and quantities (drawing circles and sharing)

Maths

Implementation

Shape, space and measure

Nursery

Explore patterns with different objects (copy, arrange, make and fix different patterns), sort a range of objects into different categories (colour, size, type of object), shape treasure hunts and collaging, feely shape bag guesses and describing, playdough stamping, obstacle courses to explore positional language, block play, hide and seek with various objects, making floor maps, water and sand play, creating height and length charts, cooking activities to encourage measure, length treasure hunts.

Reception

Shape hunts, creating more complex shape pictures, building with 3D shapes explaining and describing choices, sorting 2D and 3D shapes by different criteria, positional language treasure maps, Bee-bots for directions and sequencing, movement activities for following directions, non-standard measuring using cubes/ hand spans/ string etc, timed challenges (how many jumps in 30 seconds etc), baking/ cooking activities, capacity sorting and exploring.

Year One

Shape detectives (clues to find the 2D or 3D shape), building shape monsters and labelling properties, shape sorting by properties, real world shape hunts, treasure map drawing and giving clues using accurate positional language, obstacle navigation by giving partner spatial directions, bee-bot challenges, measuring using cubes/ hand spans/ foot length and then standard measuring tools, guessing and checking length and height of classroom objects, capacity exploration, weight sorting and comparing.

Year Two

Shape riddles (writing clues for a shape, guess the shape from the clue), creating 3D towns, symmetry spotting in shapes/ nature/ objects, shape are challenge (design pictures using only given shapes or choose shapes to fulfil a brief), drawing maps of school or local area, pathways (directing children using a wider range of accurate positional language), treasure trails, measuring use standard measures, comparing and calculating using measure, time challenges, weight and volume recipes.

Maths

Implementation

Statistics

Nursery

Although formal statistics teaching begins in subsequent years, Nursery children can be introduced to simple statistical ideas.
Toy sorting and grouping, create fruit faces, making sock pairs, object jars (which has more/ less), block towers and compare heights, simple pictograms with photos to show who is here today, snack tally charts, weather charts.

Reception

Learners can continue to explore simple statistics through playful and hands-on experiences.
Colour sorting stations, nature table sorts, class vote tally charts for fruit/ favourite colours/ animals etc, graphs for favourite things, weather trackers, creating birthday month charts.

Year One

Class surveys and creating tally charts and transferring to different types of graph, weather diary, interpreting data by asking and answering simple questions (what is the most/ least popular? How many more chose ___ than ____? What has the fewest? What has the most? Etc).

Year Two

Class surveys and creating tally charts and transferring to different types of graph, weather logs, traffic counts, constructing simple tables, creating block diagrams/ pictograms etc, comparing sets of data, asking and answering range of questions about their data and other data sets, spot the mistake and correct graphs and charts.

Lesson/Activity Sequencing

Lessons will follow White Rose Hub Maths scheme, supplemented by material from the NCETM and Grammersaurus (KS1).

Nursery

Overview Nursery

Me and My celebrations

Autumn

Order for all terms is not an explicit teaching order as some targets may be covered incidentally during other activities at different times.

Block 1- Comparison 1- more than, fewer, same

Step 1- collect objects to compare amounts
Step 2- simple comparison of amounts
Step 3- look for collections of large and small amounts
Step 4- compare and talk about large and small amounts
Step 5- make large and small collections
Step 6- make collections the same

Block 2- Shape, space and measure 1

Step 1- explore and play with patterns
Step 2- show interest in differences between shapes
Step 3- put shapes and blocks in positions
Step 4- select shapes for a reason
Step 5- begin to explore and describe natural objects and shapes
Step 6- find and collect objects for a purpose

Block 3- Pattern 1- explore repeats

Step 1- listen to repeats in songs and stories
Step 2- start to join in songs with repeats
Step 3- start to join in stories with repeats
Step 4- Clap along to songs
Step 5- Make line patterns with own sequences
Step 6- choose blocks to build roads and towers

Block 4- Hear and say number names

Step 1- Hear some number names
Step 2- Join in saying some number
Step 3- Model saying number names in order
Step 4- Practise saying number names in order
Step 5- Join in stable order counting forwards
Step 6- Join in stable order counting backwards

Block 5- Begin to order number names
Step 1- Model saying 1, 2, 3 in play
Step 2- Copy sequence of 1, 2, 3
Step 3- Copy fingers to represent 1, 2 and 3
Step 4- Begin to count actions
Step 5- Say number names in order
Step 6- Begin to recognise that anything can be counted

Block 6- I See 1, 2, 3
Step 1- Notice images in books
Step 2- Respond to 1 see 1, 2, 3
Step 3- Recognise 'I see 1, 2, 3
Step 4- Copy I see 1, 2, 3
Step 5- Point to 1, 2, 3
Step 6- Recognise 1, 2, 3 in well known tales

People Who Help Us

Spring

Block 7- Join in with repeats
Step 1- Join in with repeated action in songs
Step 2- Join in with repeats in songs and stories
Step 3- Sing some refrains independently.
Steps 1 to 3 will be covered during Autumn term (to be checked at the start of Spring term).
Step 4- Have a sense of a daily routine
Step 5- Say what happens next
Step 6- Make arrangements in art

Block 8- Explore position and space
Step 1- Respond to simple language of position
Step 2- Arrange blocks in a chosen position
Step 3- Select shapes for a space
Step 4- Recognise when2 objects are the same shape
Step 5- Explore and describe shapes and objects
Step 6- Sort shapes and objects into simple categories

Block 9- Show me 1, 2, 3 (May be covered in Autumn alongside other teaching)
Step 1- Copy fingers to show 1
Step 2- Copy fingers to show 2
Step 3- Copy fingers to show 3
Step 4- Show 1 finer when seeing 1 item in stories
Step 5- Show 2 or 3 fingers when seeing 2 or 3 item in stories
Step 6- Show 1, 2 or 3 on fingers when asked

Block 10- Move and label 1, 2, 3 (May be covered in Autumn alongside other teaching)
Step 1- Make actions when saying counting words
Step 2- Move fingers when saying counting words
Step 3- Count out up to 3 objects from rhymes
Step 4- Notice number names as labels
Step 5- Label amounts as 1 and not 1
Step 6- Label amounts as 1, 2 or 3

Block 11- Explore position and routes
Step 1- Explore shape resources
Step 2- Explore more complex inset jigsaw
Step 3- Talk a out simple positions
Step 4- Move into simple positions
Step 5- Move through positions
Step 6- Follow simple small world routes

Step 12- Explore own first patterns
Step 1- Explain simple pattern arrangements
Step 2- Make roads and bridges with intent
Step 3- Choose blocks to copy simple creations
Step 4- Make simple line patterns with objects
Step 5- Make simple pattern arrangements
Step 6- Show an interest in patterns and shapes

Block 13- Take and give 1, 2,3
Step 1- Choose a group to count
Step 2- Take out 2 from a group
Step 3- Take out 3 from a group
Step 4- Give others 2 items
Step 5- Give others 3 items
Step 6- Count 3 objects with one-to-one correspondence

Block 14- Match, Talk, push and pull
Step 1- Match simple shapes
Step 2- Push some shapes and blocks together
Step 3- Make simple arrangements
Step 4- Talk about arrangements
Step 5- Follow simple routes outside
Step 6- Follow toys around a simple route.

Block 15- Talk about dots
Step 1- Become familiar with dot patterns
Step 20 Say where there is 1 dot
Step 3- Say where there is 2 dots
Step 4- Recognise 1 and 2 in different arrangements
Step 5- Say when there are three dots

Down on the Farm

Summer One

Block 16- Compare and sort Collections
Step 1- Notice when two collections are the same
Step 2- Make collections of small objects the same
Step 3- Make collections of large objects the same
Step 4- Recognise two collections are the same using large and small objects
Step 5- Make collections the same using large and small objects
Step 6- Sort and talk about their own collections

Block 17- Lead on own repeats
Step 1- Join in fully with sequence and songs
Step 2- Sing rhymes independently
Step 3- Lead sequences and songs
Step 4- Read on in familiar repeating stories
Step 5- Copy art-based simple patterns
Step 6- Explore own line and repeating patterns in art

Block 18- Start to puzzle
Step 1- Complete shape matching puzzles
Step 2- Complete simple jiqsaws
Step 3- Match objects to pictures
Step 4- Match objects to shadows
Step 5- Explore objects and small world from different positions
Step 6- Make simple routes in small world with lines and curves

Block 19- Making Patterns together
Step 1- Sing their own song independently
Step 2- Clap in time to a beat
Step 3- Make and talk about movement patterns
Step 4-Talk about objects in patterns and arrangements
Step 5-Copy AB patterns with support
Step 6- Continue AB patterns with support

Block 20- Make games and actions
Step 1- Match dot patterns
Step 2-Be introduced to subitising games
Step 3- Play subitising games
Step 4- Copy sets of sounds
Step 5-Listen to and represent sounds with fingers
Step 6- Listen to and represent sounds with resoources

Summer Two

Block 21- Show me 5
Step 1- Sing rhymes to 5
Step 2- Move props to 5
Step 3- Move props back from 5
Step 4-Show fingers to 5
Step 5- Begin to count 5 objects
Step 6- Match numerals to quantities.

Block 22- My Own Pattern
Step 1- Continue AB patterns
Step 2- Create own AB patterns
Step 3- Notice an error in a pattern
Step 4- Build constructions with enclosures
Step 5- Copy simple repeated constructions
Step 6- Begin to sequence some events.

Block 23- Stop at 1, 2, 3, 4 and 5
Step 1- Count out up to 5 objects
Step 2- Explore counting to 5 in different ways
Step 3- Verbally count to any given number
Step 4- Lateral objects with numerals
Step 5- Independently show fingers to 5
Step 6- Begin to make marks to represent quantities

Block 24- Match, sort, compare
Step 1- Compare up to 5 different objects
Step 2- Compare by matching
Step 3- Make the same set by matching
Step 4- Match by type
Step 5- Recognise attributes of objects
Step 6- Begin to sort some objects by type

Link for Nursery Autumn Term Steps -detailed planning and continuous provision ideas

WR_NurM_Block 1.pdf

WR_NurM_Block 2.pdf

WR_NurM_Block 3.pdf

WR_NurM_Block 4.pdf

WR_NurM_Block 5.pdf

WR_NurM_Block 6.pdf

Link for Nursery Spring Term 1 Steps -detailed planning and continuous provision ideas

WR_NurM_Block 7.pdf

WR_NurM_Block 8.pdf

WR_NurM_Block 9.pdf

WR_NurM_Block 10.pdf

Link for Nursery Spring Term 2 Steps -detailed planning and continuous provision ideas

WR_NurM_Block 11.pdf

WR_NurM_Block 12.pdf

WR_NurM_Block 13.pdf

WR_NurM_Block 14.pdf

WR_NurM_Block 15.pdf

Link for Nursery Summer Term 1 Steps -detailed planning and continuous provision ideas

WR_NurM_Block 16.pdf

WR_NurM_Block 17.pdf

WR_NurM_Block 18.pdf

WR_NurM_Block 19.pdf

WR_NurM_Block 20.pdf

Maths book list

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

Block 1 – Comparison 1 – More than, fewer than, same

- *Harry and the Bucketful of Dinosaurs* by Ian Whybrow
- *Rosie's Zoo* by Ailie Busby
- *More, Fewer, Less* by Tana Hoban
- *Full, Full, Full of Love* by Trish Cooke
- *Little Red Riding Hood*

Block 2 – Shape, space and measure 1 – Explore and build with shapes and objects

- *Big and Small* by Elizabeth Bennett
- *Whatever Next!* by Jill Murphy
- *Crash! Boom! A Math Tale* by Robie H. Harris

Block 3 – Pattern 1 – Explore repeats

- *The Little Red Hen*
- *Dig Dig Digging* by Margaret Mayo

Block 4 – Counting 1 – Hear and say number names

- *Five Little Ducks* by Belinda Gallagher
- *Round and Round the Garden* by Sarah Williams
- *Nursery Rhymes and Finger Play collections*

Block 5 – Counting 2 – Begin to order number names

- *The Three Billy Goats Gruff*

Block 6 – Subitising 1 – I see 1, 2, 3

- *Guess Who?* by Pam Ayres
- *Macdog's Home* by Caroline and John Astrop
- *Peepo!* by Janet and Allan Ahlberg
- *Each Peach Pear Plum* by Janet and Allan Ahlberg
- *The Three Billy Goats Gruff*
- *The Three Little Pigs*
- *Goldilocks and the Three Bears*

Block 7 – Pattern 2 – Join in with repeats

- *Peck Peck Peck* by Lucy Cousins
- *Splish, Splash, Ducky!* by Lucy Cousins
- *Brown Bear, Brown Bear, What Do You See?* by Bill Martin Jr.

Block 8 – Shape, space and measure 2 – Explore position and space

- *Duck in the Truck* by Jez Alborough
- *Cat Up, Cat Down* by Catherine Hnatov

Maths book list

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

Block 9 – Subitising 2 – Show me 1, 2, 3

- *Fox's Socks* by Julia Donaldson
- *Three Little Bunnies* by Beatrix Potter
- *Peepo!* by Janet and Allan Ahlberg

Block 10 – Counting 3 – Move and label 1, 2, 3

- *Goldilocks and the Three Bears*

Block 11 – Shape, space and measure 3 – Explore position and routes

- *Where's Spot?* by Eric Hill
- *Everyone Hide From Wibbly Pig* by Mick Inkpen
- *Where, Oh Where, is Rosie's Chick?* by Pat Hutchins

Block 12 – Pattern 3 – Explore own first patterns

- *The Three Billy Goats Gruff*
- *Dinosaur Roar!* by Paul and Harriet Stickland
- *Cave Baby* by Julia Donaldson

Block 13 – Counting 4 – Take and give 1, 2, 3

- *Postman Bear* by Julia Donaldson
- *Three Little Bunnies* by Beatrix Potter
- *Meg and Mog* by Helen Nicoll and Jan Pienkowski

Block 14 – Shape, space and measure 4 – Match, talk, push and pull

- *The Train Ride* by June Crebbin
- *Naughty Bus* by Jan and Jerry Oke
- *Where's Bear?* by Jonathan Bentley

Block 15 – Subitising 3 – Talk about dots

- *TouchThinkLearn: Numbers* by Xavier Deneux
- *Let's Play!* by Hervé Tullet

Block 16 – Comparison 2 – Compare and sort collections

- *Oliver's Fruit Salad* by Vivian French
- *The Very Hungry Caterpillar's 123 Finger Puppet Counting Book* by Eric Carle
- *Never Touch a Hungry Hippo* by Rosie Greening
- *Handa's Surprise* by Eileen Browne

Maths book list

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

Block 17 – Pattern 4 – Lead on own repeats

- *Traditional tales: The Enormous Turnip, The Gingerbread Man, The Three Little Pigs* and *The Little Red Hen*
- *Elmer* by David McKee

Block 18 – Shape, space and measure 5 – Starting to puzzle

- *Usborne First Jigsaws: Wild Animals* by Matthew Oldham
- *Usborne First Jigsaws: Things that go* by Matthew Oldham
- *Shark in the Park* by Nick Sharratt
- *Off to the Park!* by Stephen Cheetham
- *The Gruffalo* by Julia Donaldson
- *The Gingerbread Man*

Block 19 – Pattern 5 – Making patterns together

- *Hooray for Fish!* by Lucy Cousins
- *Beep Beep, Vroom Vroom!* by Stuart J. Murphy
- *A–B–A–B–A– a Book of Pattern Play* by Brian P. Cleary

Block 20 – Subitising 4 – Make games and actions

- *The Very Hungry Caterpillar* by Eric Carle
- *Ooo Ooo Ooo Gorilla!* by Lydia Monks

Block 21 – Counting 5 – Show me 5

- *Bears in Beds* by Shirley Parenteau
- *Five Wriggly Babies* by Nicola Smee
- *Never Touch series* by Make Believe Ideas

Block 22 – Pattern 6 – My own pattern

- *The Skipping-Rope Snake* by Carol Ann Duffy
- *A New House for Mouse* by Petr Horáček
- *The View at the Zoo* by Kathleen Long Bostrom
- *When I Build With Blocks* by Niki Alling
- *Lulu's First Day* by Anna McQuinn

Block 23 – Counting 6 – Stop at 1, 2, 3, 4, 5

- *Trains Trains Trains!* by Donna David
- *Five Little Dinosaurs* by Mike Brownlow
- *Five Little Princesses* by Mike Brownlow

Block 24 – Comparison 3 – Match, sort, compare

- *We're Going to a Birthday Party: A Lift-the-Flap Adventure* by Martha Mumford
- *Kipper's Birthday* by Mick Inkpen
- *A Mother for Choco* by Keiko Kasza
- *Farmer Duck* by Martin Waddell
- *Aliens Love Underpants* by Claire Freedman

Reception

Mastering Number – Reception Overview by Week

Autumn 1	Week 1	Week 2	Week 3	Week 4	Week 5
Focus	Subitising	Counting, ordinality and cardinality	Composition	Subitising	Comparison
Set 1	Subitising within 3	Focus on counting skills	Explore how all numbers are made of 1s Focus on composition of 3 and 4	Subitise objects and sounds	Comparison of sets - 'just by looking' Use the language of comparison: *more than* and *fewer than*

Other elements of Maths to be taught in Autumn Term One (from White Rose Maths) through continuous provision or outdoor sessions.

- Match, sort and compare.
- Talk about measure and patterns.

Mastering Number – Reception Overview by Week

Autumn 2	Week 6	Week 7	Week 8	Week 9	Week 10
Focus	Counting, ordinality and cardinality	Comparison	Composition	Composition	Counting, ordinality and cardinality
Set 2	Focus on counting skills Focus on the 'five-ness of 5' using one hand and the die pattern for 5	Comparison of sets - by matching Use the language of comparison: *more than, fewer than, an equal number*	Explore the concept of 'whole' and 'part'	Focus on the composition of 3, 4 and 5	Practise object counting skills Match numerals to quantities within 10 Verbal counting beyond 20

Other elements of Maths to be taught in Autumn Term Two (from White Rose Maths) through continuous provision or outdoor sessions.

- Circles and triangles.
- Shapes with 4 sides.

Spring 1	Week 11	Week 12	Week 13	Week 14	Week 15
Focus	Subitising	Counting, ordinality and cardinality	Composition	Composition	Composition
Set 3	Subitise within 5 focusing on die patterns Match numerals to quantities within 5	Counting – focus on ordinality and the 'staircase' pattern See that each number is one more than the previous number	Focus on 5	Focus on 6 and 7 as '5 and a bit'	Compare sets and use language of comparison: *more than, fewer than, an equal number to* Make unequal sets equal

Other elements of Maths to be taught in Spring Term One (from White Rose Maths) through continuous provision or outdoor sessions.

- Measure and capacity
- Length, height and time

Mastering Number – Reception Overview by Week

Spring 2	Week 16	Week 17	Week 18	Week 19	Week 20
Focus	Counting, ordinality and cardinality	Comparison	Composition	Composition	Composition
Set 4	Focus on the 'staircase' pattern and ordering numbers	Focus on ordering of numbers to 8 Use language of *less than*	Focus on 7	Doubles – explore how some numbers can be made with 2 equal parts	Sorting numbers according to attributes - odd and even numbers

Other elements of Maths to be taught in Spring Term Two (from White Rose Maths) through continuous provision or outdoor sessions.

- Length, height and time
- Explore 3D shapes

Summer 1	Week 21	Week 22	Week 23	Week 24	Week 25	
Focus	Counting, ordinality and cardinality	Subitising	Composition	Composition	Comparison	
Set 3	Counting – larger sets and things that cannot be seen	Subitising – to 6, including in structured arrangements	Composition – '5 and a bit'	Composition - of 10	Comparison – linked to ordinality Play track games	

Other elements of Maths to be taught in Summer Term One (from White Rose Maths) through continuous provision or outdoor sessions.

- Manipulate, compose and decompose

Mastering Number – Reception Overview by Week

Summer 2	Week 26	Review and assess	Review and assess	Review and assess	Review and assess	Review and assess
Set 4	Subitise to 5 Introduce the rekenrek	Automatic recall of bonds to 5	Composition of numbers to 10	Comparison	Number patterns	Counting

Other elements of Maths to be taught in Summer Term Two (from White Rose Maths) through continuous provision or outdoor sessions.

- Visualise, build and map (taught through Geography)

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 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

Year One

Overview Year One

Toys and Me

Autumn

Block One- Place Value (within 10) FOR MOST CHILDREN THEY WILL WORK ON NUMBERS UP TO 20.

Week 1-
Step 1- sorting objects
Step 2- counting objects
Step 3- count objects from a larger group **Step 1, 2 and 3 will be independent activities or taught through continuous provision.**

Week 1- TEACHING
Step 4- represent objects (counters, tens frames etc)
Step 5- recognise numbers as words
Step 6- count on from any number (within 10)

Week 2-
Step 7- One more
Step 8- Count backwards within 10
Step 9- One less

Week 3-
Step 10 –compare groups by matching
Step 11- Fewer, more, same
Step 12- less than, greater than, equal

Week 4-
Step 13- compare numbers
Step 14- order objects and numbers
Step 15- the number line

Block 2- addition and subtraction within 10

Week 1-
Step 1- introduce parts and wholes
Step 2- part whole model
Step 3- Write number sentences

Week 2 and 3-
Step 4- fact families- addition facts
Step 5- bonds within 10
Step 6- systematic bonds within 10

Block 2- addition and subtraction within 10 (continued)

Week 4-
Step 7- bonds to 10
Step 8- addition (add together)
Step 9- add more

Week 5-
Step 10- addition problems
Step 11- find a part
Step 12- subtraction find a part

Week 6-
Step 14- take away/ cross out (how many left?)
Step 15- take away (how many left?) **(step 14 and 15 to be taught before step 13 to continue with subtraction)**

Step 13- fact families- the eight facts

Week 7-
Step 16- subtract on a number line
Step 17- add or subtract 1 or 2

Block 3- Shape

Week 1 and 2-
Step 1- recognise and name 3D shapes
Step 2- sort 3D shapes
Step 3- recognise and name 2D shapes
Step 4- sort 2D shapes
Step 5- patterns with 2D and 3D

Trad Tales/ Castles

Spring

Block 4- Addition and Subtraction within 20

Week 1-
Step 1- add by counting on within 20
Step 2- Add ones using number bonds

Week 2-
Step 3- Find and make number bonds to 20
Step 4- Doubles
Step 5- near doubles

Week 3-
Step 6- subtract ones using number bonds
Step 7- Subtraction- counting back
Step 8- Subtraction- finding the difference

Week 4-
Step 9- related facts
Step 10- Missing number problems.

Block 5- Place Value to 50 FOR MOST CHILDREN THEY WILL WORK ON NUMBERS TO 100

Week 1-
Step 1- counting from 20 to 50 and 50 to 100
Step 2- Tens to 100
Step 3- partition into tens and ones
Step 4- The number line to 100 **(EXT if ready- estimating on a number line)**

Week 2-
Step 5- 1 more, 1 less
Step 6- Compare numbers with the same number of tens
Step 7- Compare any two numbers

Block 5- Multiplication and Division

Week 1-
Step 1- Counting in 10s
Step 2- counting in 2s
Step 3- counting in 5s

Week 2-
Step 4- Recognise equal groups
Step 5- adding equal groups
Step 6- make arrays (EXT if ready- draw arrays using crosses)

Week 3-
Step 7- recap doubles focus on doubling tens numbers using diennes)
Step 8- Make equal groups- grouping (EXT if ready- draw arrays using crosses)
Step 9- Make equal groups – sharing (EXT if ready- draw arrays using crosses)

Over Land and Sea

Summer

Block 6- Length and Height

Week 1 and 2-
Step 1- Compare length and height
Step 2- Measure length using objects
Step 3- Measure length in cm

Block 7- Mass and Volume

Week 1-
Step 1- Heavier and Lighter
Step 2- Measure Mass
Step 3- Compare Mass

Week 2-
Step 4- Full and empty
Step 5- Compare volumes
Step 6- Measure capacity
Step 7- Compare capacity

Block 8- Fractions

Week 1-
Step 1- Recognise half of an object or shape
Step 2- Find half of an object or shape
Step 3- Recognise a half of a quantity

Week 2-
Step 4- Recognise quarter of an object or shape
Step 5- Find quarter of an object or shape
Step 6- Recognise a quarter of a quantity

Block 9- Position and Direction

Week 1-
Step 1- describe turns
Step 2- Describe position- left and right
Step 3- Describe position- forwards and backwards
Step 4- Describe position- above and below
Step 5- Ordinal numbers

Block 10- Time

Week 1-
Step 1- before and after
Step 2- Days of the week
Step 3- Months of the Year
Step 4- Hours, minutes, seconds

Week 2-
Step 5- Tell the time to the hour
Step 6- Tell the time to the half hour

Block 11- Money

Week 1-
Step 1- Unitising
Step 2- Recognise coins
Step 3- Recognise notes
Step 4- Count in coins

Link for Year One Autumn Term Steps (place value within 10 and place value within 20)- detailed planning and worksheet ideas.
Y1 Autumn Block 1 SOL Place value within 10.pdf (whiteroseeducation.com)
Year 1 Spring Block 1 SOL Place value within 20.pdf (whiteroseeducation.com)

Link for Year One Autumn Term Steps (addition and subtraction within 10)- detailed planning and worksheet ideas
Y1 Autumn Block 2 SOL Addition and subtraction within 10.pdf (whiteroseeducation.com)

Link for Year One Autumn Term Steps (shapes)- detailed planning and worksheet ideas
Y1 Autumn Block 3 SOL Shape.pdf (whiteroseeducation.com)

Link for Year One Spring Term Steps (addition and subtraction within 20)- detailed planning and worksheet ideas
Year 1 Spring Block 2 SOL Addition and subtraction within 20.pdf (whiteroseeducation.com)

Link for Year One Spring Term Steps (place value within 50)- detailed planning and worksheet ideas

Year 1 Spring Block 3 SOL Place value within 50.pdf (whiteroseeducation.com)

Link for Year One Spring Term Steps (place value within 100)- detailed planning and worksheet ideas
Year 1 Summer Block 4 SOL Place value within 100.pdf (whiteroseeducation.com)

Link for Year One Spring Term Steps (multiplication and division)- detailed planning and worksheet ideas
Year 1 Summer Block 1 SOL Multiplication and division.pdf (whiteroseeducation.com)

Link for Year One Summer Term Steps (length and height)- detailed planning and worksheet ideas
Year 1 Spring Block 4 SOL Length and height.pdf (whiteroseeducation.com)

Link for Year One Summer Term Steps (mass and volume)- detailed planning and worksheet ideas
Year 1 Spring Block 5 SOL Mass and volume.pdf (whiteroseeducation.com)

Link for Year One Summer Term Steps (fractions)- detailed planning and worksheet ideas
Year 1 Summer Block 2 SOL Fractions.pdf (whiteroseeducation.com)

Link for Year One Summer Term Steps (position and direction)- detailed planning and worksheet ideas
Year 1 Summer Block 3 SOL Position and direction.pdf (whiteroseeducation.com)

Link for Year One Summer Term Steps (time)- detailed planning and worksheet ideas
Year 1 Summer Block 6 SOL Time.pdf (whiteroseeducation.com)

Link for Year One Summer Term Steps (coins)- detailed planning and worksheet ideas
Year 1 Summer Block 5 SOL Money.pdf (whiteroseeducation.com)

Year One Mastery Maths Overview.

This will take place for 10-15 minutes four times a week separate from the main Maths lesson.

Planning, PPTs and resources on VLE and staff drive.

Mastering Number – Year 1 Overview by Week

Autumn 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Focus	**Composition**	**Composition**	**Composition**	**Comparison**	**Counting, ordinality and cardinality**	**Composition**
Set 1	Practise subitising Recap the composition of 5	Focus on the composition of 6, 7, 8 and 9 as '5 and a bit'	Focus on the composition of 6, 7, 8 and 9 as '5 and a bit'	Compare sets of objects by matching Use the language of comparison: *more than* and *fewer than*	Recap the order of numbers to 10 using the 'staircase' pattern Identify numbers that are '1 more' or '1 less' and apply this to sets of objects	Focus on numbers that can be made with 'doubles' Recap that even numbers can be made with 2 equal parts
Autumn 2	**Week 7**	**Week 8**	**Week 9**	**Week 10**	**Week 11**	
Focus	**Composition**	**Composition**	**Composition**	**Composition**	**Counting, ordinality and cardinality**	
Set 2	Focus on odd and even numbers See that even numbers can be composed of 2s, and odd numbers have 'an odd 1'	Focus on the composition of 6 Use the 2-by-3 'egg box' pattern and the rekenrek to find all the ways that 6 can be composed	Focus on the composition of 8 Use 2-by-4 grid and the rekenrek to find all the ways that 8 can be composed	Focus on the composition of 10 Use 2-by-5 grid (10-frame) and the rekenrek to find all the ways that 10 can be composed	Focus on representations of ordinality Compare number tracks and number lines	

Spring 1	Week 12	Week 13	Week 14	Week 15	Week 16
Focus	Composition	Composition	Composition	Composition	Composition
Set 3	Focus on the composition of 7 Use the Hungarian number pattern and the rekenrek to find all the ways that 7 can be composed	Focus on the composition of 9 Focus on 3-by-3 grid and the rekenrek to find all the ways that 9 can be composed	Recap odd and even numbers by looking at their 'shape' Explore how odd numbers can be composed of 1 odd part and 1 even part, and even numbers can be composed of 2 odd parts or 2 even parts	Explore the concept of part-part-whole, seeing that numbers can be partitioned into parts Use the language of 'whole', 'split' and 'part' alongside the part-part-whole diagram	Continue to explore how numbers can be partitioned Introduce systematic approach to partitioning Represent ways to partition numbers in a 'number house'
Spring 2	**Week 17**	**Week 18**	**Week 19**	**Week 20**	**Week 21**
Focus	**Composition**	**Number facts and arithmetic**	**Number facts and arithmetic**	**Number facts and arithmetic**	**Number facts and arithmetic**
Set 4	Continue to explore systematic partitioning of numbers within 10 Connect 2 equal parts to doubling and halving	Practise applying knowledge of '1 more than' and '1 less than' a number in relation to odd/ even numbers Connect this to *'first, then, now'* stories	Explore the effect of adding or subtracting 2 to odd/ even numbers Apply to *'first, then, now'* stories	Apply knowledge of composition of even numbers to subtract from 6, 8 and 10, for both the partitioning and reduction structures of subtraction	Apply knowledge of composition of odd numbers to subtract from 5, 7 and 9, for both the partitioning and reduction structures of subtraction

Summer 1	Week 22	Week 23	Week 24	Week 25	Week 26
Focus	Composition	Counting, ordinality and cardinality	Number facts and arithmetic	Number facts and arithmetic	Composition
Set 5	Focus on the composition of 11 to 15 as '10 and a bit' See this represented on a rekenrek, a double-decker bus, and in part-part-whole diagrams	Focus on the position of the numbers 11 to 15 on the number line Recap midpoint on a 0 to 10 number line and see that 10 is the midpoint on a 0 to 20 number line.	Read, write and interpret expressions and equations with the + and = symbols to represent combining two sets (the aggregation structure of addition) Practise using knowledge of composition to identify the total/ sum	Read, write and interpret expressions and equations with the + and = symbols to represent an increase in a set (the augmentation structure of addition) Continue to use knowledge of composition to identify the total/ sum	Practise recalling the composition of the numbers 6, 7, 8 and 9 **NB This week of material offers activities to develop automaticity and could be spread out over this half-term**
Summer 2	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**
Focus	Composition	Number facts and arithmetic	Number facts and arithmetic	Number facts and arithmetic	Number facts and arithmetic
Set 6	Focus on the composition of 11 to 19 as '10 and a bit Use a range of representations including the Hungarian number frame and the rekenrek	Read, write and interpret expressions and equations with the - and = symbols to represent the partitioning of a 'whole' (the partitioning structure of subtraction)	Read, write and interpret expressions and equations with the - and = symbols to represent the partitioning of a 'whole' (the reduction structure of subtraction)	Practise applying knowledge of composition when adding or subtracting Focus on the composition of 5, and 6 to 9 as '5 and a bit'	Practise applying knowledge of composition when adding or subtracting Focus on the composition of 10 and doubles within 10

Year Two

Overview Year Two

Explorers

Autumn

Block One- Place Value

Week 1-
Step 1- Assess recognition to 20- objects , digits, words
Step 2-- count objects to 100 by 10s and 1s
Step 3- recognise tens and ones

Week 2-
Step 4- Place value charts
Step 5- partition to 100
Step 6- write to 100 in words – using part whole/ grids/ how many tens, ones etc
(Step 7- flexibly partition (moved to later in the year))
Step 8- numbers in expanded form

Week 3-
Step 9- 10s on a number line
Step 10- 10s and 1s on a number line
Step 11- estimate on a number line- practical then sheet

Week 4-
Step 12- compare objects in 10s and 1s
Step 13- compare numbers
Step 14- order objects and numbers
Step 15 and 16 move to multiplication week (counting in 2s, 5s and 10s)

Block Two- addition and subtraction

Week 1 and 2-
Step 1- bonds to 10 recap)
Step 2- addition and subtraction within 20
Step 3- related facts to 100
Step 4- bonds to 100

Block Two- addition and subtraction (continued)

Week 3-
Step 5- add and subtract ones
Step 6- add by making 10

Week 4-
Step 7- add three one-digit numbers
Step 8- add to the next 10
Step 9- add across a 10

Week 5-
Step 10- subtract across a 10
Step 11- subtract from a 10
Step 12- subtract one-digit from a two-digit across a 10

Week 6 and 7-
Step 13- 10 more/ 10 less
Step 14- add and subtract 10s
(Step 7- flexibly partition (moved to later in the year))
Step 15- and 16- add two-digit numbers
Step 17 and 18- subtract two-digit numbers
Step 19- mixed addition and subtraction
Step 20- compare number sentences
Step 21- missing number

Block Three- Shape

Week 1-
Step 1-7 recognise and describe 2d shapes, add lines of symmetry, sorting 2d shapes

Week 2-
Steps 7- 12- Recognise and describe 3D shapes, sorting and making patterns

Block Ten- Position and Direction
Link with Computing / Geography

Statistics to be taught through Science/ computing

Pioneers

Spring

Block Four- Multiplication and Division

Week 1-
Step 15 and 16 move to multiplication week (counting in 2s, 5s and 10s)
Step 1 and 2- recognise and make equal groups
Step 3- add equal groups
Step 4- multiplication symbol

Week 2-
Step 5- multiplication sentences
Step 6- arrays

Week 3-
Step 7- make equal groups- grouping
Step 8- make equal groups- sharing

Week 4-
Step 9- 2 times table
Step 10- divide by 2
Step 11- double and halve
Step 12- odd and even

Week 5-
Step 13- 10 times table
Step 14- divide by 10
Step 15- 5 times table
Step 16- divide by 5
Step 17- times by 5 and 10

Block Five- Money

Week 1-
Step 1- count pence
Step 2- count pence
Step 3- count pounds and pence

Week 2-
Step 4 and 5- making amounts

Week 3-
Step 6- compare amounts of money
Step 7- calculate with money
Step 8- make a pound
Step 9- find change
Step 10- two-step problems

Block Six- Fractions

Week 1- (combine these steps as appropriate)
Step 1-part and whole (as an intro)
Step 2- equal and unequal parts
Step 3- recognise a half/ find a half
Step 4- recognise a quarter/ find a quarter
Step 5- recognise a third/ find a third
Step 6- find a whole

Week 2-
Step 7- unit fractions
Step 8- non-unit fractions
Step 9- equivalent one half and two quarters

Block Seven- Time

Week 1-
Step 1 to 5- tell the time (o'clock, half past, quarter to) (five minute intervals for whoever is ready)/

Week 2-
Step 6- minutes in an hour
Step 7- hours in a day

Statistics to be taught through Science/ computing

Beyond Britain

Summer

Week One- Shape Consolidation

Consolidating 2d and 3d shape:
- Lines of symmetry
- Shapes on the faces of 3D shapes
- Similarities and differences

Week Two- Mixed Calculations

Practising the four calculations.

Block Eight- Length and Height

Week 1-
Step 1- measure in cm
Step 2- measure in m
Step 3- compare length/ ordering lengths and heights

Block Nine- Capacity, Mass and temperature

Week 1-
Step 1- compare mass
Step 2- measure in grams
Step 3- measure in kg

Week 2
Step 5- compare volume/ capacity
Step 6- measure in ml
Step 7- measure in l
Step 8 – measure temperature

Block Ten- Position and Direction
Link with Computing / Geography

Statistics to be taught through Science/ computing

Link for Year Two Autumn Term Steps (place value)- detailed planning and worksheet ideas
Y2 Autumn Block 1 SOL Place value.pdf (whiteroseeducation.com)

Link for Year Two Autumn Term Steps (addition and subtraction)- detailed planning and worksheet ideas
Y2 Autumn Block 2 SOL Addition and subtraction.pdf (whiteroseeducation.com)

Link for Year Two Autumn Term Steps (shape)- detailed planning and worksheet ideas
Y2 Autumn Block 3 SOL Shape.pdf (whiteroseeducation.com)

Link for Year Two Spring Term Steps (multiplication and division)- detailed planning and worksheet ideas
Year 2 Spring Block 2 SOL Multiplication and divisionv2.pdf (whiteroseeducation.com)

Link for Year Two Spring Term Steps (multiplication and division)- detailed planning and worksheet ideas
Year 2 Spring Block 1 SOL Money.pdf (whiteroseeducation.com)

Link for Year Two Spring Term Steps (money)- detailed planning and worksheet ideas
Year 2 Spring Block 1 SOL Money.pdf (whiteroseeducation.com)

Link for Year Two Spring Term Steps (fractions)- detailed planning and worksheet ideas
Y2 Summer Block 1 SOL Fractions.pdf (whiteroseeducation.com)

Link for Year Two Spring Term Steps (telling the time)- detailed planning and worksheet ideas
Y2 Summer Block 2 SOL Time.pdf (whiteroseeducation.com)

Link for Year Two Summer Term Steps (length and height)- detailed planning and worksheet ideas
Y2 Spring Block 3 SOL Length and height.pdf (whiteroseeducation.com)

Link for Year Two Summer Term Steps (capacity, mass, temperature)- detailed planning and worksheet ideas
Y2 Spring Block 4 SOL Mass capacity and temperature.pdf (whiteroseeducation.com)

Link for Year Two Summer Term Steps (position and direction)- detailed planning and worksheet ideas
Y2 Summer Block 4 SOL Position and direction.pdf (whiteroseeducation.com)

Link for Year Two Summer Term Steps (statistics)- detailed planning and worksheet ideas
Y2 Summer Block 3 SOL Statistics.pdf (whiteroseeducation.com)

Year Two Mastery Maths Overview.

This will take place for 10-15 minutes four times a week separate from the main Maths lesson.

Planning, PPTs and resources on VLE and staff drive.

Mastering Number – Year 2 Overview by Week

Autumn 1	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Focus	Composition	Comparison	Composition	Composition	Composition	Composition
Set 1	Focus on the composition of 6, 7, 8 and 9 as '5 and a bit'	Compare numbers within 10 using language of comparison when comparing sets of objects and numbers Use the inequality and equals symbols in expressions and equations	Focus on odd/ even parts when even numbers are composed of 2 parts, including when 2 parts are equal (doubles)	Focus on the composition of 6 Identify missing addends and complete missing symbols expressions and equations using the equals or inequality symbol	Focus on the composition of 8 Use 2-by-4 grid and the rekenrek to find all the ways that 8 can be composed Apply to expressions and equations	Focus on the composition of 10 Use 2-by-5 grid (10-frame) and the rekenrek to find all the ways that 10 can be composed Apply to expressions and equations
Autumn 2	**Week 7**	**Week 8**	**Week 9**	**Week 10**	**Week 11**	
Focus	**Composition**	**Composition**	**Composition**	**Composition**	**Counting, ordinality and cardinality**	
Set 2	Focus on the composition of odd numbers including being made of 2s and 1 more, or 1 odd part and 1 even part	Focus on the composition of 7 Use the Hungarian number pattern and the rekenrek to find all the ways that 7 can be composed Apply knowledge to expressions and equations	Focus on the composition of 9 Focus on 3-by-3 grid and the rekenrek to find all the ways that 9 can be composed Apply knowledge to expressions and equations	Focus on the composition of the numbers 11 to 19 as '10 and a bit' Apply to missing addend equations	Compare numbers within 20 Use proportional reasoning to identify the position of numbers within 20 in the linear number system, using midpoints of 5, 10 and 15	

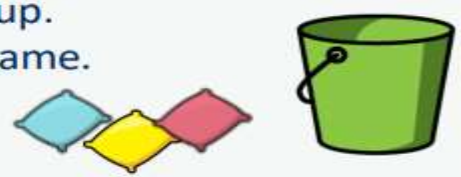
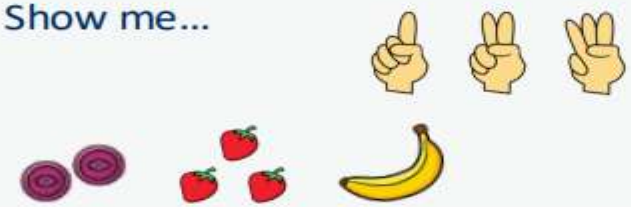
Spring 1	Week 12	Week 13	Week 14	Week 15	Week 16
Focus	Number facts and arithmetic	Composition	Number facts and arithmetic	Number facts and arithmetic	Number facts and arithmetic
Set 3	Focus on doubling numbers to 10, using the '5 and a bit' structure to double 6, 7, 8 and 9	Focus on the composition of 20 Use known facts within 10 to find missing parts of 20 when the known part is greater than 10	Apply knowledge of facts within 10 to addition and subtraction within 20 WITHIN the 10s boundary	Use knowledge of doubles to calculate near doubles See that near doubles are adjacent numbers See that the sum in a near double is odd	Develop understanding of near doubles Identify different strategies for near doubles, doubling the smaller addend and adding 1 or the larger addend and subtracting 1
Spring 2	**Week 17**	**Week 18**	**Week 19**	**Week 20**	**Week 21**
Focus	**Number facts and arithmetic**	**Number facts and arithmetic**	**Number facts and arithmetic**	**Number facts and arithmetic**	**Number facts and arithmetic**
Set 4	Add 3 numbers using known facts - identifying bonds of 10 and knowledge of the composition of 11 to 19 as '10 and a bit'	Add 2 numbers by 'bridging through 10'	Consolidate understanding of adding 2 numbers by 'bridging through 10' Solve missing addend problems	Subtract by 'bridging through 10'	Consolidate understanding of subtracting by 'bridging through 10'

Summer 1	Week 22	Week 23	Week 24	Week 25	Week 26
Year 2	Counting, ordinality and cardinality	Number facts and arithmetic	Number facts and arithmetic	Number facts and arithmetic	Composition
Set 5	Connect the order of multiples of 10 to the order of numbers within 10 Use proportional reasoning to identify the position of numbers within 100 in the linear number system	Connect missing addend problems to subtraction problems	Subtract across the 10 boundary, by subtracting FROM 10 rather than bridging THROUGH 10	Practise subtracting within 20, selecting from a range of strategies See that all subtractions can be solved by thinking of how a number is composed and identifying the missing part	Focus on the composition of 20 Use known facts within 10 to find missing part of 20 when the known part is less than 10
Summer 2	**Week 27**	**Week 28**	**Week 29**	**Week 30**	**Week 31**
Year 2	**Comparison**	**Number facts and arithmetic**	**Number facts and arithmetic**	**Number facts and arithmetic**	**Number facts and arithmetic**
Set 6	Use knowledge of composition to reason about expressions and equations and use the equals and inequality symbols in expressions and equations	Consolidate doubles and near doubles Introduce strategy of adding two adjacent odd numbers or two adjacent even numbers into a double	Consolidate understanding and develop fluency in transforming addition calculations involving two adjacent odd or two adjacent even numbers into a double	Develop fluency in bonds within 10 and apply this to calculations within and across the 10-boundary using a range of optional activities	**A range of 6 sessions providing optional activities to provide practice and opportunities for assessment**

Calculation Policy

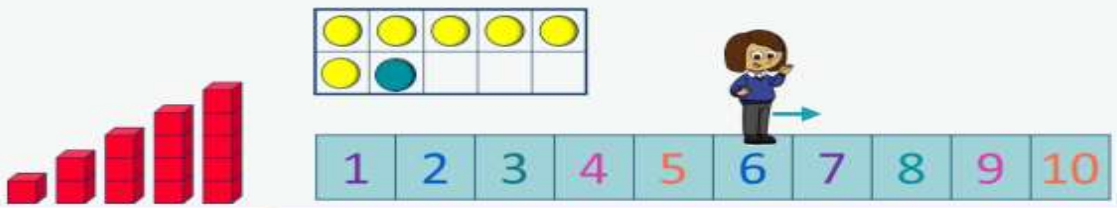
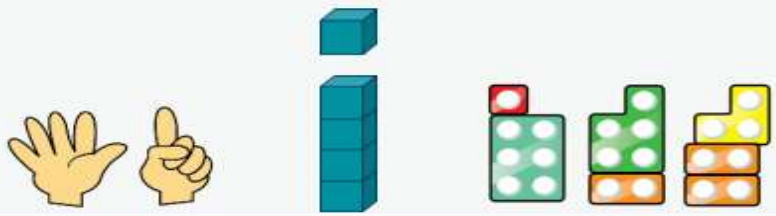
Addition

White Rose MATHS

Nursery	• Begin to have an understanding of numbers to 5 • We recommend focusing on noticing and representing small quantities, perceptual subitising and counting.
Progression of skills	**Key representations**
Subitise to 3 Instantly see how many.	How many do you see? 
Count how many Begin to count objects using 1-1 correspondence.	How many are there?  Count out … from a larger group. E.g. Collect 3 beanbags for a game. 
Make numbers to 5 Start by showing 1, 2 and 3 using fingers.	Show me…  Begin to link numerals to quantities. 
Add 1 more Through stories, songs and rhymes.	How many do I have now? 

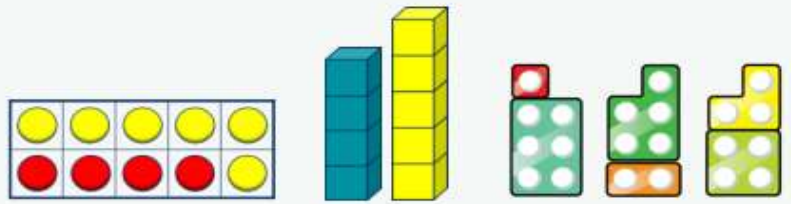
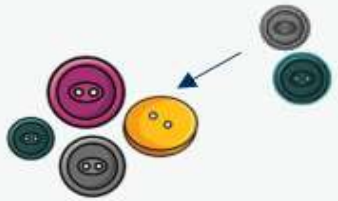
Addition

White Rose MATHS

Reception	• Have a deep understanding of numbers 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 and some number bonds to 10, including double facts.
Progression of skills	**Key representations**
Conceptually subitise to 5 Notice the parts that make up the whole.	What do you see? How do you see it? 
1 more Continue to link to stories, songs and rhymes.	1 more than … is … 
Notice the composition of numbers within 10 Link to stories, songs and rhymes.	How many…? How many…? How many altogether? 
	How many ways can you make…? 

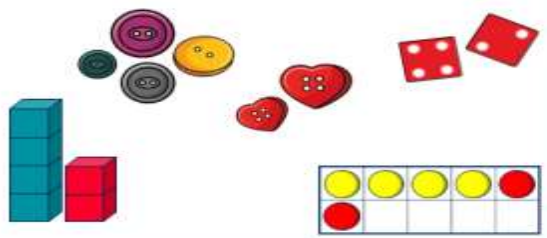
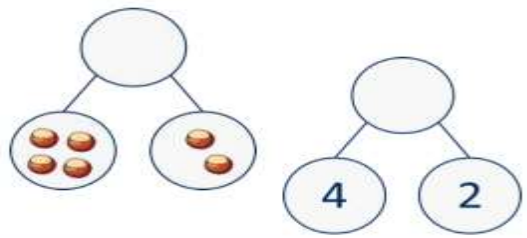
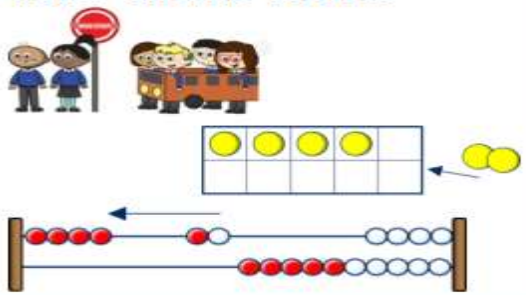
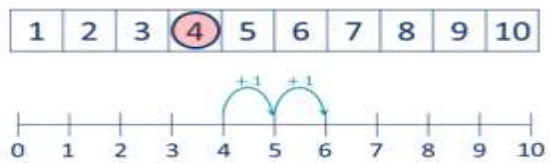
Addition

White Rose MATHS

Progression of skills	Key representations	
Combine 2 groups 2 groups are combined to find the total.	There are .... There are .... There are .... altogether.   	.... and .... make .... 
Add more A quantity is increased.	First... Then.... Now....  	I have .... I add .... more. Now I have....  

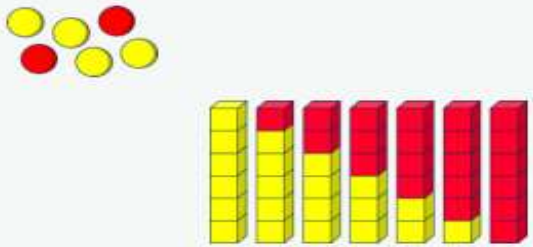
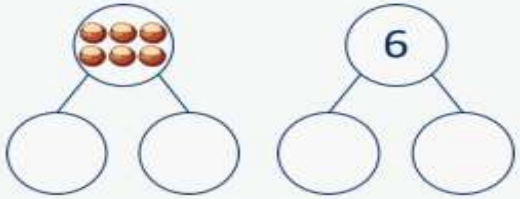
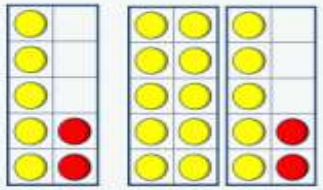
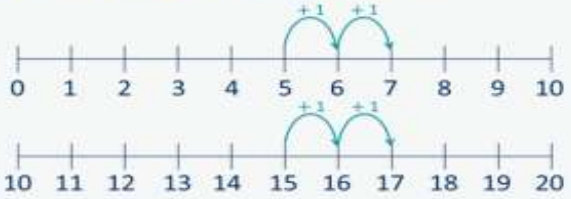
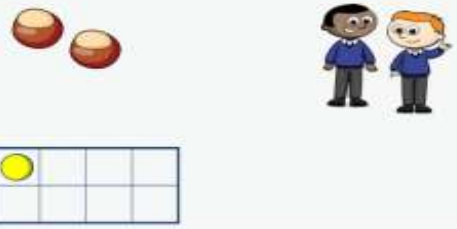
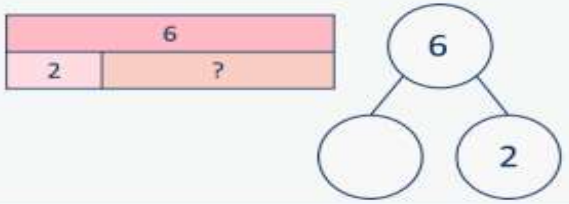
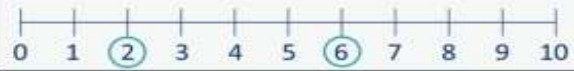
Addition

White Rose MATHS

Year 1	• Read, write and interpret mathematical statements involving addition (+) and equals (=) signs. • Represent and use number bonds within 20 • Add 1-digit and 2-digit numbers to 20, including zero. • Solve one-step problems that involve addition, using concrete objects and pictorial representations, and missing number problems such as $7 = \square + 2$		
Progression of skills	**Key representations**		
Add together (aggregation) 2 quantities are combined to find the total.	There are ... There are ... There are ... altogether. 	... is a part. ... is a part. ... is the whole. 	... plus ... is equal to ... ... is equal to .... + ... $4 + 2 = 6$ $2 + 4 = 6$ $6 = 4 + 2$ $6 = 2 + 4$
Add more (augmentation) A quantity is increased.	First... Then... Now... 	I start at ... I jump on ... I land on ... 	... plus ... is equal to ... is equal to ... + ... $4 + 2 = 6$ $2 + 4 = 6$ $6 = 4 + 2$ $6 = 2 + 4$

Addition

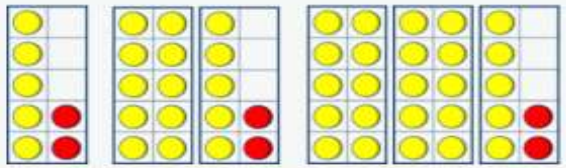
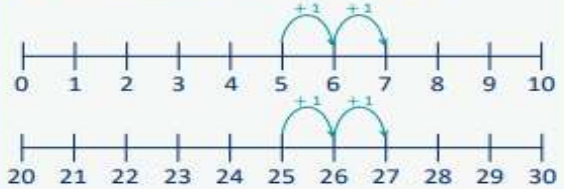
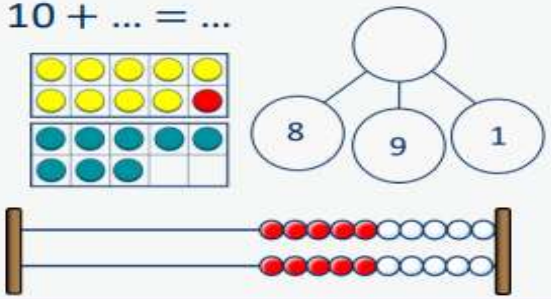
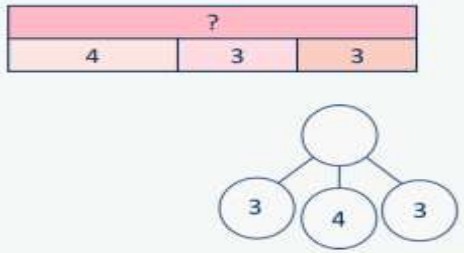
White Rose MATHS

Progression of skills	Key representations		
Bonds within 10 Include bonds for each number within 10 Encourage children to notice patterns.	… is made of … and … … and … make … 	… can be partitioned into … and … 	… plus … is equal to … $6 + 0 = 6$ $5 + 1 = 6$ $4 + 2 = 6$ $3 + 3 = 6$ $2 + 4 = 6$ $1 + 5 = 6$ $0 + 6 = 6$
Related facts within 20 Make links to known facts.	I know that … and … = … so … and … = … 	… more than … is … so … more than … is … 	What patterns do you notice? $5 + 2 = 7$ $15 + 2 = 17$ $7 = 5 + 2$ $17 = 15 + 2$
Missing numbers Make links to known facts.	How many more do you need to make …? 	If … is the whole and … is a part, the other part must be… 	… plus … is equal to … $2 + \square = 6$ $6 = 2 + \square$ 

Addition

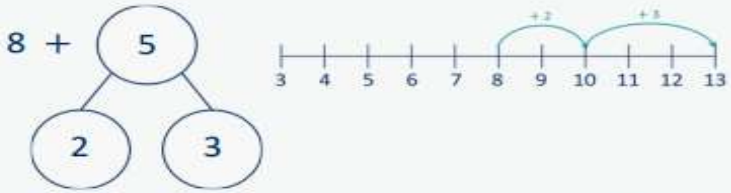
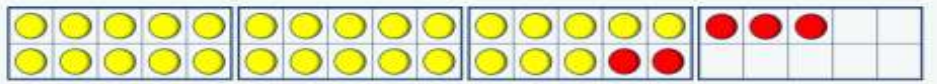
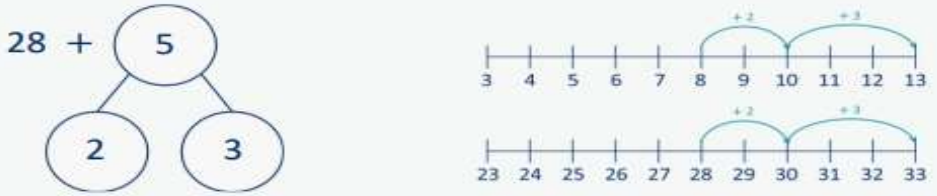
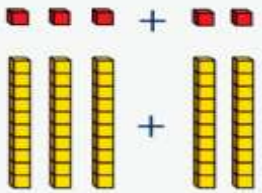
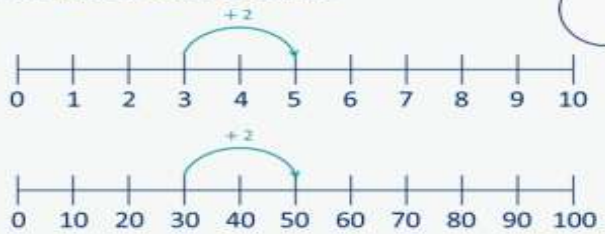
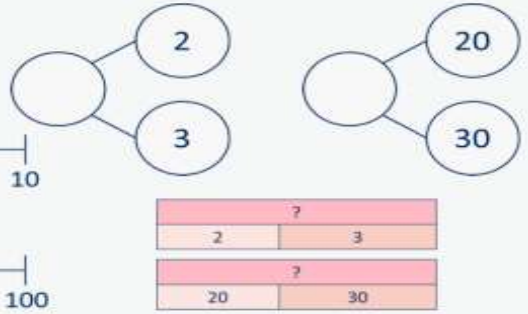
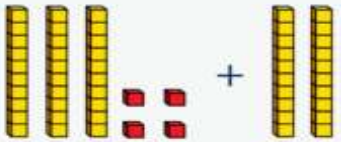
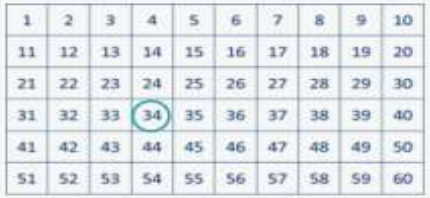
White Rose MATHS

Year 2	• Recall and use addition facts to 20 fluently, and derive and use related facts up to 100
	• Add numbers using concrete objects, pictorial representations, and mentally, including:
	  • a two-digit number and 1s
	  • a two-digit number and 10s
	  • 2 two-digit numbers
	  • adding 3 one-digit numbers
	• Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.		

Progression of skills	**Key representations**		
Add ones to any number (related facts) Make links to known facts.	I know that … and … = … so … and … = … 	… more than … is … so … more than … is … 	What do you notice? Can you continue the pattern? 5 + 2 = 7 15 + 2 = 17 25 + 2 = 27…
Add three 1-digit numbers Prompt children to understand that addition can be done in any order and to make links to known facts.	… and … are a bond to 10 10 + … = … 	Double … + … = … 	What do you notice? Which addition is the easiest to calculate? 8 + 9 + 1 = 8 + 1 + 9 = 9 + 1 + 8 =

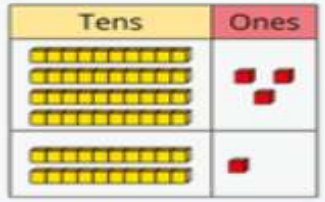
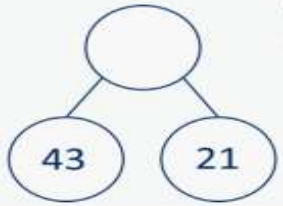
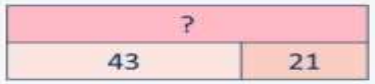
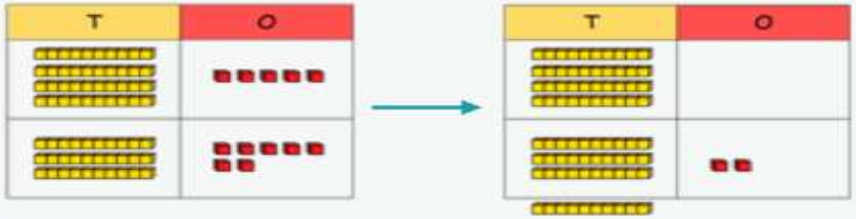
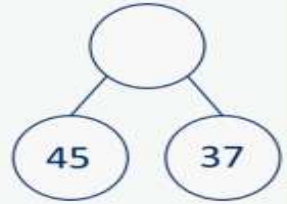
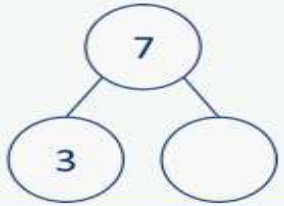
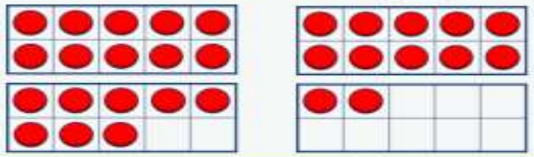
Addition

White Rose MATHS

Progression of skills	Key representations		
Add across a 10 Partition the number being added to make a full ten.	… can be partitioned into … and …  	I add … to get to … then I add … $8 + 5 = 13$ $28 + 5 = 33$  	
Add multiples of 10 Make links to known facts within ten.	… ones + … ones = … ones so … tens + … tens = … tens  $3 + 2 = 5$ $30 + 20 = 50$	What is the same? What is different?  	
Add 10s to any number Make links to known facts.	… tens + … tens = … tens … tens and … ones = … 	To add … I need to add 10 … times. 	I know that … and … = … so … and … = … $30 + 20 = 50$ $34 + 20 = 54$

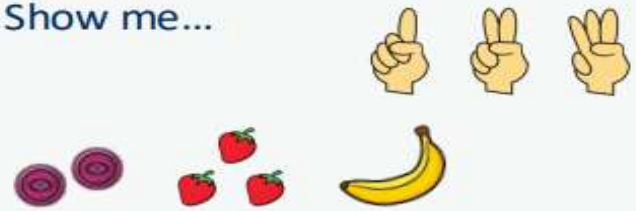
Addition

White Rose MATHS

Progression of skills	Key representations
Add 2-digit numbers (not across a ten) Lining up ones and tens in columns will support with later written methods.	… ones + … ones = … ones … tens + … tens = … tens   3 ones + 1 one = 4 ones 4 tens + 2 tens = 6 tens 6 tens + 4 ones = 64 
Add 2-digit numbers (across a ten) Begin to exchange 10 ones for 1 ten.	There are …. ones, so I do/do not need to make an exchange. … ones = … ten and … ones    5 ones + 7 ones = 12 ones 12 ones = 1 ten and 2 ones 4 tens + 3 tens + 1 ten = 8 tens 8 tens and 2 ones = 82
Missing numbers Solve missing number problems and use the inverse to check.	How many more do you need to make …?  6 + □ = 10 10 − □ = 6
	If … is a whole and … is a part, then … is the other part. □ + 3 = 7 7 − 3 = □ 
	… can be partitioned into … and … 10 + 8 = 12 + □ 

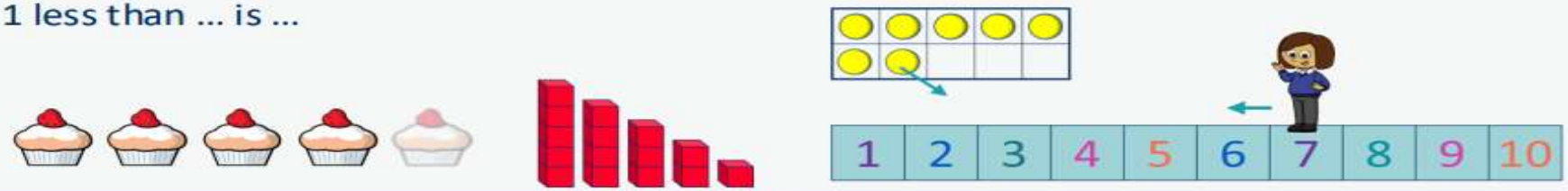
Subtraction

White Rose MATHS

Nursery	• Begin to have an understanding of numbers to 5 • We recommend focusing on noticing and representing small quantities, perceptual subitising and counting.
Progression of skills	**Key representations**
Subitise to 3 Instantly see how many.	How many do you see? 
Count how many Begin to count objects using 1-1 correspondence.	How many are there?  Count out … from a larger group. E.g. Collect a cup for everyone at the table. 
Make numbers to 5 Start by showing 1, 2 and 3 using fingers.	Show me…  Begin to link numerals to quantities. 
Take 1 away Through stories, songs and rhymes.	How many do we have now? 

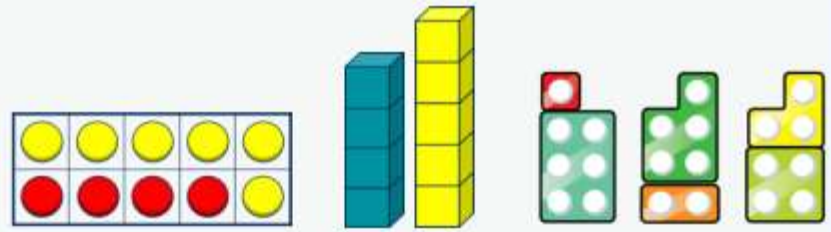
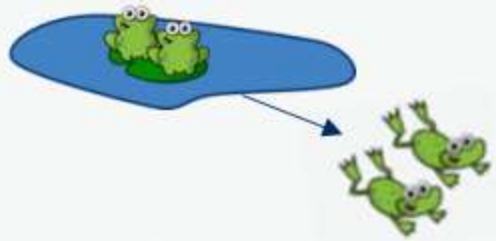
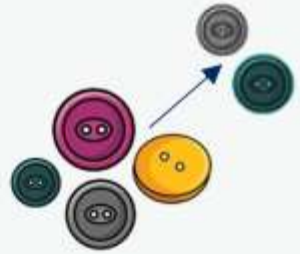
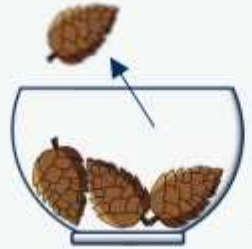
Subtraction

White Rose MATHS

Reception	• 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 (and some subtraction facts) and some number bonds to 10, including double facts.
Progression of skills	**Key representations**
Conceptually subitise to 5 Notice the parts that make up the whole.	What do you see? How do you see it? 
1 less Continue to link to stories, songs and rhymes.	1 less than ... is ... 
Notice the composition of numbers within 10 Link to stories, songs and rhymes.	How many...? How many...? How many altogether?  How many ways can you make...? 

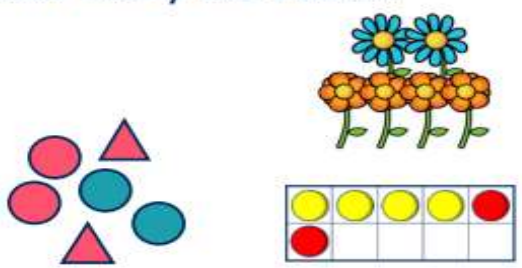
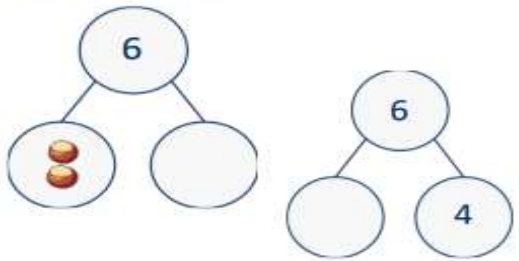
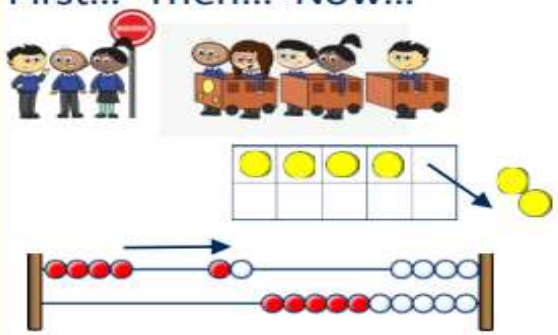
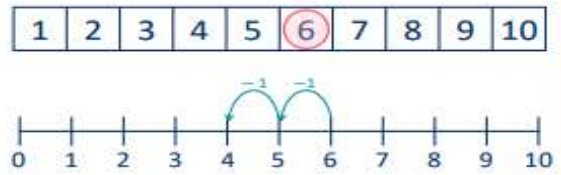
Subtraction

White Rose MATHS

Progression of skills	Key representations	
Partition Using objects, explore different ways to partition a number into 2 or more parts.	There are … altogether. I can see … here and … there.   	… and … make … 
Take away A quantity is reduced.	First… Then… Now…   	I have … I take … away Now I have …   

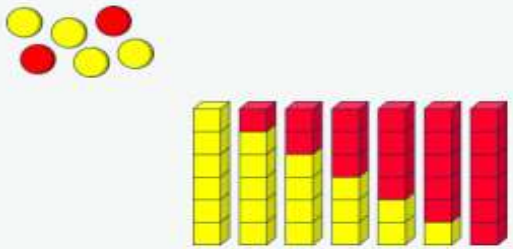
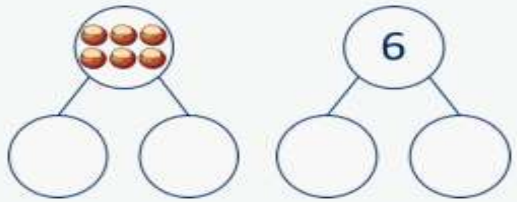
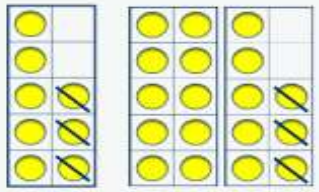
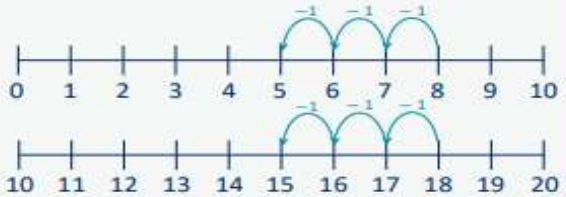
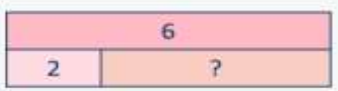
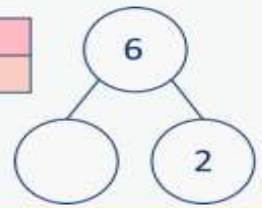
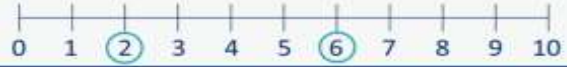
Subtraction

White Rose MATHS

Year 1	• Read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 20 • Subtract one-digit and two-digit numbers to 20, including zero. • Solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$		
Progression of skills	**Key representations**		
Find a part Link to number bonds and known facts. E.g. $2 + 4 = 6$ so if 6 is the whole and 4 is a part, the other part must be 2	There are … in total. … are … How many are **not** …? 	… is the whole. … is a part. … is a part. 	… subtract … is equal to … … is equal to … – … $6 - 2 = 4$ $6 - 4 = 2$ $4 = 6 - 2$ $2 = 6 - 4$
Take away A quantity is decreased.	First… Then… Now… 	I start at … I jump back … I land on … 	… minus … is equal to … … is equal to … – … $6 - 2 = 4$ $6 - 4 = 2$ $4 = 6 - 2$ $2 = 6 - 4$

Subtraction

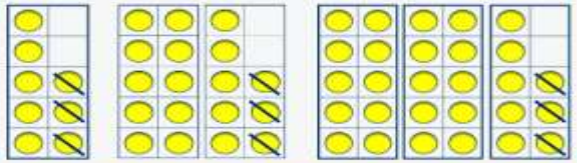
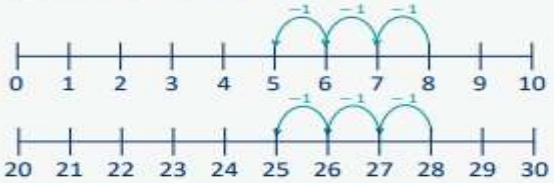
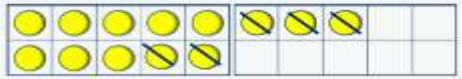
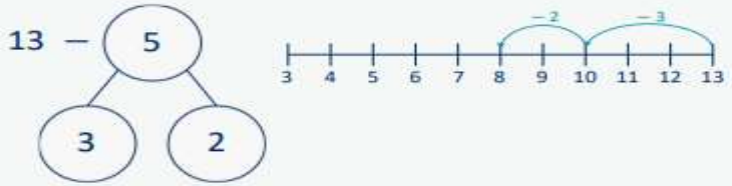
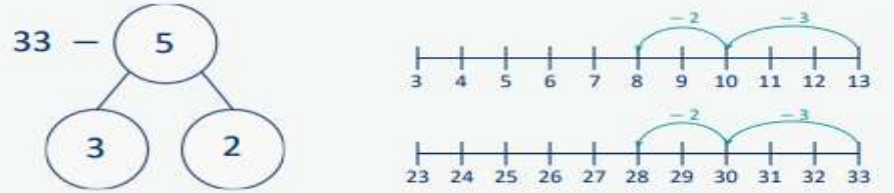
White Rose MATHS

Progression of skills	Key representations		
Bonds within 10 Focus on subtraction facts. Encourage children to notice patterns.	… is made of … and … … and … make … 	… can be partitioned into … and … 	… minus … is equal to … $6 - 0 = 6$ $6 - 1 = 5$ $6 - 2 = 4$ $6 - 3 = 3$ $6 - 4 = 2$ $6 - 5 = 1$ $6 - 6 = 0$
Related facts within 20 Make links to known facts.	I know that … minus … = … so … minus … = … 	… less than … is … so … less than … is … 	What patterns do you notice? $8 - 3 = 5$ $18 - 3 = 15$ $5 = 8 - 3$ $15 = 18 - 3$
Missing numbers Make links to known facts.	How many do you need to subtract to make …?   	If … is the whole and … is a part, the other part must be…  	… minus … is equal to … $6 - \square = 2$ $2 = 6 - \square$ 

Subtraction

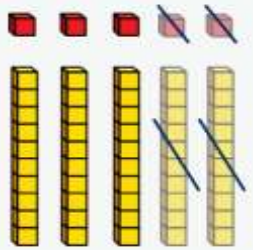
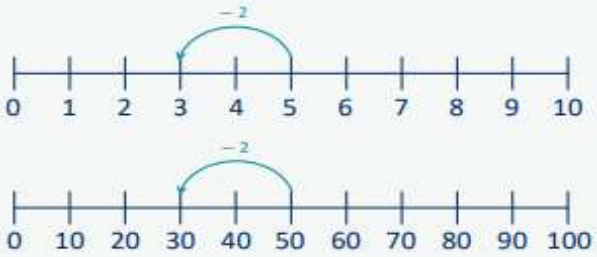
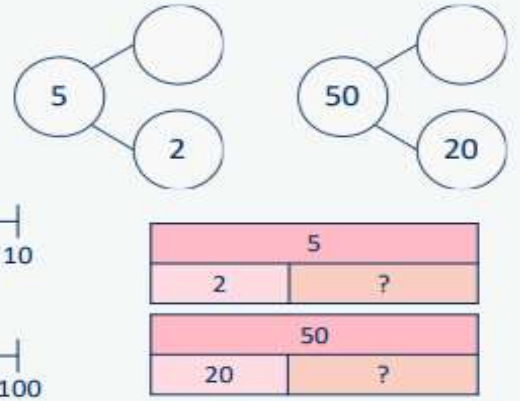
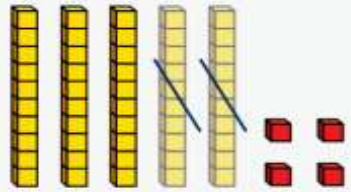
White Rose MATHS

- Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100
- Subtract numbers using concrete objects, pictorial representations, and mentally, including:
  - a two-digit number and 1s
  - a two-digit number and 10s
  - 2 two-digit numbers
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Progression of skills	Key representations		
Subtract ones from any number (related facts) Make links to known facts.	I know that … minus … = … so … minus … = … 	… less than … is … so … less than … is … 	What do you notice? Can you continue the pattern? $8 - 3 = 5$ $18 - 3 = 15$ $28 - 3 = 25$…
Subtract across a 10 Partition the number being subtracted to bridge through a ten.	… can be partitioned into … and …  	Make links with related facts.  	

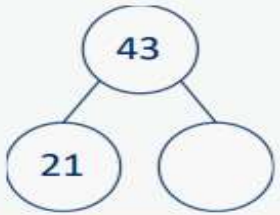
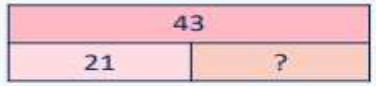
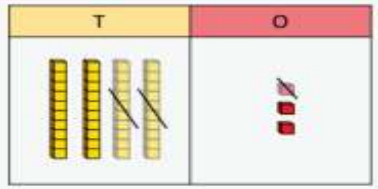
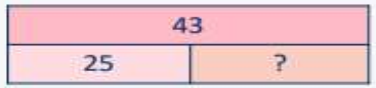
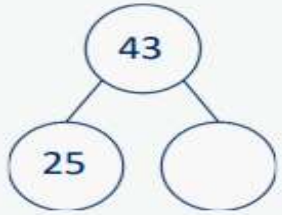
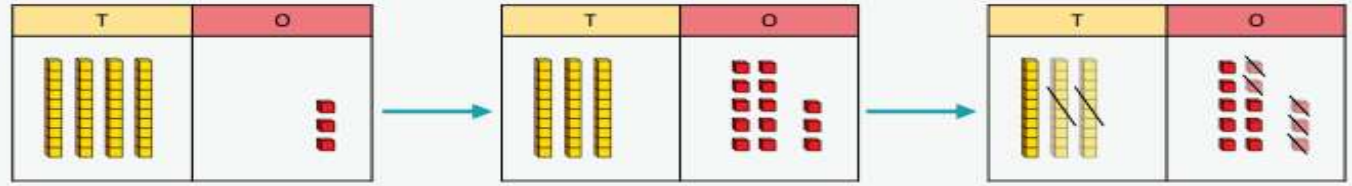
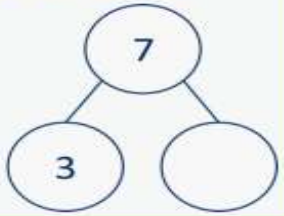
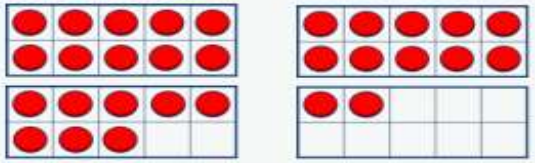
Subtraction

White Rose MATHS

Progression of skills	Key representations		
Subtract multiples of 10 Make links to known facts within ten.	… ones − … ones = … ones so … tens − … tens = … tens  $5 - 2 = 3$ $50 - 20 = 30$	What is the same? What is different?  	
Subtract 10s from any number Make links to known facts.	… tens − … tens = … tens … tens and … ones = … 	To subtract … I need to subtract 10 … times. |									
---	---	---	---	---	---	---	---	---	---
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60		I know that … minus … = … so … minus … = … $50 - 20 = 30$ $54 - 20 = 34$

Subtraction

White Rose MATHS

Progression of skills	Key representations
Subtract two 2-digit numbers (not across a ten)	… ones − … ones = … ones … tens − … tens = … tens    3 ones − 1 one = 2 ones 4 tens − 2 tens = 2 tens 2 tens and 2 ones = 22
Subtract two 2-digit numbers (across a ten) Begin to exchange 1 ten for 10 ones.	I need to make an exchange because I do not have enough ones to subtract … ones.    3 ones − 5 ones (I need to exchange 1 ten for 10 ones) 13 ones − 5 ones = 8 ones 3 tens − 2 tens = 1 ten 1 ten and 8 ones = 18
Missing numbers Solve missing number problems and use the inverse to check.	How many do you need to subtract to make …?  10 − □ = 6 6 + □ = 10 If … is a whole and … is a part, then … is the other part. 7 − 3 = □ □ + 3 = 7  … can be partitioned into … and … 18 − □ = 12 + 2 

Multiplication

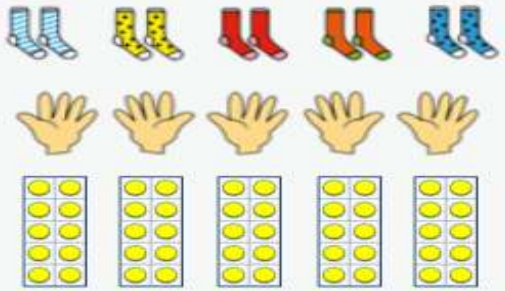
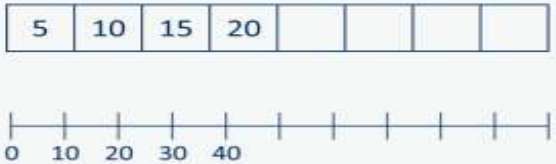
White Rose MATHS

Reception	• 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 and some number bonds to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
Progression of skills	**Key representations**
Double to 10 Prompt children to notice that double means twice as many and to notice that there are two equal groups.	Double … is … … is double … 
Make equal groups Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.	There are … groups of … There are … altogether. 

Multiplication

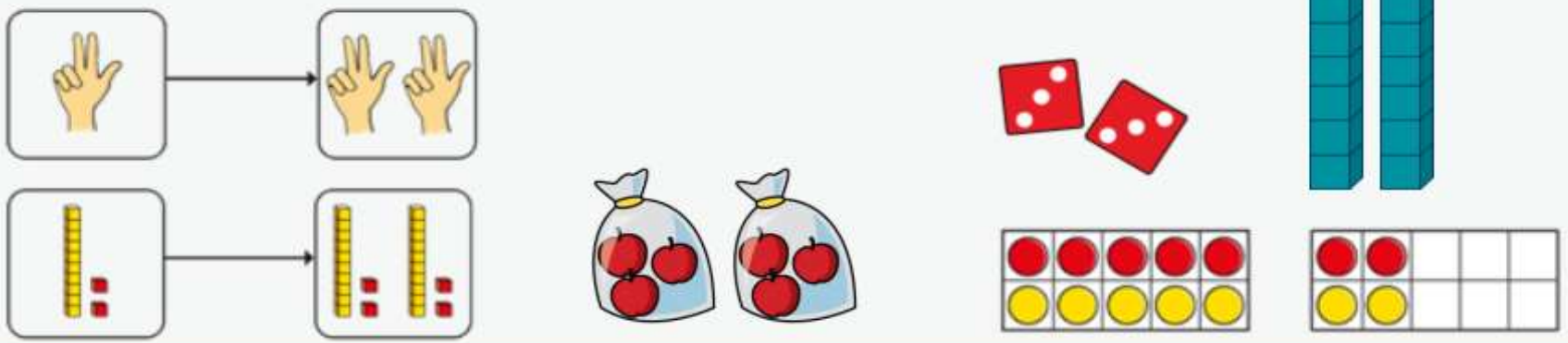
White Rose MATHS

Year 1	• Count in multiples of twos, fives and tens. • Solve one-step problems involving multiplication, using concrete objects, pictorial representations and arrays with the support of the teacher.

Progression of skills	Key representations		
Count in 2s, 5s and 10s Begin by counting objects that naturally come in 2s, 5s and 10s, for example pairs of socks or fingers.	There are ... equal groups of ... There are ... altogether. 	Continue to colour in ...s What do you notice?  1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	Complete the number track/number line by counting in ...s.  5 10 15 20 0 10 20 30 40
Add equal groups (repeated addition) Children should be able to write a repeated addition to represent equal groups and to draw pictures or use objects to represent a repeated addition.	There are ... groups of ... There are ... altogether.  10 + 10 + 10 = 30  5 + 5 + 5 + 5 = 20	What is the same? What is different? 2 + 2 + 2 = 5 + 5 + 5 = 10 + 10 + 10 = Use objects or a drawing to represent the equal groups and find how many in total.	

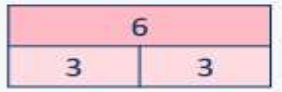
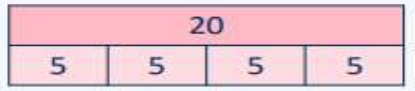
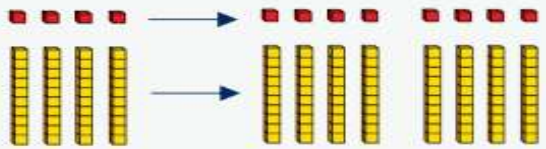
Multiplication

White Rose MATHS

Progression of skills	Key representations
Make arrays Children use their knowledge of adding equal groups to arrange objects in columns and rows.	There are ... rows of ... There are ... altogether. There are ... columns of ... There are ... altogether. 
Make doubles Children understand that doubles are two equal groups. Children may begin to explore doubles beyond 20 using base 10	Double ... is ... ... + ... = ... 

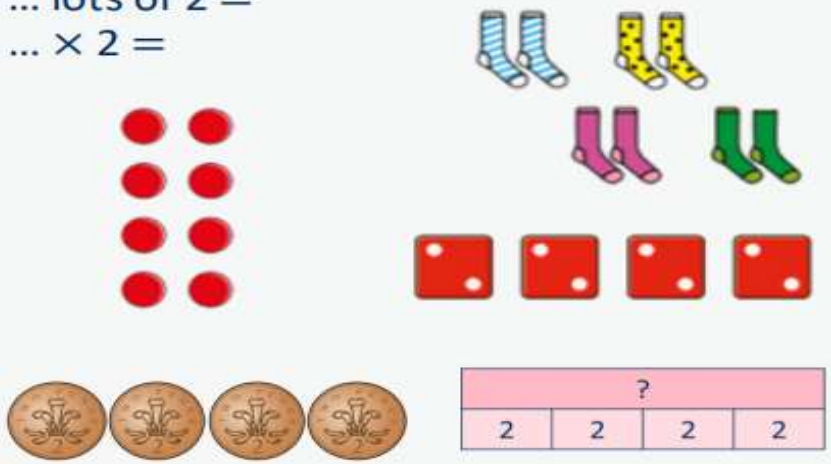
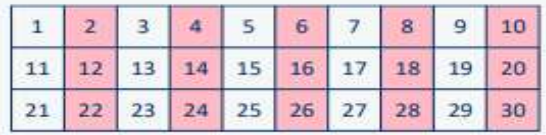
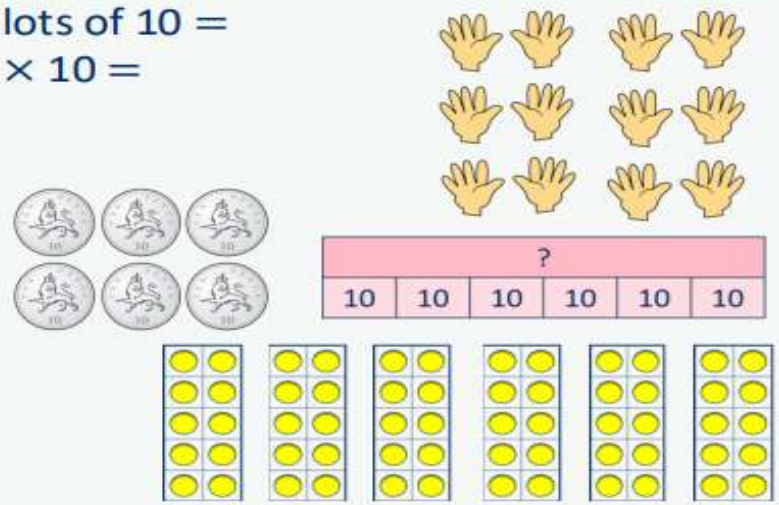
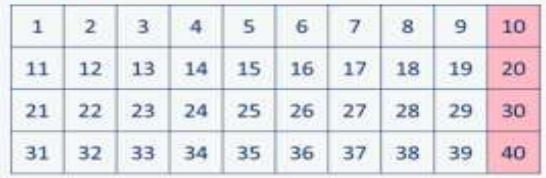
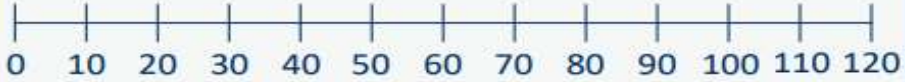
Multiplication

White Rose MATHS

Year 2	• Recall and use multiplication facts for the 2, 5 and 10 multiplication tables. • Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×) and equals (=) signs. • Show that multiplication of two numbers can be done in any order (commutative).
Progression of skills	**Key representations**
Link repeated addition and multiplication Encourage children to make the link between repeated addition and multiplication.	There are … equal groups with … in each group. There are … altogether.   $3 + 3 = 6$ $2 \times 3 = 6$   $5 + 5 + 5 + 5 = 20$ $4 \times 5 = 20$
Use arrays Encourage children to see that multiplication is commutative.	There are … rows with … in each row. There are … columns with … in each column.  3 lots of 5 = 15 5 + 5 + 5 = 15 5 lots of 3 = 15 3 + 3 + 3 + 3 + 3 = 15
	I can see … × … and … × … $3 \times 5 = 15$ $5 \times 3 = 15$ $3 \times 5 = 5 \times 3$
Double Encourage children to make links with related facts.	Double … is …  Double 4 = 4 + 4 Double 4 is 8
	Double … is … so double … is …  Double 4 is 8 Double 40 is 80

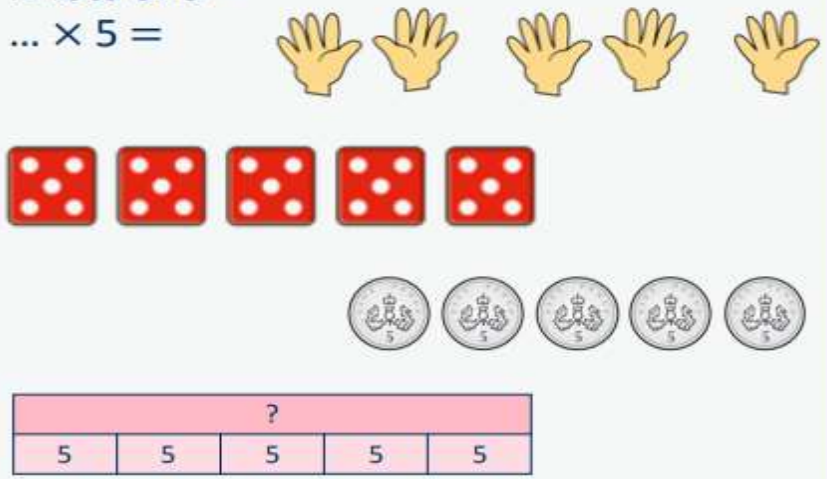
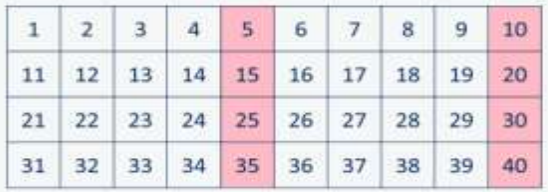
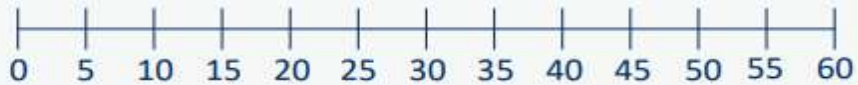
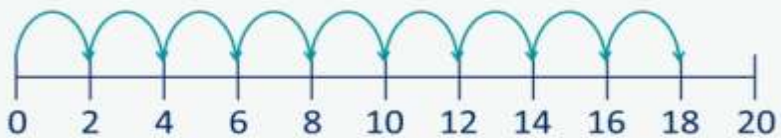
Multiplication

White Rose MATHS

Progression of skills	Key representations	
The 2 times-table Encourage daily counting in multiples both forwards and back. Notice that all multiples of 2 are even numbers.	… lots of 2 = … × 2 =  	… times 2 is equal to …  $1 \times 2 = 2$ $2 = 1 \times 2$ $2 \times 2 = 4$ $4 = 2 \times 2$ $3 \times 2 = 6$ $6 = 3 \times 2$ 
The 10 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	… lots of 10 = … × 10 =  	… times 10 is equal to …  $1 \times 10 = 10$ $10 = 1 \times 10$ $2 \times 10 = 20$ $20 = 2 \times 10$ $3 \times 10 = 30$ $30 = 3 \times 10$ 

Multiplication

White Rose MATHS

Progression of skills	Key representations	
The 5 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	… lots of 5 = … × 5 = 	… times 5 is equal to …  $1 \times 5 = 5$ $\quad 5 = 1 \times 5$ $2 \times 5 = 10$ $\quad 10 = 2 \times 5$ $3 \times 5 = 15$ $\quad 15 = 3 \times 5$ 
Missing numbers Make links to known facts.	… is equal to … groups of … 18 socks, how many pairs?  	… times … is equal to … $\square \times 2 = 18$ $18 = 2 \times \square$

Division

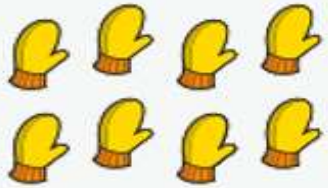
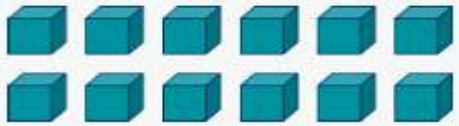
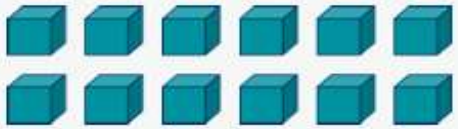
White Rose MATHS

Reception	• 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 and some number bonds to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
Progression of skills	**Key representations**
Sharing Provide practical activities such as sharing items during snack time. Encourage children to check whether items have been shared fairly (equally).	There are ... altogether. They are shared equally between ... groups. 
Grouping Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.	There are ... groups of ... There are ... altogether. 

Division

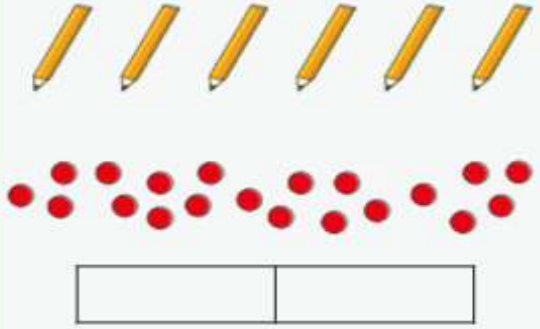
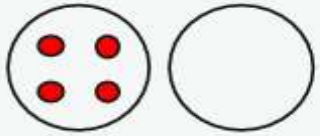
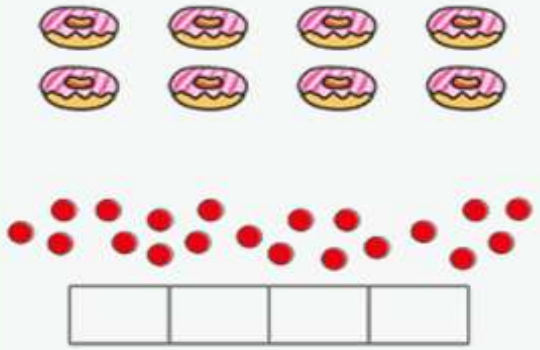
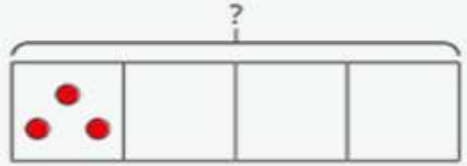
White Rose MATHS

Year 1	• Solve simple one-step problems involving division, using concrete objects, pictorial representations and arrays with the support of the teacher. • Recognise, find and name a half as one of two equal parts of a quantity. • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Progression of skills	Key representations		
Make equal groups - grouping Encourage children to physically move objects into equal groups. They can also circle equal groups when using pictures.	There are ... altogether. How many groups of ... can you make?  	Circle groups of 2 There are ... groups of 2 	Take ... cubes. Make equal groups.  There are ... groups of ...
Make equal groups – sharing Encourage children to check that the objects have been shared fairly and each group is the same.	... have been shared equally between... There are ... on/in each ...     	Take ... cubes. Share them between ...  12 shared between ... is ...	

Division

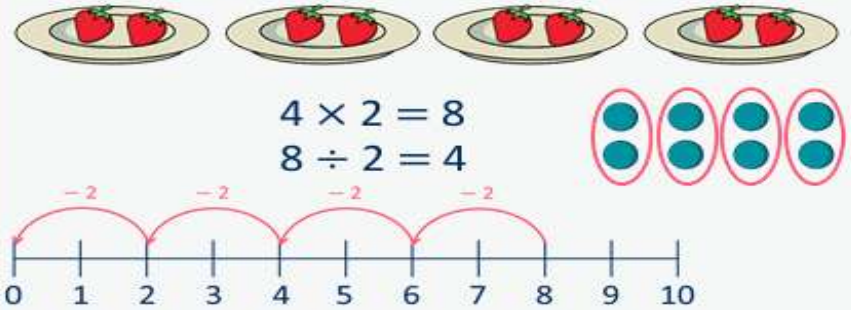
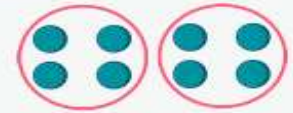
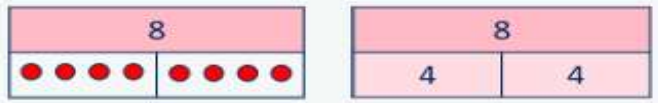
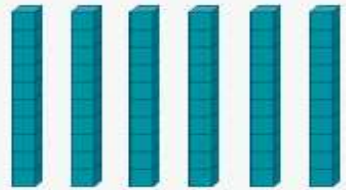
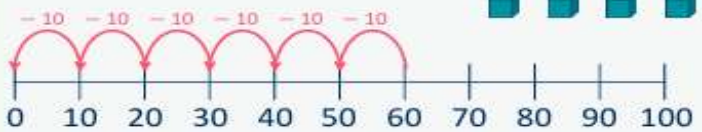
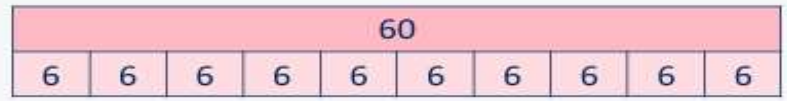
White Rose MATHS

Progression of skills	Key representations		
Find a half Start with practical opportunities to share a quantity into 2 groups. Progress to circling half of the objects in a picture and then to finding the whole from a given half.	To find half, I need to share into 2 equal groups.   There are ... in each group.	Half of ... is ... 	If ... is half, what is the whole?  4 is half of ...
Find a quarter Start with practical opportunities to share a quantity into 4 groups. Progress to using pictures or bar models to find a quarter and then to finding the whole from a given quarter.	To find a quarter, I need to share into 4 equal groups.   There are ... in each group.	A quarter of ... is ... 	If ... is one quarter, what is the whole?  3 is one quarter of ...

Division

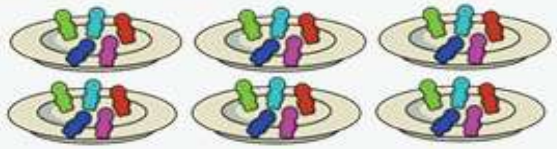
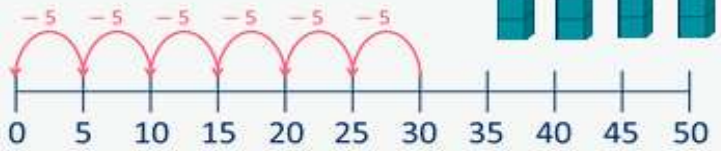
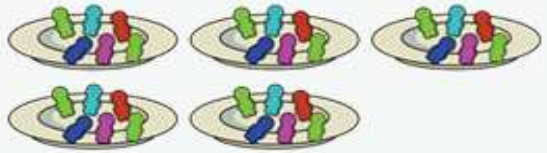
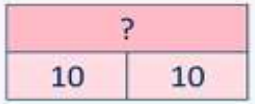
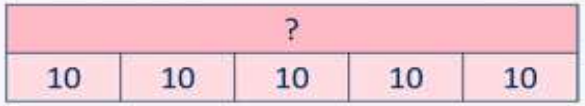
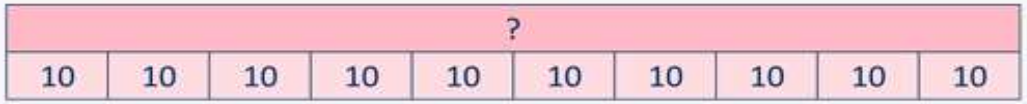
White Rose MATHS

Year 2	• Recall and use division facts for the 2, 5 and 10 multiplication tables. • Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs. • Recognise, find, name and write fractions $\frac{1}{3}, \frac{1}{4}, \frac{2}{4}$ and $\frac{3}{4}$ of a quantity.

Progression of skills	Key representations	
Divide by 2 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts and halving.	There are … equal groups of 2 … ÷ 2 = …  4 × 2 = 8 8 ÷ 2 = 4 	… shared equally between 2 is … Half of … is … … ÷ 2 = …  4 × 2 = 8 8 ÷ 2 = 4  
Divide by 10 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are … equal groups of 10 … ÷ 10 = … 6 × 10 = 60 60 ÷ 10 = 6   	… shared equally between 10 is … … ÷ 10 = … 6 × 10 = 60 60 ÷ 10 = 6  

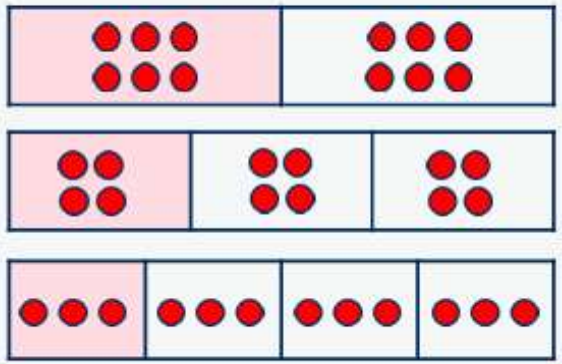
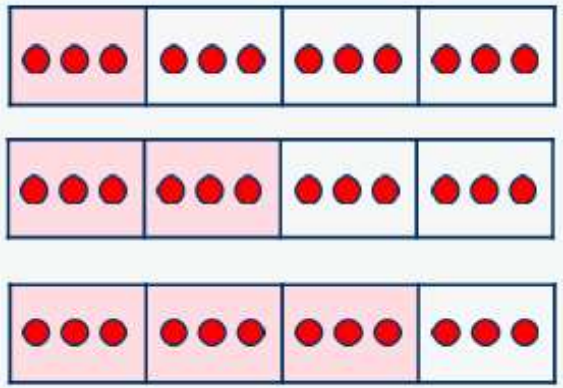
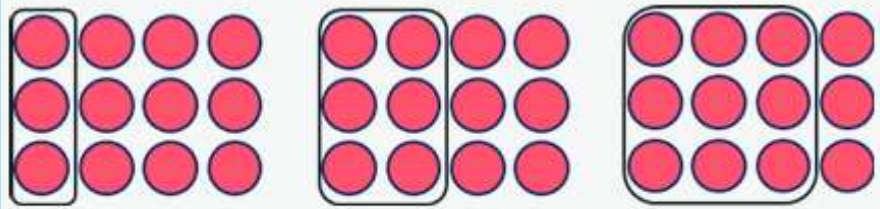
Division

White Rose MATHS

Progression of skills	Key representations
Divide by 5 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are … equal groups of 5 … ÷ 5 = …  6 × 5 = 30 30 ÷ 5 = 6   … shared equally between 5 is … … ÷ 5 = …  6 × 5 = 30 30 ÷ 5 = 6  
Missing numbers Bar models are useful to show the link between multiplication and division.	… divided by 2/5/10 is equal to …  □ ÷ 2 = 10  □ ÷ 5 = 10  □ ÷ 10 = 10

Division

White Rose MATHS

Progression of skills	Key representations	
Unit fractions In Y2 the focus is on finding $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$ Bar models are useful to show the link between division and finding a fraction.	The objects have been shared fairly into … groups. $\frac{1}{\square}$ of … is … 	There are … equal parts. There is … part circled. $\frac{1}{\square}$ is circled. 
Non-unit fractions In Y2 the focus is on finding $\frac{2}{4}$ and $\frac{3}{4}$ Prompt children to notice that $\frac{2}{4}$ is equivalent to $\frac{1}{2}$	The objects have been shared fairly into … groups. $\frac{\square}{\square}$ of … is … 	There are … equal parts. There are … parts circled. $\frac{\square}{\square}$ is circled. 

Breakdown of Knowledge

This document shows how substantive, declarative (knows that) and procedural (knows how to) knowledge develops in Maths across the school.

knowledge

can use

Knowledge Organisers

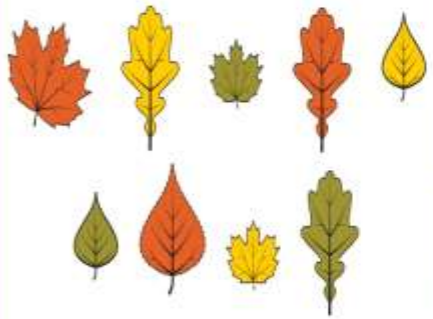
Year One

Place value knowledge organiser

Maths

0	1	2	3	4	5	6	7	8	9	10
zero	one	two	three	four	five	six	seven	eight	nine	ten

Sort objects



Shape

Colour

Size

Count objects

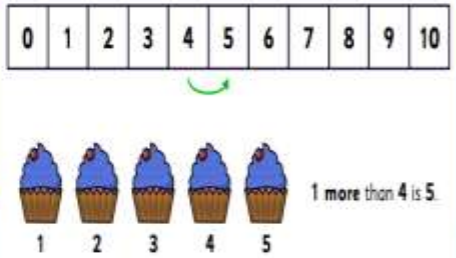
Start from **1**.
The **last number** you say is the **total amount**.

We can put the objects in a line to help us count.

1 one 2 two 3 three 4 four 5 five

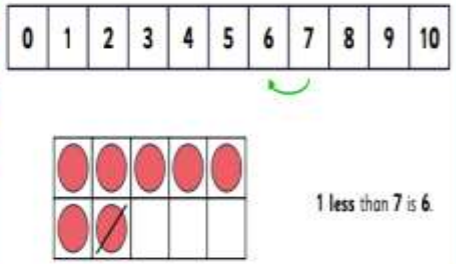
There are 5 bags.

1 more



1 more than **4** is **5**.

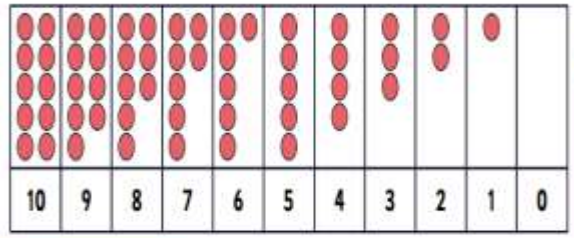
1 less



1 less than **7** is **6**.

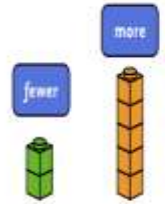
Count backwards

When **counting backwards** from **10**, we start at number **10** and then each number gets **smaller by 1**.



More, fewer, same

Fewer means there are **less** objects.



There are **fewer** green blocks and **more** orange blocks.

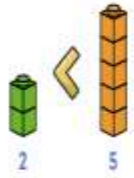
Same means there are an **equal** number of objects.

There are the **same** number of blue and yellow blocks.

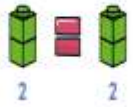
Compare

When we **compare** numbers, we use the language **less than**, **equal** to and **greater than**.

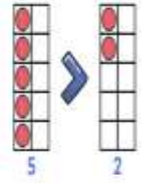
The smaller part points to the smaller amount.



Equal to means the same amount.

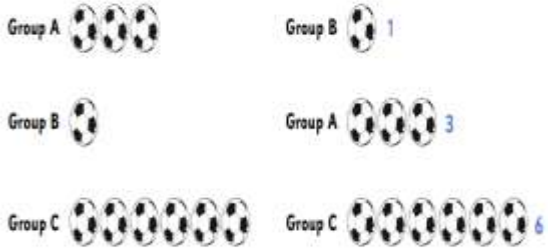


The larger part points to the larger amount.



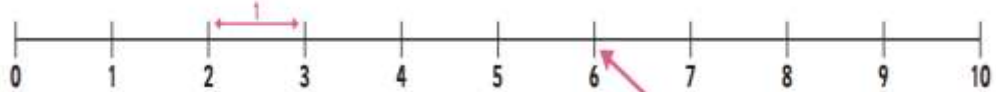
Order

When we **order** objects and numbers, we need to sort the objects and numbers from **fewest** to **most**, or **greatest** to **smallest**.



Group B has the **fewest** number of footballs. Group C has the **most** footballs.

Number lines



This number line starts at 0.

Each division represents 1.

The numbers are written on the divisions

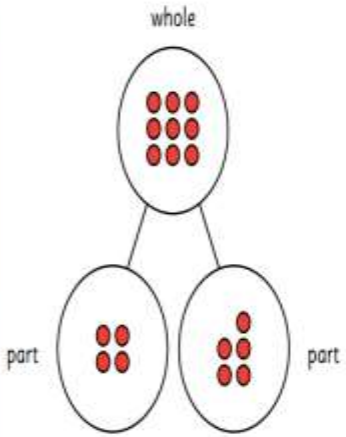
This number line ends at 10.

Addition and Subtraction

Maths

Y1

Part-whole model

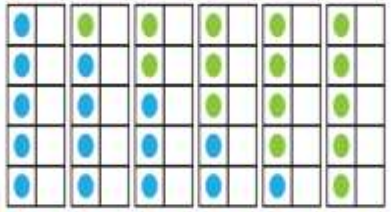


4 + 5 = 9

part + part = whole

Number bonds within 10

Number bonds are pairs of numbers that can be added together to make another number. We can use a tens frame and counters to find each number bond starting with 0, then 1, then 2 etc.



These additions make the number bonds to 5.

0 + 5 = 5 3 + 2 = 5
1 + 4 = 5 4 + 1 = 5
2 + 3 = 5 5 + 0 = 5

Number bonds to 10

0 + 10 = 10

1 + 9 = 10

2 + 8 = 10

3 + 7 = 10

4 + 6 = 10

5 + 5 = 10

6 + 4 = 10

7 + 3 = 10

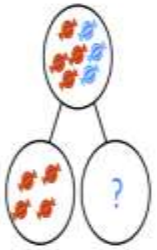
8 + 2 = 10

9 + 1 = 10

10 + 0 = 10

Find a part

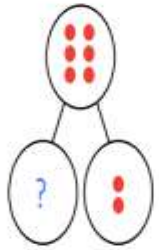
When finding a part, we can use adding on or use subtraction to help us.



4 + 3 = 7

7 = 4 + 3

There are 7 sweets in total.
4 of the sweets are red so there must be 3 blue sweets.



2 + 4 = 6

6 - 2 = 4

There are 6 counters in total.
2 counters are red so there must be 4 blue counters

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Addition and Subtraction

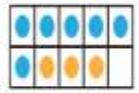
Maths

Y1

Addition

Add together

There are 6 blue counters and 3 yellow counters.



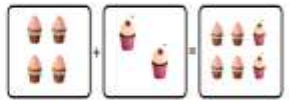
6 + 3 = 9

6 plus 3 is equal to 9.

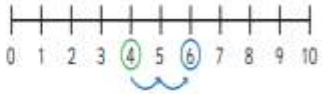
There are 9 counters altogether.

Add more

First, I had 4 cupcakes.
Then, I baked 2 more cupcakes.
Now, there are 6 cupcakes.



4 + 2 = 6



Subtraction

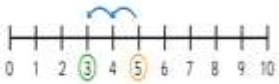
Take away

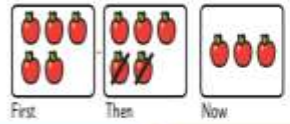
First, I had 8 fish.
Then, 3 fish swam away.
Now, I have 5 fish.

8 - 3 = 5

Number line

First, I had 5 apples.
Then, I ate 2 apples.
Now, I have 3 apples.





I start on 5.
I make 2 jumps.
I land on 3.

Fact families

Using a part-whole model to help us, there are eight facts that we can write.

part + part = whole

part + part = whole

whole = part + part

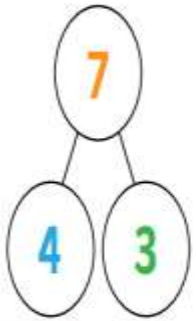
whole = part + part

whole - part = part

whole - part = part

part = whole - part

part = whole - part



3 + 4 = 7

4 + 3 = 7

7 = 4 + 3

7 = 3 + 4

7 - 4 = 3

7 - 3 = 4

3 = 7 - 4

4 = 7 - 3

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Year 1 Multiplication and Division Knowledge Organiser

Maths

Count in 2s

When we count in **2s** we only say **even** numbers.

There are **2** socks in each pair.
There are **4** pairs of socks.
There are **8** socks altogether.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Count in 10s

When we count in **10s** it is only the **tens digit** that changes.

There are **10** cupcakes on each tray.
There are **3** trays.
There are **30** cupcakes altogether.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Count in 5s

When we count in **5s** we only say numbers that end in 5 and 0.

There are **5** fish in each fishbowl.
There are **4** fishbowls.
There are **20** fish altogether.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Recognise equal groups

Equal groups are groups that have the same amount in each group.

There are 3 equal groups.
There are 2 in each group.
There are 3 equal groups of 2.

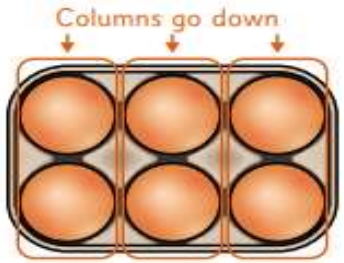
Add equal groups

We can **add equal groups** using **repeated addition**.

There are 3 equal groups.
There are 2 in each group.
There are 3 equal groups of 2.
2 + 2 + 2 = 6
There are 6 flowers altogether.

Make arrays

Arrays are a way of organising objects into equal columns and rows.

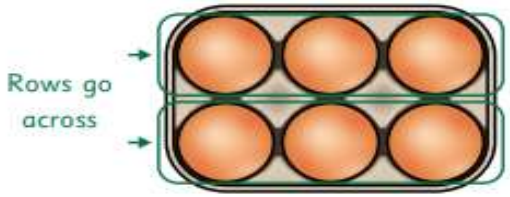


There are 3 columns.

There are 2 eggs in each column.

2 + 2 + 2 = 6

There are 6 eggs altogether.



There are 2 rows.

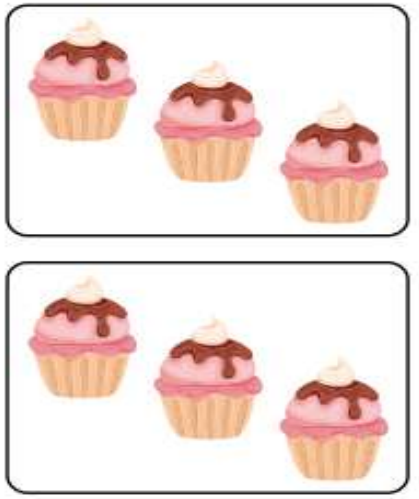
There are 3 eggs in each row.

3 + 3 = 6

There are 6 eggs altogether.

Make doubles

When we **double** numbers, we need **2 equal groups**.



There are 2 **equal groups**.

There are 3 in each group.

3 + 3 = 6

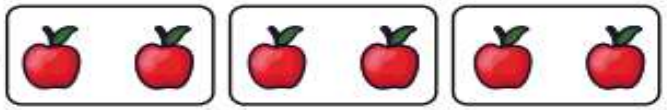
Double 3 is 6.

Make equal groups – grouping

To **group objects** there must be the **same number** of objects in each group.

First, there are 6 apples. →

Then, we put the apples into groups of 2. →



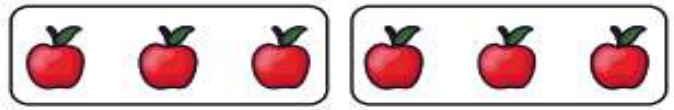
There are **6 apples**.
The apples are in **groups of 2**.
There are **3 equal groups**.

Make equal groups – sharing

To **share objects**, we must make sure there are **equal amounts** of objects in each group.

First, there are 6 apples. →

Then, we share the apples into 2 equal groups. →



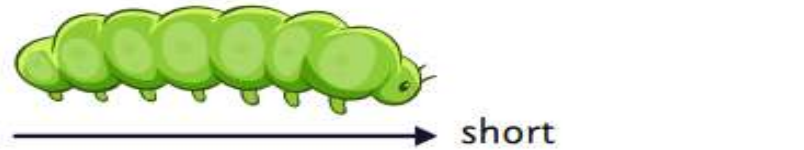
There are **6 apples**.
The apples are shared into **2 equal groups**.
There are **3 apples** in each group.

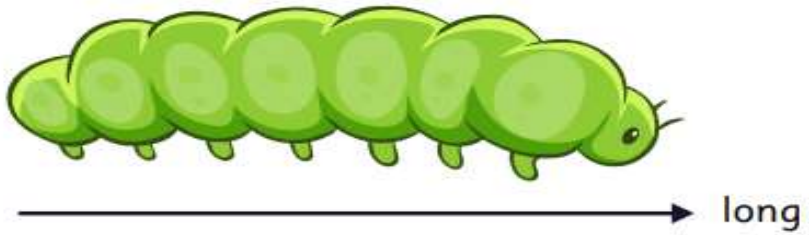
Year 1 Length and height Knowledge Organiser

Maths

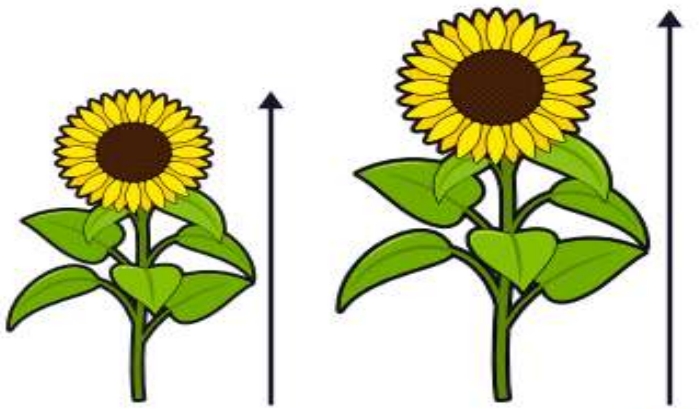
Length and height

length

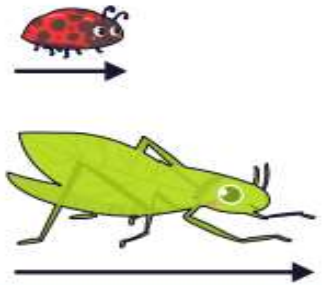




height

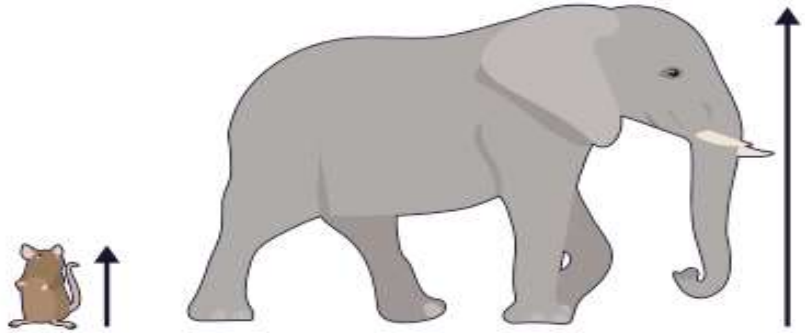


Compare lengths and heights



The grasshopper is **longer** than the ladybird.

The ladybird is **shorter** than the grasshopper.



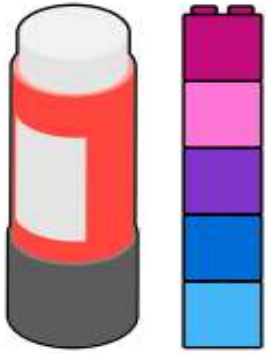
The elephant is **taller** than the mouse.

The mouse is **shorter** than the elephant.

Measure length using objects

The glue stick is **taller** than the rubber duck.

The rubber duck is **shorter** than the glue stick.

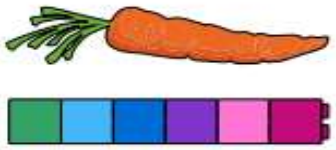


The glue stick is **5 cubes tall.**

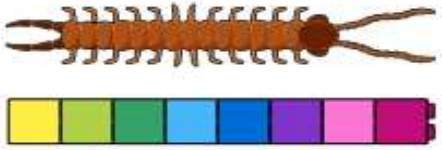
The rubber duck is **2 cubes tall.**

The carrot stick is **shorter** than the centipede.

The centipede is **longer** than the carrot stick.



The carrot is **6 cubes long.**

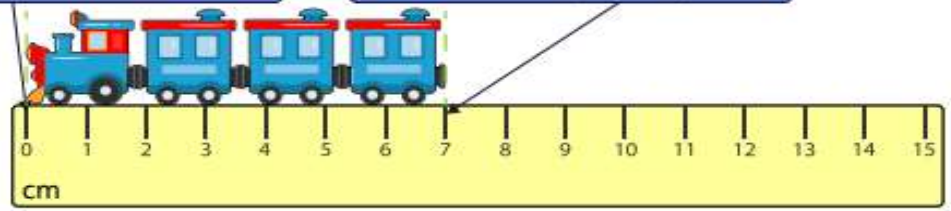


The centipede is **8 cubes long.**

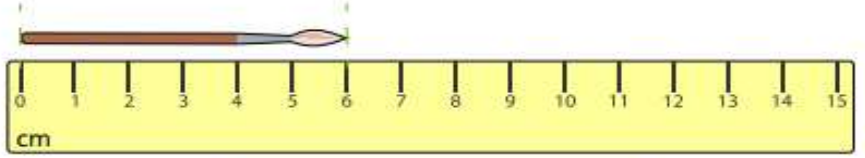
Measure length in centimetres

Make sure one end of the the object is level with 0 cm.

Find the number that is closest to the end of the object.



The toy train is **7 cm** long.



The paintbrush is **6 cm** long.

The plant is **14 cm** tall.

Year 1 Mass and Volume Knowledge Organiser

Maths

Heavier and lighter

The **lighter** object is **higher** on the scale.

The **heavier** object is **lower** on the scale.

When the scale is **balanced** the objects weigh **the same**.

Measure mass

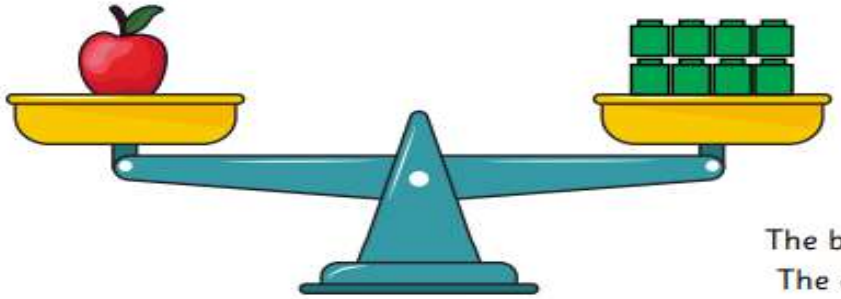
When scales are **balanced** the mass of each object is **the same**.

The scales are **balanced** so the mass of the pencil is **5 cubes**.

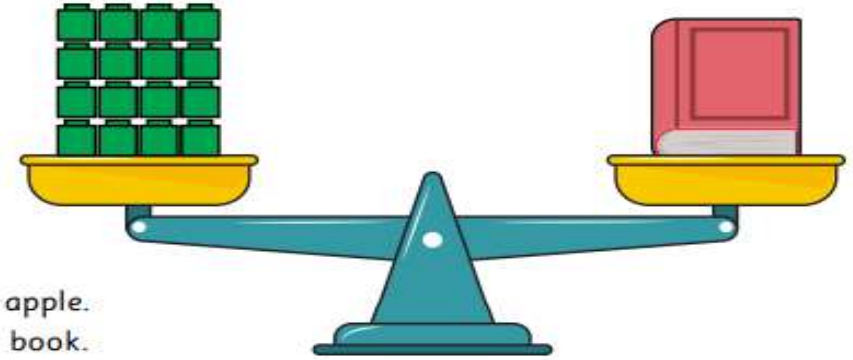
Compare mass

We compare the **mass** of objects by using the **same objects** to **balance** the scales.
The object that has the **most cubes** is the **heavier object**.

The **mass** of the apple is **8 cubes**.



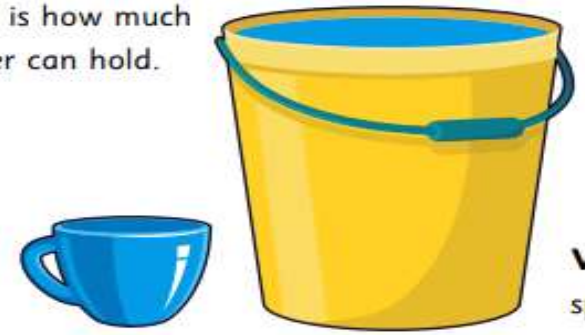
The **mass** of the book is **16 cubes**.



The book is **heavier** than the apple.
The apple is **lighter** than the book.

Capacity and volume

Capacity is how much a container can hold.



Volume is how much space something takes up.

Full and empty

We can describe the **volume** of liquid in a container using the language:

empty | **nearly empty** | **nearly full** | **full**

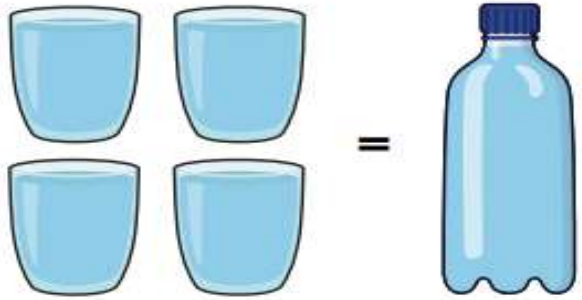
Compare volume

smallest volume | **greatest volume**

Measure capacity

The best way to measure the **capacity** of different containers is using sand or water.

We can use **smaller containers** to measure the capacity of **larger containers**.



The **capacity** of the bottle is **4** glasses.

Measure capacity

We compare the **capacity** of containers by using the **same unit of measure**.

teapot < kettle

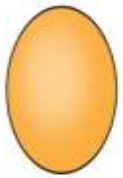
The capacity of the teapot is smaller than the capacity of the kettle.

Shape

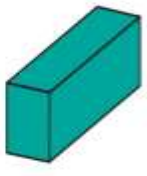
Maths

Y1

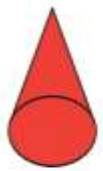
3-D shapes



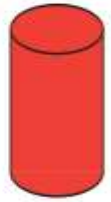
sphere



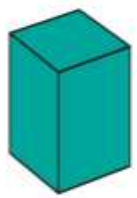
cuboid



cone



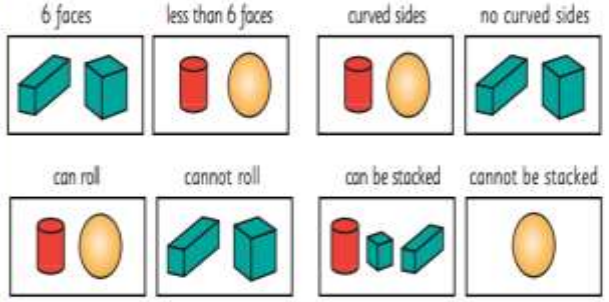
cylinder



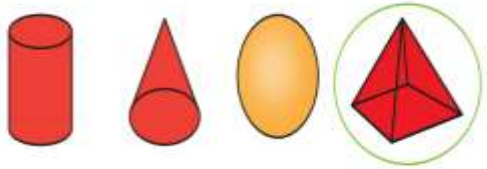
cube

pyramid

Sort 3-D shapes



Odd one out



The other shapes have a **curved** side.

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Shape

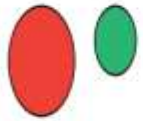
Maths

Y1

2-D shapes

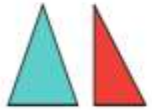
square

4 corners
4 equal sides



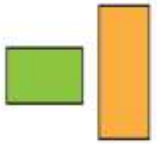
circle

0 corners
1 equal sides



triangle

3 corners
3 sides

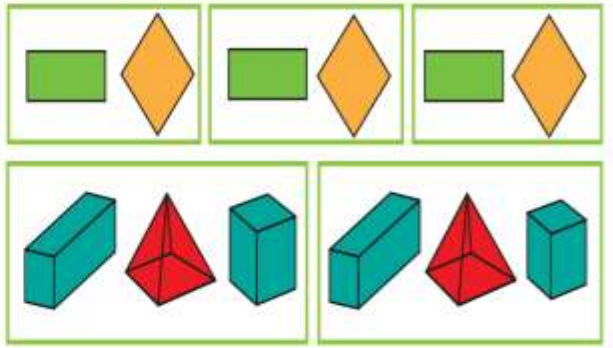


rectangle

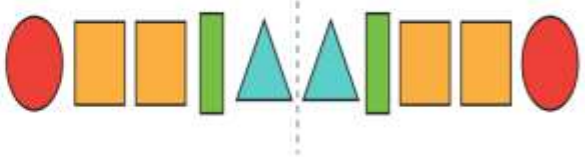
4 corners
2 pairs of equal sides

Patterns

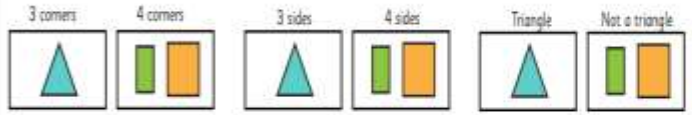
We can make repeating patterns using 2-D and 3-D shapes.



We can make symmetrical patterns.



Sort 2-D shapes



Odd one out

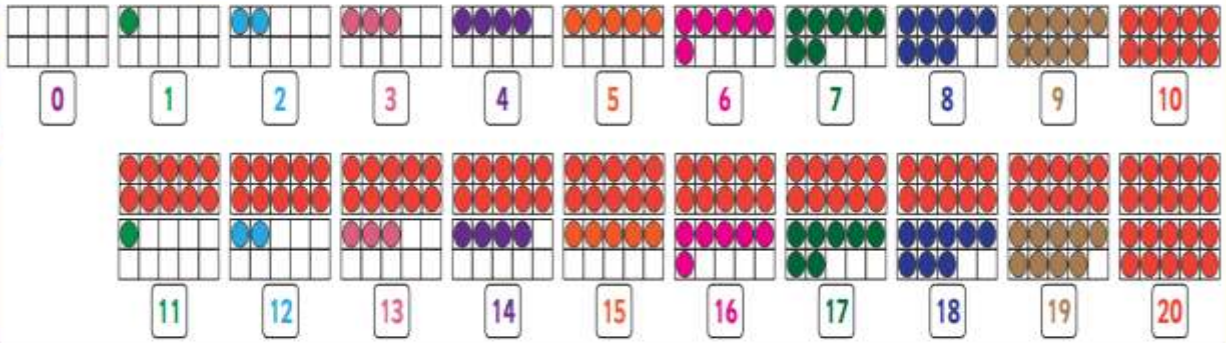
The circle is the odd one out because it does not have corners.

Year Two

Place Value Knowledge Organiser

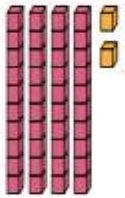
Maths | Y2

Numbers to 20



Tens and ones

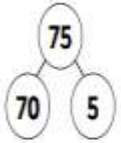
T	O
10 10 10 10	1 1



There are 4 tens and 2 ones.
The number is 42 or forty-two.

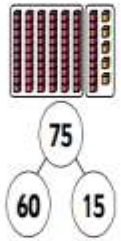
Partition numbers to 100

2-digit numbers can be partitioned into tens and ones.

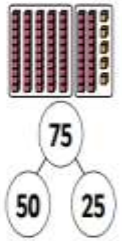


75 is equal to 7 tens and 5 ones.
75 = 70 + 5

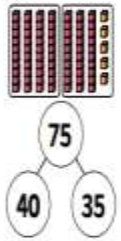
2-digit numbers can also be flexibly partitioned in many different ways.



75 can be partitioned into 60 and 15.
75 = 60 + 15



75 can be partitioned into 50 and 25.
75 = 50 + 25



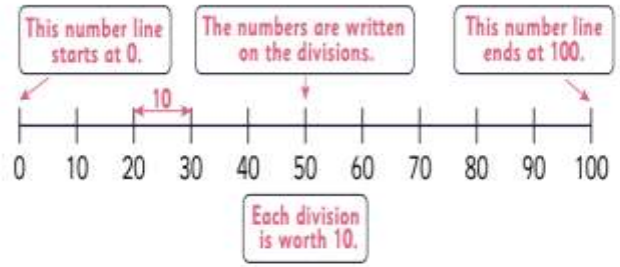
75 can be partitioned into 40 and 35.
75 = 40 + 35

Numbers to 100 in words

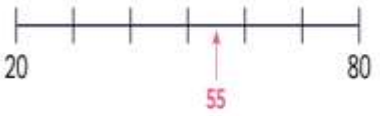
grammarsaurus.co.uk

1	One	11	Eleven	21	Twenty-one
2	Two	12	Twelve	22	Twenty-two
3	Three	13	Thirteen	30	Thirty
4	Four	14	Fourteen	40	Forty
5	Five	15	Fifteen	50	Fifty
6	Six	16	Sixteen	60	Sixty
7	Seven	17	Seventeen	70	Seventy
8	Eight	18	Eighteen	80	Eighty
9	Nine	19	Nineteen	90	Ninety
10	Ten	20	Twenty	100	One hundred

Number lines to 100



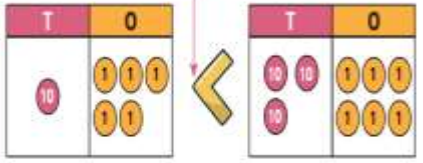
We can use our knowledge of number lines to help us **estimate** numbers.



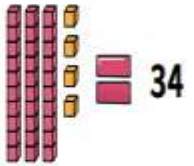
Compare and order numbers

less than | equal to | greater than

The smaller part points to the smaller amount.

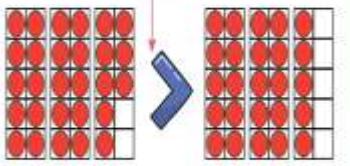


Equal to means the same amount.



= 34

The larger part points to the larger amount.



18 41 48 81 84

smallest → greatest

84 81 48 41 18

greatest → smallest

Count in multiples

grammarsaurus.co.uk

Count in 2s	2	4	6	8	10	12	14	16	18	20
Count in 5s	5	10	15	20	25	30	35	40	45	50

Count in 10s	10	20	30	40	50	60	70	80	90	100
Count in 3s	3	6	9	12	15	18	21	24	27	30

Year 2 Addition and Subtraction Knowledge Organiser

Maths

Number bonds to 10

0 + 10 = 10

1 + 9 = 10

2 + 8 = 10

3 + 7 = 10

4 + 6 = 10

5 + 5 = 10

6 + 4 = 10

7 + 3 = 10

8 + 2 = 10

9 + 1 = 10

10 + 0 = 10

Addition

Add three 1-digit numbers

We can look for a **bond to 10** to add together first, and then add the third number.

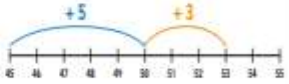
3 + 7 + 2 = 12

3 and 7 are a bond to 10
10 + 2 = 12
So 3 + 7 + 2 = 12

Add across a 10

When adding **across a 10**, we can add to the **next 10** and then add on the remainder.

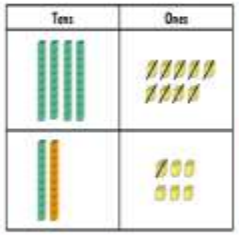
45 + 8 = 53
5 3



Add two 2-digit numbers

We can **exchange 10 ones** for **1 ten** when adding across a 10.

49 + 16 = 65

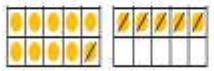


Subtraction

Subtract across a 10

We can use **tens frames** to help us **subtract across a 10**.

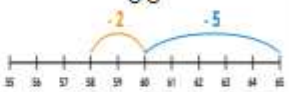
15 - 6 = 9



Subtract a 1-digit number from a 2-digit number

We can use **partitioning** to subtract a 1-digit number from a 2-digit **across a 10**.

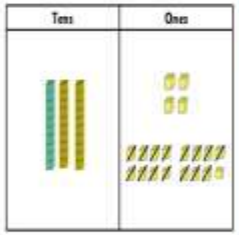
65 - 7 = 58
5 2



Subtract two 2-digit numbers

We can **exchange 10 ones** for **1 ten** when subtracting across a 10.

34 - 19 = 15



Bonds to 100

0 + 100 = 100

10 + 90 = 100

20 + 80 = 100

30 + 70 = 100

40 + 60 = 100

50 + 50 = 100

60 + 40 = 100

70 + 30 = 100

80 + 20 = 100

90 + 10 = 100

100 + 0 = 100

Fact families

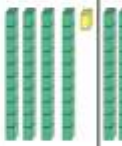
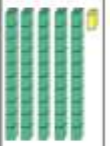
We can use a **part-whole model** to help us write **fact families.**

part + part = whole
part + part = whole
whole - part = part
whole - part = part

11 + 4 = 15
4 + 11 = 15
15 - 11 = 4
15 - 4 = 11

10 more, 10 less

We can use **dienes** to help us find **10 more** or **10 less.**

10 less	Number	10 more
		
31	41	51

Only the **digit** in the **tens column** will change.

Related facts

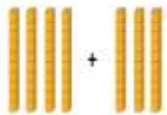
We can use **addition** and **subtraction** facts to find the answers to larger calculations.

4 ones + 3 ones = 7 ones

4 + 3 = 7

5 ones - 2 ones = 3 ones

5 - 2 = 3



4 tens + 3 tens = 7 tens

40 + 30 = 70

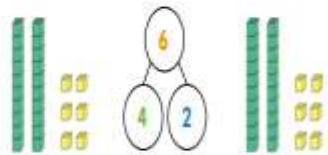
5 tens – 2 tens = 3 tens

50 - 20 = 30

Missing number problems

We can use **partitioning** to help us find the answer to **missing number problems.**

20 + 6 = 24 + 2



6 can be partitioned into 4 and 2

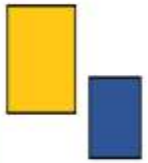
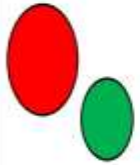
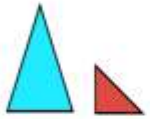
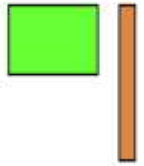
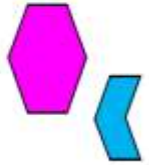
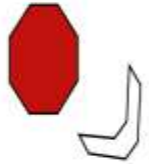
20 + 6 = 20 + 4 + 2

Year 2 Shape Knowledge Organiser

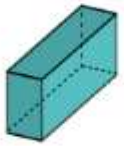
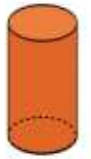
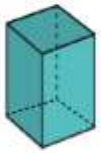
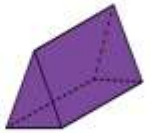
Maths

2-D Shapes

2-D shapes are **flat, closed** shapes

square	circle	triangle	rectangle	pentagon	hexagon	octagon
						
4 corners	0 corners	3 corners	4 corners	5 corners	6 corners	8 corners
4 equal sides	1 side	3 sides	2 pairs of equal sides	5 sides	6 sides	8 sides

3-D Shapes

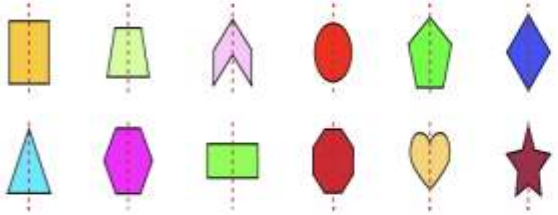
sphere	cubaid	cone	cylinder	cube	triangular prism	square-based pyramid
						
1 curved surface	6 faces	1 face, 1 curved surface	2 faces, 1 curved surface	6 faces	5 faces	5 faces
0 edges	12 edges	1 edge	2 edges	12 edges	9 edges	8 edges
0 vertices	8 vertices	1 vertex	0 vertices	8 vertices	6 vertices	5 vertices

Lines of symmetry

If a shape is **symmetrical**, it means it is **equal** on both sides.

Shapes that are **symmetrical** have a **line of symmetry**.

These shapes have a **vertical line of symmetry.**



Sort 2-D shapes

We can sort 2-D shapes in many different ways.

Fewer than 6 sides	6 or more sides	Hexagons	Not hexagons
			
Quadrilaterals	**Not quadrilaterals**	**Fewer than 5 sides**	**More than 5 sides**
			

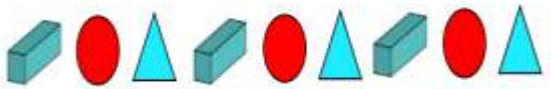
Sort 3-D shapes

We can sort 3-D shapes in many different ways.

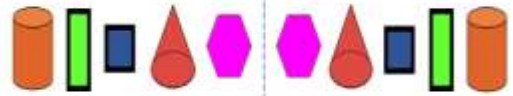
Some curved surfaces	No curved surfaces	Has vertices	No vertices
			
5 faces	**Fewer than 5 faces**	**Can be stacked**	**Cannot be stacked**
			

Make patterns

We can make **repeating patterns** using 2-D and 3-D shapes.



We can make **symmetrical patterns**.



Multiplication and Division

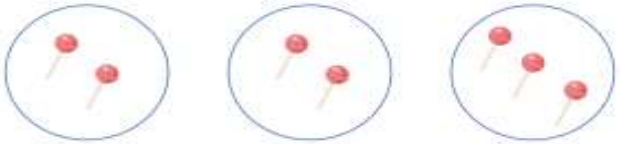
Maths

Y2

Recognise equal groups

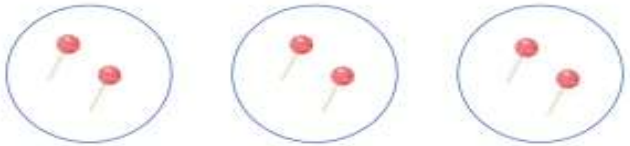
Equal groups are groups that have the same amount in each group.

Not equal



There are **3 groups.** Two groups have **2 lollipops.**
One group has **3 lollipops.**

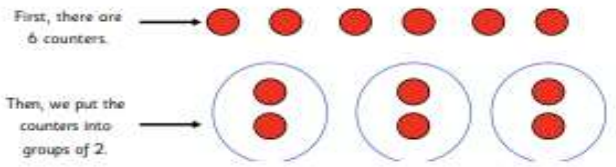
Equal



There are **3 groups.** Each group has **2 lollipops.**
There are **3 groups of 2.** There are 6 **lollipops** in total.

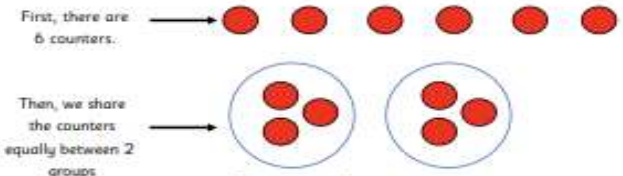
Make equal groups

To **group objects**, there must be the **same amount** of objects in each group.



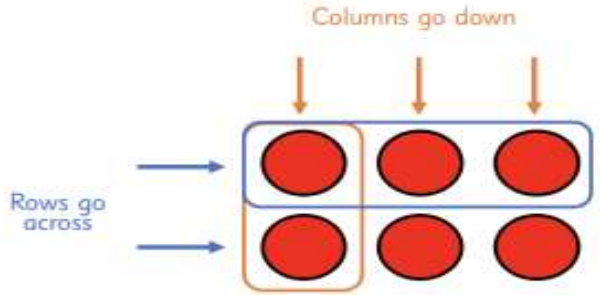
There are 6 counters.
The counters are in **groups of 2.**
There are **3 equal groups.**

To **share objects**, we must make sure there are **equal amounts** of objects in each group.



There are 6 counters.
There are **2 equal groups.**
There are **3 counters** in each group.

Arrays

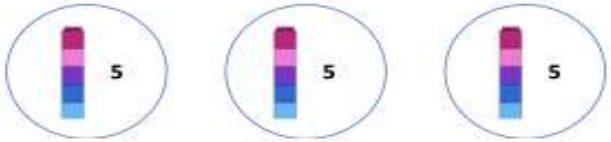


There are 2 rows with 3 in each row.
$3 + 3 = 6$
$2 \times 3 = 6$

There are 3 columns with 2 in each column.
$2 + 2 + 2 = 6$
$3 \times 2 = 6$

Add equal groups

We can add equal groups using repeated addition.



There are **3 equal groups.**
There are 5 cubes in each group.
$5 + 5 + 5 = 15$
There are 15 cubes in total.

The multiplication symbol

We can use the multiplication symbol when finding the total amount in equal groups.

There are **3** groups. There are **2** in each group
$2 + 2 + 2 = 6$
$3 \times 2 = 6$
3 groups
2 in each group

Multiplication and Division

Maths

Y2

The 2 times-table

8 in total

$4 \times 2 = 8$

4 groups, 2 in each group

2	4	6	8	10	12	14	16	18	20	22	24

The 5 times-table

15 in total

$3 \times 5 = 15$

3 groups, 5 in each group

5	10	15	20	25	30	35	40	45	50	55	60

The 10 times-table

50 in total

$5 \times 10 = 50$

5 groups, 10 in each group

10	20	30	40	50	60	70	80	90	100	110	120

Divide by 2

We can **group** objects into 2s.

There are 6 counters in total.
There are 2 counters in each group.
There are 3 equal groups.

We can **share** objects into 2 groups.

There are 6 counters in total.
There are 2 equal groups.
There are 3 counters in each group.

We can write a **division sentence** and a **multiplication** to show the groups.

$6 \div 2 = 3$

$2 \times 3 = 6$

Divide by 5

We can **group** objects into 5s.

There are 10 counters in total.
There are 5 counters in each group.
There are 2 equal groups.

We can **share** objects into 5 groups.

There are 10 counters in total.
There are 5 equal groups.
There are 2 counters in each group.

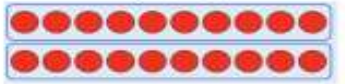
We can write a **division sentence** and a **multiplication** to show the groups.

$10 \div 5 = 2$

$5 \times 2 = 10$

Divide by 10

We can **group** objects into 10s.



There are 20 counters in total.
There are 10 counters in each group.
There are 2 equal groups.

We can **share** objects into 10 groups.

There are 20 counters in total.
There are 10 equal groups.
There are 2 counters in each group.

We can write a **division sentence** and a **multiplication** to show the groups.

$20 \div 10 = 2$

$10 \times 2 = 20$

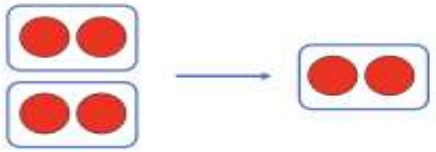
Doubling and halving

When **doubling** a number, we **multiply by 2.**

$2 \times 2 = 4$

Double 2 is 4

When **halving** a number, we **divide by 2.**

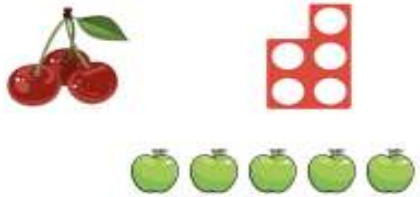


$4 \div 2 = 2$

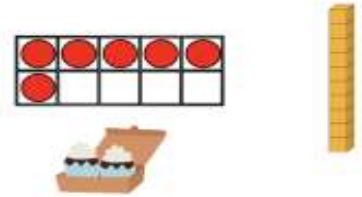
Half of 4 is 2

Odd and even numbers

Odd numbers are numbers that **cannot** be equally **divided by 2.**



Even numbers are numbers that **can** be equally **divided by 2.**



Money

Maths

Y2

Pence


1p


2p


5p


10p


20p


50p

Pounds


£1


£2


£5

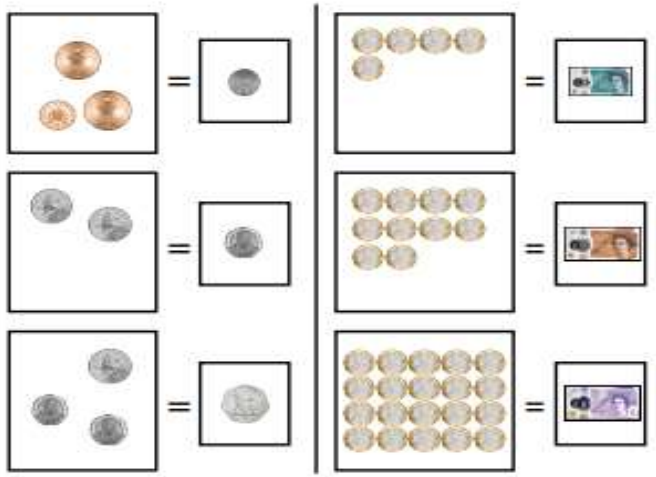

£10


£20


£50

Make the same amount

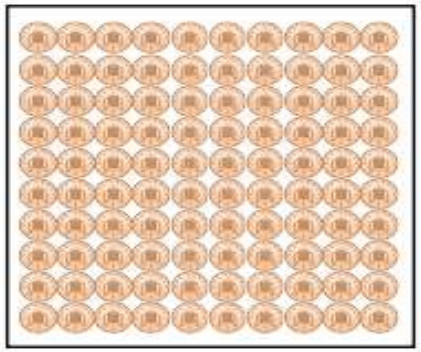
We can make amounts in lots of different ways.



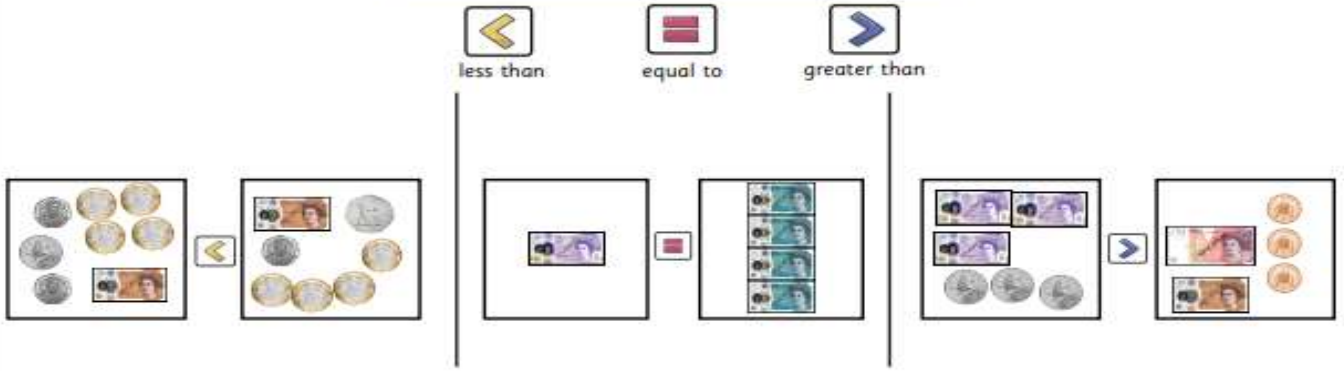
Make a pound

We can make £1 in lots of different ways.

£1 = 100p



Compare amounts



Money

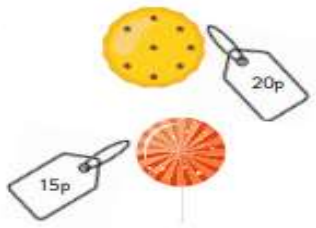
Maths

Y2

Find the total

To find the total we need to use addition.
We can use a bar model to represent the calculation.

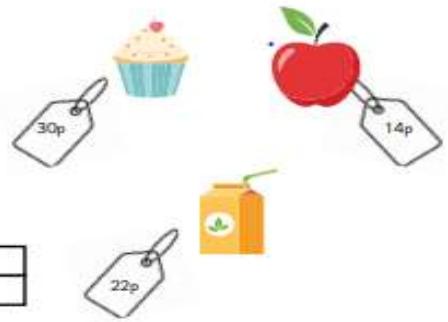
Amy buys a cookie and a lollipop.



20p + 15p = 35p
Amy spends 35p altogether

35p	
20p	15p

Shen buys a cupcake,
a carton of juice and an apple



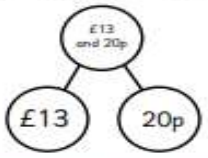
30p + 22p + 14p = 66p
Amy spends 66p altogether

66p		
30p	22p	14p

When adding pound and pence we can
add the pounds first and then the pence.
We can use a part-whole model to represent the calculation.

Sarah buys a helicopter,
a box of crayons and a football.

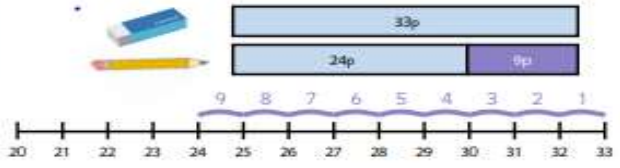
£7 + £4 + £2 = £13



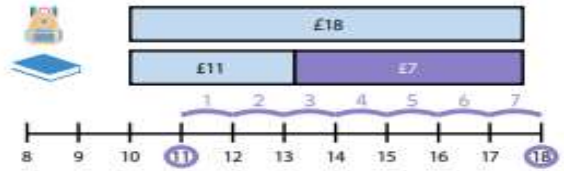
£13 + 20p = £13 and 20p
Sarah spends £13 and 20p in total.

Find the difference

To find the difference we can count back or count on to find the answer.



We can count back from 33 to 24 to find the difference.
The difference in price between the rubber and the pencil is 9p.

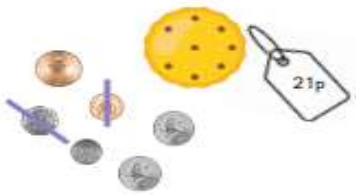


We can count on from 11 to 18 to find the difference.
The difference in price between the backpack and the book is £7.

Find change

To find change we can use subtraction to help us. We may need to use coins, exchange coins, use number bonds or use number lines to find the answer.

James has the coins below.
He buys a cookie for 21p.

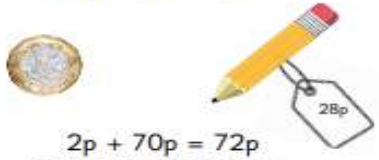


48p - 21p = 27p
James has 27p leftover.

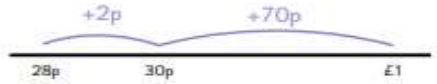
Amy buys an apple for 26p

We can exchange a 10p coin
for ten 1p coins.
70p - 26p = 44p
Amy gets 44p change.

Ben has £1
He buys a pencil for 28p.



2p + 70p = 72p
Ben gets 72p change.



Year 2 Length and height Knowledge Organiser

Maths

Length and height

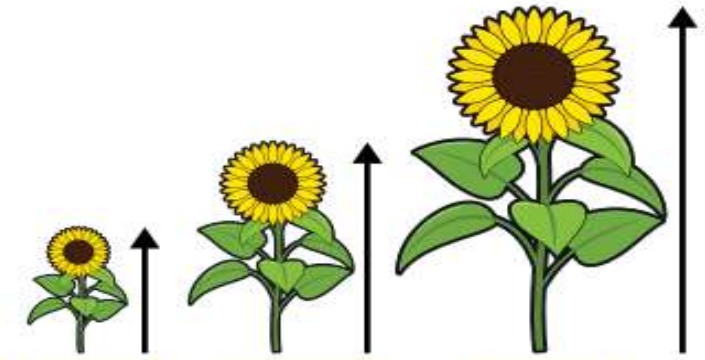
length

shortest

longer

longest

height

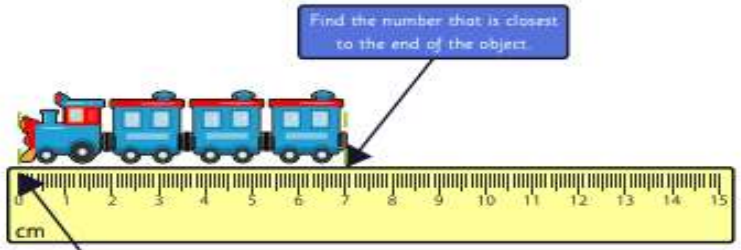


shortest

taller

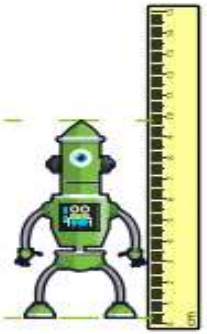
tallest

Measure length in centimetres

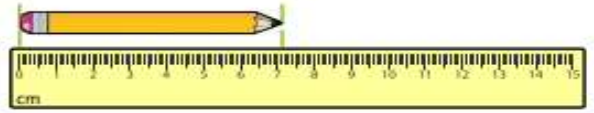


The toy train is 7 cm long.

The robot is 10 cm tall.



The pencil is 7 cm long.

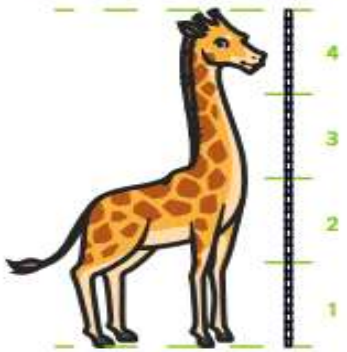


Measure length in metres

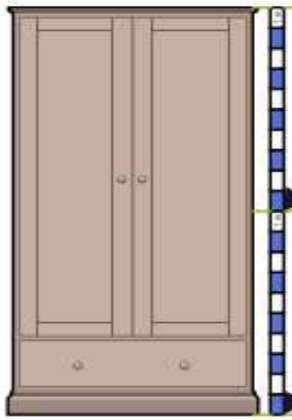
Measuring tapes and metre sticks are used to measure large objects.

1 m = 100 cm

The television is 2 **m long.**



The giraffe is 4 **m tall.**



Make sure metre sticks are placed next to each other if the object is larger than 1 m.

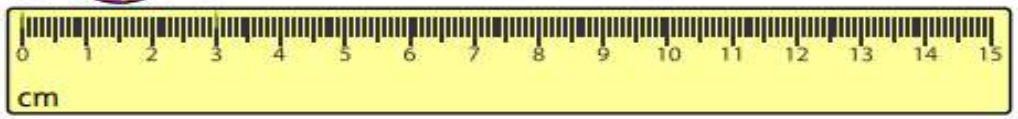
Make sure one end of the the object is level with 0 m.

The cupboard is 2 m tall.

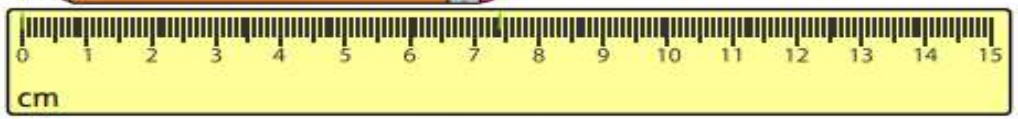
Compare lengths and heights

The sweet is **shorter** than the pencil.
The pencil is **longer** than the sweet.

The sweet is 3 cm long.



The pencil is 7 cm long.

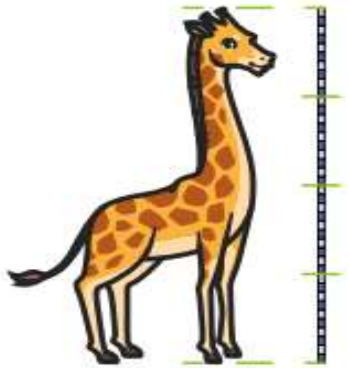


3 cm < 7 cm

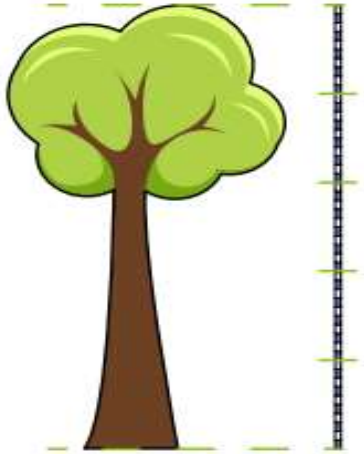
The giraffe is shorter than than the tree.
The tree is taller than than the giraffe.

The tree is 5 m tall.

The giraffe is 4 m tall.



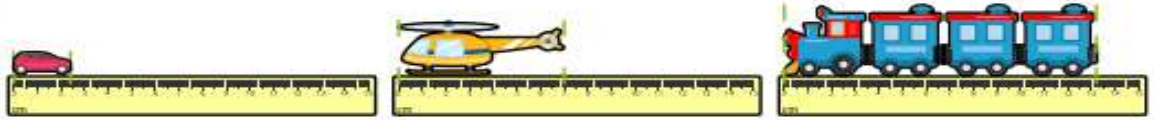
4 m < 5 m



Order lengths and heights

The car is the **shortest**.
The train is the **longest**.

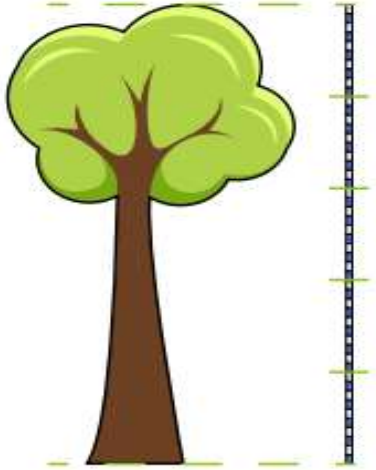
The helicopter is **longer** than the car but **shorter** than the train.



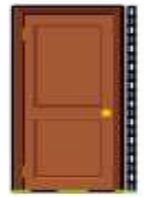
shortest

longest

The tree is **tallest**.
The guitar is **shortest**.



The door is **shorter** than the tree but **taller** than the guitar.



tallest

shortest

Mass, Capacity and Temperature

Maths | Y2

Compare mass

The **lighter** object has a **smaller mass** and is **higher** on the scale.

The **heavier** object has a **greater mass** and is **lower** on the scale.

When the scale is **balanced,** the objects weigh **the same.**

We can compare the **mass** of objects by using the **same objects** to **balance** the scales.

Measure in grams

=

1 gram = 1 g

Grams (g) are used for weighing lighter objects.

Place the object on one side and then add weights to the other side. When the **scales** are **balanced**, you have found the **mass** of the object.

balance scales

Place the object on the top and then read the **scale** to find the **mass** of the object. A scale is like a special kind of **number line.**

circular scales

Measure in kilograms

=

1 kilogram = 1 kg

Kilograms (kg) are used for weighing heavier objects.

10 kg + 10 kg + 10 kg + 1 kg = 31 kg

The mass of the suitcase is **31 kg.**

The mass of the bowling ball is 42 kg.

Mass, Capacity and Temperature

Maths | Y2

Volume and capacity

Volume is how much space something takes up.
We can describe the volume of liquid in a container using the language

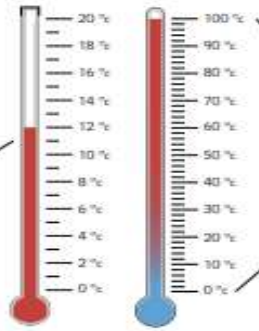
half full	empty	nearly full	nearly empty	full

Capacity is how much a container can hold.

A bucket has a greater capacity than a cup because it can hold more water.

Temperature

Temperature is how hot or cold a place or an object is.
We measure **temperature** in **degrees Celsius or °C.**



The temperature shown is 12 °C.

100°C is the temperature at which water boils.

0°C is the temperature at which water freezes.

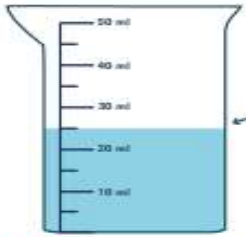
Measure in millilitres

Millilitres are useful for measuring small amounts of liquid.

5 millilitres (ml)

To measure the amount of liquid in a container we pour the liquid into a measuring container and read the scale.
A scale is like a number line.

The volume of water in the beaker is 25 ml.



We look at where the liquid reaches to on the scale.

Measure in litres

Litres are useful for measuring large amounts of liquid.

Each container below has a different scale.

5 litres (l)

The volume of water in the beaker is 9 l.

The volume of water in the bucket is 14 l.

The volume of water in the bucket is 32 l.

Questioning

Area of subject	Nursery/The Hub	Reception	Year One	Year Two
Place Value	**Number** Can you show me one teddy? What about two? Which group has more — this one or that one? Can you count how many blocks are in this tower? If I give you one more, how many will you have? What happens if we take one away? **Comparing** Who has more apples — you or me? Are there more red cars or blue cars? Can you find a group with fewer animals? Which plate has the most biscuits? **Matching and grouping** Can you match the number to the right number of objects? Let's put three bears in each bed — can you help? Can you make a group of five with these counters? **Language** What does "more" mean? What does "less" mean? Can you tell me which number is greater? What happens when we add one more? Can you say how many altogether? **Playful prompts** Let's roll the dice — how many dots do you see? Can you build a tower with five blocks? I have four bananas — can you give me one more? Let's make a number train — how many carriages do we need? Would you like me to map these to EYFS outcomes or suggest printable activities to go with them? What does "more" mean? What does "less" mean? Can you tell me which number is bigger? What happens when we add one more? Can you say how many altogether?	**Counting and representing** Can you count out 10 cubes for me? What number comes after 9? What comes before? Can you show me 14 using tens frames? How many fingers do you need to show 7? Can you build the number 12 using two different sets of objects? **Tens and Ones** What does the number 13 look like? Can you show me with tens and ones? If we have one ten and four ones, what number is that? Can you split 18 into tens and ones? Which part of the number tells us how many tens? Can you find a number with two tens? **Compare and reason** Which number is greater: 16 or 19? How do you know? Are there more counters in this group or that one? What's the smallest number you can make with these blocks? Can you find two numbers that are close together? What happens if we add one more to 19? **Playful prompts** Let's roll the dice — what number did you get? Can you show it with cubes? Can you make a number tower with 15 blocks? I have 10 pencils and you have 6 — who has more? Let's make a number line — can you find where 17 goes? Can you help me pack 20 apples into bags of ten? **Language** What does "place value" mean? What does the digit 2 mean in the number 21? Can you explain how you made the number 14? Why is 10 a special number? What happens when we swap the digits in 12?	**Numbers to 100** Can you count forwards and backwards from 50? What number comes before 32? What comes after? Can you write the number that is ten more than 46? Which number is missing on this number line? Can you find the number that is one less than 20? **Tens and Ones** How many tens and ones are in 34? Can you build 58 using base ten blocks? If I show you 7 tens and 2 ones, what number is that? What does the digit 6 mean in the number 64? Can you partition 29 in two different ways? **Compare and order** Which number is greater: 45 or 54? How do you know? Can you put these numbers in order from smallest to largest? Which number is closest to 100? Are 36 and 63 the same? Why or why not? Can you find a number between 41 and 49? **Reason and explain** How do you know that 70 is bigger than 17? Can you explain how you made the number 25? Why is 10 + 5 the same as 15? What happens if we swap the digits in 21? Can you find two numbers that have the same number of tens? **Practical prompts** Let's make 42 with counters — how many tens do we need? Can you find a number with 3 tens and more than 5 ones? I have 60p — can you show it using coins? Let's play "Guess My Number" — I have 4 tens and 3 ones! Can you build a staircase of numbers from 10 to 50?	**Understand and represent** Can you write the number that is 10 more than 67? What number comes just before 100? What comes just after? Can you show 145 using base ten blocks? How many tens and ones are in 83? What does the digit 2 mean in the number 124? **Partition and recombine** Can you partition 56 into tens and ones? How else could you split 72? What number do you get if you add 3 tens to 40? If I take away 20 from 85, what's left? Can you build 34 using diennes/ beadstrings? **Compare and order** Which number is greater: 89 or 98? How do you know? Can you put these numbers in order: 25, 16, 58? Which number is the smallest? How do you know? Are 45 and 54 the same? Why or why not? What number is halfway between 60 and 80? **Reason and explain** Can you explain how you know 45 is greater than 25? What happens if we swap the digits in 31? How do you know that 10 more than 89 is 99? Can you find two numbers with the same number of tens but different ones? **Practical prompts** Let's make 34 with place value counters — how many of each do we need? I have 3 tens and 5 ones — what's my number? Can you find a number with 4 tens and more than 5 ones? Let's play "Guess My Number" — it's more than 20 but less than 50.

Area of subject	Nursery/The Hub	Reception	Year One	Year Two
Calculation	**Early addition** You have 2 teddies and I give you 1 more — how many do you have now? Can you put 3 red blocks and 2 blue blocks together — how many blocks altogether? Let's count how many animals are in the barn and the field — how many altogether? If we add one more apple to the basket, how many apples will there be? **Early Subtraction** Can you help me make a group of 5 using these counters? You have 4 biscuits — if you eat 1, how many are left? Let's take 2 cars out of the garage — how many are still inside? If we take one away from this group of 3, what do we get? Can you help me take away 2 ducks from the pond? What happens when we take away one block from the tower? **Exploring Change and Difference** What happens when we add one more? What happens when we take one away? Is this group bigger or smaller than before? Can you make this group the same size as that one? How many more do we need to make 5? **Playful Prompts** Let's roll the dice — can you add the dots together? Can you help the teddy share 6 sweets between two plates? Let's play "magic fingers" — show me 2 fingers, now add 1 more! I have 3 toy cars — can you give me 2 more? Let's build a tower with 4 blocks, then take 1 away — what do we have now?	**Addition and Combining Groups** You have 3 apples and I give you 2 more — how many do you have now? Can you count how many altogether when we join 4 bears and 5 bears? What number do we get if we add 1 more to 6? Can you show me 7 using two different groups? Let's add 2 cubes to this tower of 5 — how many cubes now? **Subtraction and Taking Away** You had 6 sweets and ate 2 — how many are left? If we take away 3 ducks from the pond, how many are still swimming? What happens when we take one away from 9? Can you help me subtract 4 from 10? You have 5 blocks — if I take 2, how many do you have now? **Exploring Change and Difference** What's the difference between 8 and 5? How many more do we need to make 10? If we add 2 more, will we have more than 10? What happens when we add and then take away the same number? Can you find two numbers that make 7? **Reasoning and Explanation** How do you know that 3 + 2 = 5? Can you explain how you worked out 6 − 4? Why is 5 + 0 still 5? What happens when we add 1 to any number? Can you find a different way to make 10? **Practical and Playful Prompts** Let's roll two dice — can you add the dots together? I have 4 toy cars and you have 3 — how many do we have together? Can you help the teddy share 6 biscuits between two plates? Let's build a tower with 10 blocks, then take 3 away — what's left? Can you find all the ways to make 5 using counters?	**Addition to 20 and Beyond** What is 7 + 5? Can you show it with counters? If you have 9 apples and get 6 more, how many do you have altogether? Can you find two numbers that make 10? What number do you get if you add 10 to 13? Can you write a number sentence for this picture? **Subtraction and Taking Away** You had 15 sweets and gave away 7 — how many are left? What is 12 − 4? Can you show it on a number line? If we take 10 away from 20, what's left? Can you find the missing number: ___ − 3 = 5? What happens when we subtract zero? Exploring Number Facts and Relationships Can you find all the ways to make 8? What's the difference between 14 and 9? How many more do we need to make 20? If 5 + 3 = 8, what else do you know? Can you find a number bond that uses 6? **Reasoning and Explanation** How do you know that 7 + 3 = 10? Can you explain how you worked out 15 − 6? Why is 10 + 0 still 10? What happens when we add 1 to any number? Can you find two different ways to solve 9 + 6? **Practical and Playful Prompts** Let's roll two dice — can you add the numbers together? I have 5 toy cars and you have 4 — how many do we have together? Can you help the teddy share 12 biscuits between two plates? Let's build a tower with 20 blocks, then take 7 away — what's left? Can you find all the number sentences that make 10?	**Addition Strategies and Reasoning** What is 47 + 25? Can you show it using partitioning? Can you add 36 and 44 using a number line? What number do you get if you add 10 to 83? Can you find two different ways to make 100? If 23 + 17 = 40, what else do you know? **Subtraction and Difference** What is 62 − 28? Can you explain your method? If you take 10 away from 95, what's left? Can you find the missing number: ___ − 34 = 46? What's the difference between 72 and 58? Can you subtract 45 from 100? **Early Multiplication and Grouping** Can you show 3 groups of 5 using counters? What is 4 × 2? Can you draw an array? If each box has 10 pencils, how many pencils in 3 boxes? Can you count in 2s, 5s, and 10s up to 50? How many legs do 5 cats have? **Early Division and Sharing** Can you share 12 biscuits between 4 children? What is 20 ÷ 5? Can you show it with cubes? If we split 18 apples into groups of 3, how many groups? Can you find a number that can be shared equally between 2 people? What happens when we divide 10 by 1? Reasoning and Explanation How do you know that 30 + 20 = 50? Can you explain how you worked out 72 − 36? Why is 5 × 0 always 0? What happens when we add and then subtract the same number? Can you find two different ways to solve 48 + 27? **Practical and Playful Prompts** Let's build a tower with 60 blocks, then take away 25 — what's left? I have 3 bags with 10 marbles in each — how many marbles altogether? Can you find all the number sentences that make 20? Let's play "Guess My Number" — it's more than 40, less than 60, and it's a multiple of 5! Can you help the teddy share 24 sweets between 6 plates?

Area of subject	Nursery/The Hub	Reception	Year One	Year Two
Shape, Space and Measure	**Shape Recognition and Properties** Can you find a circle in the room? Which shape has three sides? Can you feel this shape — is it bumpy or smooth? Which shapes can roll? Which ones can't? Can you build a tower using only square blocks? **Exploring Position and Direction** Can you put the teddy under the table? Where is the ball — is it behind or in front of the chair? Can you move the car around the box? Let's hide the toy — is it inside or outside the basket? Can you line up the animals from biggest to smallest? Comparing Size, Length, and Height Which stick is longer? Can you find something taller than this teddy? Which cup holds more water? Can you build a tower that's taller than mine? Is this ribbon longer or shorter than your arm? **Exploring Weight and Capacity** Which bucket feels heavier? Can you fill this cup to the top? What happens if we pour the water from this jug into that one? Is the bowl full or empty? Can you find something lighter than this block? **Early Time and Daily Routines** What do we do first in the morning? Is it daytime or nighttime in this picture? What do we do after snack time? Can you find something we use when it's raining? What happens next in our story?	**Shape Recognition and Properties** Can you name this shape? What do you notice about it? Which shapes have straight sides? Which have curved sides? Can you find a shape with four corners? What happens when we turn this triangle around? Can you sort these shapes into groups? **Position, Direction, and Movement** Can you put the teddy next to the box? What about behind it? Where is the ball — is it under or over the table? Can you move the car around the track? Let's make a pattern — can you go in a circle, then a square? Can you describe where the toy is using "in front," "behind," or "between"? **Comparing Size, Length, and Height** Which tower is taller? Which is shorter? Can you find something longer than your pencil? Which object is the biggest? Which is the smallest? Can you line up these sticks from shortest to longest? What happens when we stretch the playdough? **Weight and Capacity** Which container holds more water? Can you find something heavier than this block? What happens when we pour water from this jug into that cup? Is the bowl full, half full, or empty? Can you fill the bucket to the top? **Time and Daily Routines** What do we do first in the morning? What comes after lunchtime? Can you find something we use when it's sunny? Is it daytime or nighttime in this picture? What do we do before home time?	**2D and 3D Shape Recognition and Properties** Can you name this shape? How many sides does it have? Which shapes have vertices? Which don't? What's the difference between a square and a rectangle? Can you find a 3D shape with a curved surface? Which shapes can stack? Which shapes can roll? **Position, Direction, and Movement** Can you describe where the teddy is using "next to," "behind," or "under"? What happens if we turn this shape around? Can you move the robot forward two steps and then turn left? Which way is the arrow pointing — left, right, up, or down? Can you follow the path and describe the directions? **Comparing Length, Height, and Mass** Which object is longer — the pencil or the ruler? Can you find something taller than your book? Which item is heavier — the block or the ball? Can you order these sticks from shortest to longest? What happens when we add more blocks to the tower? **Capacity and Volume** Which container holds more water? Can you fill the cup halfway? Is the jug full, half full, or empty? What happens when we pour water from one container to another? Can you find two containers that hold the same amount? **Time and Sequencing** What do we do first in the morning? What comes after lunchtime? Can you put these pictures in order from morning to night? How many minutes are in an hour? What do we do before home time?	**2D and 3D Shape Properties** Can you name this shape and describe its sides and corners? Which shapes have only straight sides? What's the difference between a square and a rectangle? Can you find a 3D shape with a curved surface and no edges? How many faces does a cube have? What shape are they? **Position, Direction, and Movement** Can you describe the position of the object using "left," "right," "above," or "below"? What happens when we turn this shape clockwise? Can you follow these directions: forward 2 steps, turn right, then forward 1? Which way is the arrow pointing — can you describe its direction? Can you rotate this shape and say what's changed? **Measuring Length, Height, and Mass** Can you measure this pencil using centimetres? Which object is longer — the ruler or the book? Can you find something heavier than 1 kilogram? How tall is the tower? Can you measure it? What unit would you use to measure the length of the classroom? **Capacity and Volume** Which container holds more — the jug or the bottle? Can you estimate how much water is in the cup? Is the glass full, half full, or nearly empty? What unit would you use to measure the capacity of a bath? Can you compare the volumes of two containers? **Time and Sequencing** What time does school start? Can you show it on a clock? How many minutes are in an hour? What time is it when the big hand is on the 6? Can you order these events from morning to night? What happens before lunchtime? What happens after?

Area of subject	Nursery/The Hub	Reception	Year One	Year Two
Statistics	**Sorting and Grouping** Can you sort these animals by colour? Which group has more — red cars or blue cars? Can you put all the big bears in one group and the small bears in another? How many buttons are in each bowl? Can you find all the shapes that are circles? **Comparing Quantities** Which fruit did we choose the most? Are there more children wearing red or blue today? Which group has fewer objects? Can you count how many blocks are in each tower? Which colour is the most popular in our painting? **Talking About Data** What did we find out from our sorting? Which group had the most animals? Can you tell me which group is the biggest? What do you notice about our collections? How many children chose apples for snack? **Playful Prompts** Let's sort the toys — how many are cars? How many are trains? Can you help me count how many children have packed lunches? Let's make a chart — who likes bananas and who likes apples? Can you help the teddy count how many socks are red? Let's vote — which story shall we read? Can you count the votes?	**Sorting and Grouping** Can you sort these buttons by colour? How many are in each group? Can you put the animals into groups — which live on land and which live in water? How many children are wearing red today? Can you sort these shapes by how many sides they have? Which group has more — the big bears or the small bears? **Comparing and Interpreting Data** Which fruit did we choose the most for snack? Are there more children who like apples or bananas? Which group has the fewest objects? Can you count how many children chose each activity? What do you notice about our class birthday chart? **Talking About Data** What did we find out from our sorting? Which group had the most? Which had the least? Can you explain what your chart shows? What do you notice about the colours we used in our graph? How many more children chose drawing than building? **Playful and Practical Prompts** Let's vote for our favourite story — can you count the votes? Can you help me make a picture graph of our favourite animals? Let's sort the toys — how many are cars, how many are trains? Can you help the teddy count how many socks are stripy? Let's make a tally of how many children have packed lunch today.	**Collecting and Organising Data** Can you sort these animals by type — how many of each? How many children chose drawing for their favourite activity? Can you make a tally chart of the fruit we ate today? How many books did we read this week? Can you count how many children have pets? **Representing Data** Can you help me make a pictogram of our favourite colours? How many smiley faces should we draw to show 5 children chose apples? Can you show our class birthdays on a block chart? What does this tally chart tell us? Can you draw a bar chart to show how many children walk, cycle, or drive to school? **Interpreting and Comparing Data** Which activity was the most popular? Are there more children who like cats or dogs? Which group has the fewest votes? What do you notice about our pictogram? How many more children chose red than blue? **Reasoning and Explanation** What does our chart tell us? Can you explain which group had the most? Why do you think more children chose bananas? What happens if we add one more vote to swimming? Can you describe what you see in the bar chart? **Playful and Practical Prompts** Let's vote for our favourite story — can you count the votes? Can you help sort the toys and count how many of each type? Let's make a tally of how many children have packed lunch today. Can you collect data about shoe sizes in our class? Let's survey the class — who likes pizza, pasta, or sandwiches?	**Collecting and Organising Data** Can you create a tally chart to show how many children chose each fruit? How many pets do children in our class have? Can you record the results? Can you sort these objects and count how many are in each group? How many children walk, cycle, or drive to school? Can you collect data about favourite colours in our class? **Representing Data** Can you draw a pictogram to show how many children chose each activity? How many symbols do we need to show 6 children chose apples? Can you complete this block diagram using the data we collected? What does each symbol in the pictogram represent? Can you help me fill in this table with our survey results? **Interpreting and Comparing Data** Which activity was the most popular? How many more children chose swimming than football? Which group had the fewest votes? What do you notice about the block diagram? Are there more children who like cats or dogs? **Reasoning and Explanation** What does our chart tell us? Can you explain which group had the most? Why do you think more children chose bananas? What happens if we add one more vote to cycling? Can you describe what you see in the pictogram? **Practical and Playful Prompts** Let's vote for our favourite story — can you record and compare the results? Can you survey the class to find out favourite animals? Let's sort the toys — how many are cars, how many are trains? Can you make a tally of how many children have packed lunch today? Let's collect data about shoe sizes — what's the most common

SEND

Inclusive pedagogy for all learners in Maths

How we create an inclusive environment in Maths:

Children should all be working on the same tasks and materials with the work increasing in difficulty and depth as appropriate.
Children who require extra support should have additional input prior to the lesson.
Children to be part of a more focused group with additional opportunities to practise skills.
Children's prior attainment will be considered when planning next steps.
CPA- Use of concrete then pictorial and then abstract for introducing new concepts.
Maths lessons should involve lots of chance to talk- with a teacher or a talk partner.
Use sentence frames to support children in explaining answers.
Have concrete apparatus available for them to choose to use if they wish.

How we scaffold learning to support children who have literacy difficulties:

When solving word problems have adults or more confident readers to assist with reading the question.
Some children may benefit from drawing out the problem to assist with understanding.
Use concrete resources and visual aids.
Worksheets to be laid out clearly to avoid overwhelming the children- thinking about the number of questions on a page, colour of the paper, font size.

How we scaffold learning to support children who struggle to retain vocabulary:

Where several words are used for one concept (e.g. different words for 'add'), children will need each of the words to be defined.
Have words documented in the classroom and refer to them throughout lessons/ topics.
Pre-teach new vocabulary and its meaning.
Use visual aids and symbols to help to remind learners of the meaning of new words.

How we scaffold learning to support children who need time to develop conceptual understanding:

Intervention time should be used to play games that consolidate new or difficult concepts.
Use pre-teaching to allow learners to be familiar with new concepts or apparatus.
Have clearly laid out worked examples for children to follow.
Ensure tasks are scaffolded so the children can focus on the key learning (pre-write any non-essential information such as date and title)
Use apparatus that the children are familiar with to help them to transfer and connect similar ideas.

How we scaffold learning to support children with attention difficulties:

When modelling, encourage the children to make notes/ jottings/ drawings along with the teacher on a small whiteboard.
If not all children are required during an introduction have an accessible activity for some of the children to complete and then swap over to reduce the amount of time that children are required to attend for.
Give children a target number of questions to complete.
Include questions which appeal to the child's interest to maximise engagement.

How we support children who struggle with change and transitions:

Prepare learners in advance of the format of the lesson as it may be different to usual (use of new apparatus)
Using visual resources (now/ next boards, visual time lines).
Give children a target number of questions to complete.
Give warnings as the activity is coming to an end.

Assessment

Pre-Nursery and Nursery

Pre-NURSERY 18-36 months (Birth to 3 Development matters)

Names												
Combine objects like stacking blocks and cups. Put objects inside others and take them out again.												
Take part in finger rhymes with numbers.												
React to changes of amount in a group of up to three items.												
Compare amounts, saying 'lots', 'more' or 'same'.												
Develop counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence.												
Count in everyday contexts, sometimes skipping numbers - '1-2-3-5.'												
Climb and squeeze themselves into different types of spaces.												
Build with a range of resources.												
Complete inset puzzles.												
Compare sizes, weights etc. using gesture and language - 'bigger/little/smaller', 'high/low', 'tall', 'heavy'.												
Notice patterns and arrange things in patterns.												

Working Towards END OF YEAR EXPECTATIONS FOR NURSERY										
Names										

Expected for END OF NURSERY and baseline for Reception (Three and Four year olds development matters)n												
Names												
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'												

Expected for END OF NURSERY and baseline for Reception (Three and Four year olds development matters)n												
Names												
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 identifies 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

Expected for END OF NURSERY and baseline for Reception

Names							
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'							

Expected for END OF NURSERY and baseline for Reception							
Names							
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 identifies 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...							

Working TOWARDS EARLY LEARNING GOAL						
Names						

Working AT EARLY LEARNING GOAL

Names						
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.						
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.						

Working above THE EARLY LEARNING GOAL						
Names						

Year One

Working TOWARDS THE EXPECTED STANDARD

Names					
Counts forwards and backwards to at least 20 and can read and write numbers to at least 20.					
Represents and partitions numbers to at least 20 using structured resources					
Add and subtract one digit numbers and one digit and two digit to 20 with apparatus					
Demonstrates an understanding of the composition of numbers to 10 and can recall number bonds to and within 5.					
Using an understanding of commutative law and reasons about associated facts to at least 5 e.g. 3 + 2 = 5 so 2 + 3 = 5, if 3 + 2 = 5 then 5 – 2 = 3					
Counts forwards and backwards in 10s and is beginning to count in 2s/5s to the tenth multiple					
Recognises and can sort some common coins					
Recognises some 2d and 3d shapes and begins to describe some of their properties.					
Describes and begins to compare measures length, height, mass, weight, capacity, volume and time – e.g. long, shorter, heavier, light, full, empty,					
Can recognise and find half of an object/shape					

Working AT THE EXPECTED STANDARD					
Names					
Counts forwards and backwards within 100 and can read and write numbers in numerals up to 100.					
Partition a two-digit number into tens and ones to demonstrate an understanding of place value, though they may use structured resources to support them (For example, base 10 apparatus.					
Add and subtract one and two-digit numbers and ones up to 20, explaining their method verbally, in pictures or using apparatus (e.g. 13 + 5; 6 + 9; 16 – 3; 8 – 7					
Recall at least four of the six2 number bonds for 10 and reason about associated facts (e.g. 6 + 4 = 10 , therefore 4 + 6 = 10 and 10 – 6 = 4) (Key number bonds to 10 are: 0+10, 1 + 9, 2 + 8, 3 + 7, 4 + 6, 5 + 5)					
Count in twos, fives and tens from 0 and use this to solve problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations/arrays					
Recognise and know the value of different coins					
Name some common 2-D and 3-D shapes from a group of shapes or from pictures of the shapes and describe some of their properties (e.g. triangles, rectangles, squares, circles, cuboids, cubes, pyramids and spheres) and begins to describe these using mathematical terminology – side, vertices, edge etc.					
Compares, describes, measures and begins to record length, height, mass, weight, capacity, volume and time					
Recognise, find and name a half as one of two equal parts and a quarter as one of four equal parts of an object, shape or quantity					
Tell the time to the hour and half past the hour					

Working above THE EXPECTED STANDARD					
Names					
Can read simple scales e.g. a number line or graph where numbers are given and is beginning to estimate points in between.					
Begins to recall some multiplication facts for 2s, 5s or 10s and is beginning to use these facts to solve problems.					
Reason about number patterns when counting on or back in different multiples. E.g. I am counting on from 20 will I say 19? I am counting in 2s from 0 will I say 13? And why?					
Can explain reasoning to simple multiplication and division problems e.g. I can double any number but can only halve some numbers, all even numbers can be shared into two groups but odd numbers cannot.					
Can solve unfamiliar word problems with one step.					
Can read the time on the clock for o'clock, half past, quarter past and quarter to the hour.					
Can make a single comparison of shapes using properties of shape and language such as straight, curved and number of vertices. E.g. A sphere and a cone both have a curved face, triangles and squares all have straight sides					

Year Two

Working TOWARDS THE EXPECTED STANDARD					
Names					
Read and write numbers in numerals up to 100.					
Partition a 2-digit number into tens and ones to demonstrate an understanding of place value, though may use structured support to help e.g diennes					
Add and subtract two-digit numbers and ones, and two-digit numbers and tens, where no regrouping is required, explaining their method verbally, in pictures or using apparatus.					
Recall at least 4 of the 6 number bonds for 10 and reason about associated facts.					
Count in 2s, 5s and 10s from 0 and use this to solve problems.					
Know the value of different coins.					
Name some common 2D and 3D shapes from a group of shapes or from pictures of the shapes and describing some of the properties.					

Working AT THE EXPECTED STANDARD					
Names					
Read scales in divisions of ones, twos, fives and tens.					
Partition a two-digit number into different combinations of tens and ones, explaining their method verbally, in pictures or using apparatus.					
Add and subtract any two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus.					
Recall all number bonds to and within 10 and use these to reason and calculate bonds to and within 20, recognising other associated additive relationships.					
Recall multiplication and division facts for 2, 5 and 10 and use them to solve simple problems, demonstrating an understanding of commutativity as necessary.					
Identify 1/2 , 1/3, ¼, 2/4, ¾ of a number or shape, and know that all parts must be equal parts of a whole.					
Use different coins to make the same amount.					
Read the time on a clock to the nearest 15 minutes.					
Name and describe properties of 2D and 3D shapes, including number of sides, vertices, edges, faces and lines of symmetry.					

Working AT THE GREATER DEPTH within the EXPECTED STANDARD					
Names					
Read scales (on a number line, a practical situation or a graph axis) where not all numbers on the scale are given and estimate points in between.					
Recall and use multiplication and division facts for 2, 5 and 10 and make deductions outside of known multiplication facts.					
Use reasoning about numbers and relationships to solve more complex problems and explain their reasoning.					
Solve unfamiliar word problems that involve more than one step.					
Read the time on a clock to the nearest 5 minutes.					
Describe the similarities and differences of 2D and 3D shapes, using their properties.					