

Counting	
Objectives	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
	count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
	given a number, identify one more and one less
Reasoning	Spot the mistake: 5,6,8,9 What is wrong with this sequence of numbers?
	True or False? I start at 2 and count in twos. I will say 9
	What comes next? 10+1 = 11 11+1 = 12 12+1 = 13
Vocabulary	count, count (up) to, count on (from, to), count back (from, to) forwards backwards count in ones, twos, fives, tens

Comparing numbers	
Objectives	use the language of: equal to, more than, less than (fewer), most, least
Reasoning	Do, then explain Look at the objects. (in a collection). Are there more of one type than another? How can you find out?
Vocabulary	Number Numeral Zero, one, two, three ... twenty, teens numbers, eleven, twelve ... twenty twenty-one, twenty-two ... one hundred None how many ...? count, count (up) to, count on (from, to), count back (from, to) forwards, backwards count in ones, twos, fives, tens equal to, equivalent to is the same as more, less, most, least many, odd, even, multiple of, few, pattern, pair

IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS	
Objectives	identify and represent numbers using objects and pictorial representations including the number line
Vocabulary	guess how many ...? estimate nearly roughly close to about the same as just over, just under too many, too few enough, not enough Ones, tens, digit, the same number as, as many as more, larger, bigger, greater fewer, smaller, less fewest, smallest, least most, biggest, largest, greatest, one more, ten more, one less, ten less, equal to , compare, order, size, first, second, third... twentieth last, last but one, before, after, next between, half-way between, above, below

READING AND WRITING NUMBERS (including Roman Numerals)	
Objectives	read and write numbers from 1 to 20 in numerals and words.
Vocabulary	Copy, Sequence, order Ones, tens, digit, the same number as, as many as more, larger, bigger, greater fewer, smaller, less fewest, smallest, least most, biggest, largest, greatest, one more, ten more, one less, ten less, equal to , compare, order, size, first, second, third... twentieth last, last but one, before, after, next between, half-way between, above, below
Resources / models	Digit cards Number tracks Number lines

NUMBER BONDS	
Objectives	represent and use number bonds and related subtraction facts within 20
Reasoning	<p>Continue the pattern $10 + 8 = 18$ $11 + 7 = 18$ Can you make up a similar pattern for the number 17? How would this pattern look if it included subtraction?</p> <p>Missing numbers $9 + \square = 10$ $10 - \square = 9$ What number goes in the missing box?</p>
Vocabulary	<p>addition add, more, and make, sum, total altogether double near double half, halve one more, two more ... ten more how many more to make ...? how many more is ... than ...? how much more is ...?</p> <p>subtract</p>




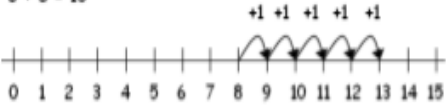


	take away , how many are left/left over? how many have gone? one less, two less, ten less ... how many fewer is ... than ...? how much less is ...? difference between equals, is the same as , number bonds/pairs missing number
Resources / models	Bar model Numicon Cuisinaire Bead strings



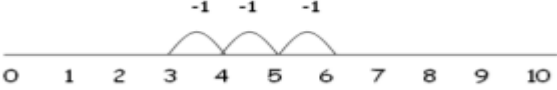
MENTAL CALCULATION	
Objectives	add and subtract one-digit and two-digit numbers to 20, including zero read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)
Reasoning	Working backwards Through practical games on number tracks and lines ask questions such as "where have you landed?" and "what numbers would you need to throw to land on other given numbers?"
	What do you notice? 11 - 1 = 10 11 - 10 = 1 Can you make up some other number sentences like this involving 3 different numbers?
	Fact families Which four number sentences link these numbers? 12, 15, 3
	What else do you know? If you know this: 12 - 9 = 3 what other facts do you know?
	Missing symbols Write the missing symbols (+ - =) in these number sentences: 17 <input type="checkbox"/> 3 <input type="checkbox"/> 20 18 <input type="checkbox"/> 20 <input type="checkbox"/> 2
Vocabulary	addition add, more, and make, sum, total altogether double near double half, halve one more, two more ... ten more how many more to make ...? how many more is ... than ...? how much more is ...? subtract take away , how many are left/left over? how many have gone? one less, two less, ten less ... how many fewer is ... than ...? how much less is ...? difference between equals, is the same as , number bonds/pairs missing number

Resources / models	Bar model Numicon Cuisinaire Bead strings
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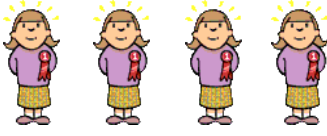

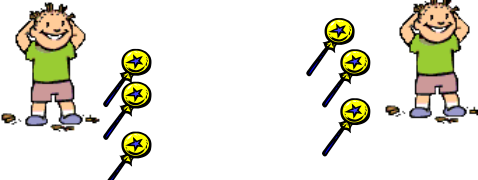
WRITTEN METHODS	
Objectives	read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)
Reasoning	<p>Convince me In my head I have two odd numbers with a difference of 2. What could they be? Convince me</p>
	<p>Missing numbers Fill in the missing numbers (using a range of practical resources to support) $12 + \square = 19$ $20 - \square = 3$</p>

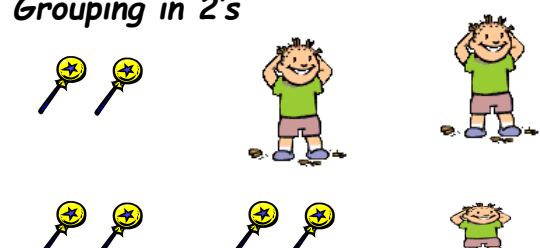
Vocabulary	<p>addition add, more, and make, sum, total altogether double near double half, halve one more, two more ... ten more how many more to make ...? how many more is ... than ...? how much more is ...?</p> <p>subtract</p> <p>take away , how many are left/left over? how many have gone? one less, two less, ten less ... how many fewer is ... than ...? how much less is ...? difference between equals, is the same as , number bonds/pairs missing number</p>	
Resources / models	<p>$3 + 2 = \square$</p> <p>At a party I eat 3 cakes and my friend eats 2 cakes. How many cakes did we eat altogether?</p> 	<p>Children could draw a picture to help them work it out. Children can count objects to help them work it out.</p>
	<p>$7 + 3 = \square$</p> <p>7 people were at the bus stop and 3 more people arrived. How many people are at the bus stop now?</p>  <p>Or</p> 	<p>Children could use dots or tally marks to represent objects (quicker than drawing pictures)</p>
	<p>$8 + 5 = 13$</p> 	<p>Children then begin to use number lines and are encouraged to count on from the largest number.</p>
	<p>$3 - 2 = \square$</p> <p>I had 3 balloons. Two burst. How many did I have left?</p>  <p>A teddy bear costs £5 and a car costs £2. How much more does the bear cost?</p>  <p><i>Find the difference</i></p>	<p>Drawing a picture helps children to visualize the problem.</p>

	$8 - 3 = \square$ Mam baked 8 biscuits. I ate 3. How many were left?  Take away Thomas had 8 felt tips and Sarah had 3. How many more does Thomas have?  Find the difference	Using dots or tally marks is quicker than drawing a picture.
	$6 - 3 = \square$ 	Children then move on to using numberlines. The numberline helps to show that we are looking for the difference between 6 and 3.

INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS	
Objectives	read and write numbers from 1 to 20 in numerals and words.
Reasoning	Making an estimate Pick (from a selection of number sentences) the ones where the answer is 8 or 9.
	Is it true that? Is it true that $3+4 = 4 + 3$?
Vocabulary	Estimate (An accurate guess)

PROBLEM SOLVING	
Objectives	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$
Resources / models	See written methods previously





MULTIPLICATION & DIVISION FACTS/ Written Methods		
Objectives	count in multiples of twos, fives and tens (copied from Number and Place Value)	
Reasoning	Practical If we put two pencils in each pencil pot how many pencils will we need?	
	Making links If one teddy has two apples, how many apples will three teddies have? Here are 10 lego people If 2 people fit into the train carriage, how many carriages do we need?	
	Spot the mistake (multiples) Use a puppet to count but make some deliberate mistakes. e.g. 2 4 5 6 10 9 8 6 See if the pupils can spot the deliberate mistake and correct the puppet	
Vocabulary	Multiplication, multiply, multiplied by, multiple, doubling, halving, array, number patterns	
	Division, dividing, grouping, sharing, halving, array, number patterns	
Resources / models	$2 \times 4 =$ Each child has two eyes. How many eyes do four children have?  $2 + 2 + 2 + 2$	Drawing pictures is very useful to help children visualise the problem.
	$5 \times 3 =$ There are 5 cakes in a pack. How many cakes are in three packs?  $5 + 5 + 5$	Dots or tally marks are often grouped. This shows 3 lots of 5.
	$6 \div 2 =$ 6 lollies are shared between 2 children. How many lollies do they each get? <i>sharing between 2</i> 	Drawing often gives the children a way into solving the problem. Practical things like sweets can also be used to 'share'.

	<p>There are 6 lollies. How many children can have 2 each?</p> <p>Grouping in 2's</p> 	
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Problem solving	
Objectives	solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
Vocabulary	<p>Multiplication, multiply, multiplied by, multiple, doubling, halving, array, number patterns</p> <p>Division, dividing, grouping, sharing, halving, array, number patterns</p>
Resources / models	concrete objects, pictorial representations and arrays with the support of the teacher

COUNTING IN FRACTIONAL STEPS									
Objectives	recognise, find and name a half as one of two equal parts of an object, shape or quantity								
Reasoning	<p>What do you notice?</p> <p>Choose a number of counters. Place them onto 2 plates so that there is the same number on each half.</p> <p>When can you do this and when can't you?</p> <p>What do you notice?</p>								
Vocabulary	Fraction, equal part, equal grouping, equal sharing, parts of a whole, half, one of two equal parts, quarter, one of four equal parts								
Resources / models	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; text-align: center; width: 20%;">4</td> <td style="border: 1px solid black; text-align: center; width: 20%;">4</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">2 2</td> <td style="border: 1px solid black; text-align: center;">1 1 1 1</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; width: 20%;">1</td> <td style="border: 1px solid black; text-align: center; width: 20%;">1</td> </tr> <tr> <td style="border: 1px solid black; text-align: center;">1/2 1/2</td> <td style="border: 1px solid black; text-align: center;">1/4 1/4 1/4 1/4</td> </tr> </table>	4	4	2 2	1 1 1 1	1	1	1/2 1/2	1/4 1/4 1/4 1/4
4	4								
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	quarter			
	half			

Objectives	
Objectives	recognise, find and name a quarter as one of four equal parts of an object, shape or quantity
Vocabulary	
Vocabulary	Fraction, equal part, equal grouping, equal sharing, parts of a whole, half, one of two equal parts, quarter, one of four equal parts
Resources / models	
Resources / models	   

EQUATIONS	
Objectives	
Objectives	<p><i>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$</i></p> <p><i>(copied from Addition and Subtraction)</i></p> <p><i>represent and use number bonds and related subtraction facts within 20</i></p> <p><i>(copied from Addition and Subtraction)</i></p>
Reasoning	
Reasoning	<p>Connected Calculations</p> <p>$11 = 3 + 8$</p> <p>$12 = 4 + 8$</p> <p>$13 = \blacksquare + 8$</p> <p>$14 = \blacksquare + 8$</p> <p>What numbers go in the boxes?</p> <p>Can you continue this sequence of calculations?</p>
Vocabulary	
Vocabulary	Sequence, missing number, addition facts, subtraction facts, number bonds

COMPARING AND ESTIMATING	
Objectives	
Objectives	<p>compare, describe and solve practical problems for:</p> <ul style="list-style-type: none"> * lengths and heights [e.g. long/short, longer/shorter, tall/short, double/half] * mass/weight [e.g. heavy/light, heavier than, lighter than] * capacity and volume [e.g. full/empty, more than, less than, half, half full, quarter]

	* time [e.g. quicker, slower, earlier, later]
Reasoning	Top tips How do you know that this (object) is heavier / longer / taller than this one? Explain how you know.
Vocabulary	Measure, measurement , size, compare, guess, estimate, enough, not enough, too much, too little, too many, too few, nearly, close to, about the same as, roughly , just over, just under centimetre , metre, length, height, width, depth, long, short, tall, high, low, wide, narrow, thick, thin, longer, shorter, taller, higher ... and so on longest, shortest, tallest, highest ... and so on far, near, close, ruler, metre stick litre, half litre, capacity, volume , full, empty, more than, less than , half full, quarter full , holds, container
Resources / models	
Objective	sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
Reasoning	Explain thinking Ask pupils to reason and make statements about to the order of daily routines in school e.g. daily timetable e.g. we go to PE after we go to lunch. Is this true or false? What do we do before break time? etc.
Vocabulary	before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening

MEASURING and CALCULATING	
Objectives	measure and begin to record the following: * lengths and heights * mass/weight * capacity and volume * time (hours, minutes, seconds)

Reasoning	Application (Can be practical) Which two pieces of string are the same length as this book?
Objective	recognise and know the value of different denominations of coins and notes
Reasoning	Possibilities Ella has two silver coins. How much money might she have?
Vocabulary	coin penny, pence, pound price, cost buy, sell spend, spent pay change dear, costs more cheap, costs less, cheaper costs the same as how much ...? how many ...? total


TELLING THE TIME	
Objectives	tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.
	recognise and use language relating to dates, including days of the week, weeks, months and years
Vocabulary	time days of the week, Monday, Tuesday ... months of the year (January, February ...) seasons: spring, summer, autumn, winter day, week, weekend, month, year birthday, holiday morning, afternoon, evening, night bedtime, dinner time, playtime today, yesterday, tomorrow before, after earlier, later next, first , last midnight date

	<p>now, soon, early, late quick, quicker, quickest, quickly slow, slower, slowest, slowly old, older, oldest new, newer, newest takes longer, takes less time how long ago? how long will it be to ...? how long will it take to ...? how often? always, never, often, sometimes usually once, twice hour, o'clock, half past, clock, clock face, watch, hands hour hand, minute hand hours, minutes</p>
Resources / models	Clocks, calendars - weekly, monthly

IDENTIFYING SHAPES AND THIER PROPERTIES	
Objectives	<p>Recognise and name common 2-D and 3-D shapes, including:</p> <ul style="list-style-type: none"> * 2-D shapes [e.g. rectangles (including squares), circles and triangles] * 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].
Reasoning	<p>What's the same, what's different? Find a rectangle and a triangle in this set of shapes. Tell me one thing that's the same about them. Tell me one thing that is different about them.</p> <p>Visualising Put some shapes in a bag. Find me a shape that has more than three edges.</p>
Vocabulary	<p>shape, pattern flat curved, straight round hollow, solid sort make, build, draw size bigger, larger, smaller</p>

	<p>symmetry, symmetrical, symmetrical pattern pattern, repeating pattern match corner, side point, pointed rectangle (including square) circle triangle face, edge, vertex, vertices cube, cuboid pyramid sphere cone cylinder</p>
Resources / models	

COMPARING AND CLASSIFYING	
Reasoning	<p>True or false? All 2-D shapes have at least 4 sides</p> <p>Other possibilities Can you find shapes that can go with the set with this label? "Have straight sides"</p>
Vocabulary	See identifying shapes above
Resources / models	2D and 3D shapes

POSITION, DIRECTION AND MOVEMENT	
Objectives	describe position, direction and movement, including half, quarter and three-quarter turns.
Reasoning	<p>Working backwards The shape below was turned three quarter of a full turn and ended up looking like this.</p> <div style="text-align: center;">  </div> <p>What did it look like when it started? (practical)</p>

Vocabulary	Position, over, under, underneath , above, below, top, bottom, side, on, in, outside, inside, around, in front, behind, front, back, beside, next to, opposite, apart, between, middle, edge, centre , corner, direction, journey , left, right, up, down, forwards, backwards, sideways, across, next to, close, near, far, along, through, to, from, towards, away from, movement, slide, roll, turn, stretch, bend, whole turn, half turn, quarter turn , three-quarter turn
Resources / models	

INTERPRETING, CONSTRUCTING AND PRESENTING DATA	
Objectives	
Reasoning	
Vocabulary	count, sort, vote group, set list, table
Resources / models	