purple mash

England 

Supporting the National Curriculum 2014 with Purple Mash

Mathematics

Contents

Each year group contains examples of how the creative tools can be effectively used to support National Curriculum 2014. Looking at examples from year groups above and below may provide additional ideas. Additional resources are added regularly. See the mathematics categories within Purple Mash for additional content.

The curriculum map also contains references to the 'Ready-to-progress criteria' which are provided in the DfE document: Mathematics Guidance: Key Stages 1 and 2. In this publication, these criteria are identified as the most important points of conceptual knowledge and understanding which children need as they progress from year 1 to year 6.

Year 1

Number – Number and Place Value

National Curriculum Statement	Purple Mash Resource	Direct link to resource
Pupils should be taught to: • Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. • Count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens • Given a number, identify one more and one less. • Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least. • Read and write numbers from 1 to 20 in numerals and words. **1NPV-1 Count within 100, forwards or backwards, starting with any number.**	**Use of Mathematics printable resources**	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Printable Place Value worksheets
		Printable Number Bonds
		Printable Times Tables resources
		Mini Mash Number resources
	Ready-made activities in Place Value Activities	Digits and words to 20
		Digits and words to 100
		Number sequencing
		Number Bonds to 10
		Number Bonds to 20 – pairs game
	Ready-made activities in Place Value Activities	Number Bonds to 20 – spreadsheet activity
		1 more than, 1 less than 1 more, 1 less: Mixed questions
		Counting in Twos – Number Sequences
		Counting in Fives – Number Sequences
		Number Chart Patterns
		Number Chart Missing Numbers
		Find the number on the number line

National Curriculum Statement	Purple Mash Resource	Direct link to resource
1NPV-2 Reason about the location of numbers to 20 within the linear number system, including comparing using < > and = **1NF-2 Count forwards and backwards in multiples of 2, 5 and 20.**		Missing numbers on the number line
	Use **2Quiz** to create your own number sequencing and cloze quizzes.	2Quiz Resources
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include:	• One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables
	Use 2Investigate example databases to explore the language of: equal to, more than, less than (fewer), most, least.	2Investigate Resources
	Use 2Investigate example database **Numbers** to investigate numbers that are odd/even, divisible by 5 by using the search options in the database to display them pictorially.	2Investigate Resources

Number – Addition and Subtraction

National Curriculum Statement	Purple Mash Resource	Direct link to resource
Pupils should be taught to: • Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 20. • Add and subtract one-digit and two-digit numbers to 20, including zero. • Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ – 9. **1NF-1 Develop fluency in addition and subtraction facts within 10.** **1AS-1 Compose numbers to 10 from 2 parts and partition numbers to 10 into parts, including recognising odd and even numbers.**	**Use of Mathematics printable resources**	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Printable Number Bonds
		Mini Mash Number resources
	Ready-made activities in Addition and Subtraction	Addition and Subtraction to 20
		Addition and Subtraction to 20 cloze
		Addition and Subtraction to 20 pairs game
	Maths Quiz Generate your own maths quizzes. Test the children on +, - or X of varying complexity.	2Quiz 2Quiz Resources
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include:	• One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables

<table>
<tr>
<td rowspan="2"><u>1AS-2 Read, write and interpret equations containing addition (+), subtraction (-) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.</u></td>
<td>Bond Bubbles
Aim the bubble blower by clicking near a target bubble at the top of the screen. If the total of the bubble and the one it hits are the target number the bubbles will fall. Three levels of challenge. . Up to 20, 200 and finally 400.</td>
<td>Use Bond Bubbles Challenge A. Use the teacher icon at the top of the screen to change the target number
 
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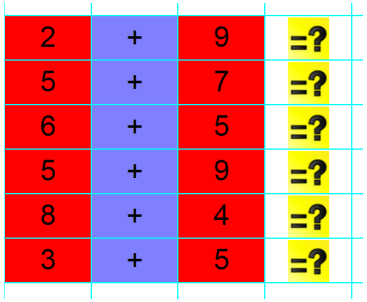
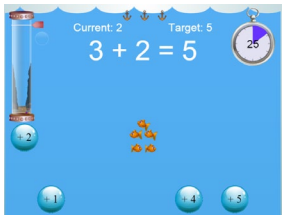
<tr>
<td>2Calculate Spreadsheets
Includes premade lesson plans and
 

videos to develop number problem-solving skills.
Create your own activities to set as 2Dos.</td>
<td>Can be accessed by pupils from within 2Calculate tool.
2Calculate Resources
<u>2Calculate Lessons:</u>
Shopping
Animals
Counting Fish
On a Plate
10, 20, 30
Magic 12
1p and 2p
Going Shopping
Special Offers
2Pattern</td>
</tr>
</table>

	A-Fish-metric Use level 1: Basic or level 2:Adding and Subtracting. The levels consolidate addition and subtraction skills via games.	

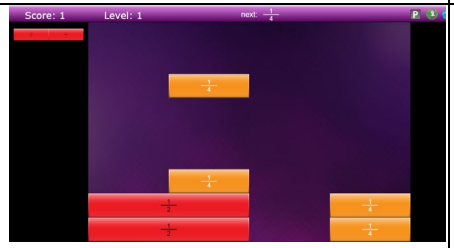
Number – Multiplication and Division

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • 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.	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Times Tables	Printable Times Tables resources
	Ready-made activities in Multiplication & Division Category	2Go activity – Counting in 2s -Level 1 -Level 2	Count in 2s: Level 1 Count in 2s: Level 2
		2Go activity – Counting in 5s -Level 1 -Level 2	Count in 5s: Level 1 Count in 5s: Level 2
		2Go activity – Counting in 10s -Level 1 -Level 2	Count in 10s: Level 1 Count in 10s: Level 2
	Maths Quiz Generate your own maths quizzes. Test the children on +, - or X of varying complexity.	2Quiz	2DIY & 2Quiz Resources

	2Race Set up multiplayer games. Choose your track type and question types	2Race 	Pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables
	Tabletoons The children develop their multiplication skills through song. The children create their own musical playlist using a range of different songs. Games consolidate these skills. Ranging from 2x to 12x	Tabletoons 	 Watch the help video from within Table Toons to find out how to make full use of this tool.
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills.	2Calculate Spreadsheets	2Calculate Resources

	Create your own activities to set as 2Dos. **2Calculate Lessons:** 10, 20, 30 Magic 12 Going Shopping Special Offers	Can be accessed by pupils from within 2Calculate tool.	

Number – Fractions

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Recognise, find and name a half as one of two equal parts of an object, shape or quantity. • Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	**Use of Mathematics printable resources**	Fraction Walls	Printable Fractions Resources
		Mini Mash Number resources	Mini Mash Number resources
	Fraction Wall Guide the falling fractions as they drop down from the top of the screen. Position the fractions so they contain a whole. Three levels of challenge that increases the complexity of the numbers used and the speed.		Use Challenge A, Level 1
	Fractonio's Pizzeria Develop fraction skills with 3 levels of difficulty.	 Level 1: Pizza Rookie	Level 1: Pizza Rookie asks the children to use simple fractions to create a pizza. Level 2: Pizza Master encourages the children to use mixed fractions and level 3: Pizza King converts fractions into percentages.
	Ready-made activities in Fractions Category	Halves	Y1 fractions halves
		Quarters	Y1 fractions quarters

Measurement

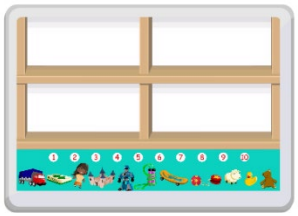
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources

Pupils should be taught to:
 	
• Compare, describe and solve practical problems for:
  ○ Lengths and heights [for example, long/short, longer/shorter, tall/short, double/half].
  ○ Mass/weight [for example, heavy/light, heavier than, lighter than].
  ○ Capacity and volume [for example, full/empty, more than, less than, half, half full, quarter].
  ○ Time [for example, quicker, slower, earlier, later]
• Measure and begin to record the following:
  ○ Lengths and heights
  ○ mass/weight
  ○ capacity and volume
	Ready Made Activities In Measurement Category	Longer or Shorter	Longer of Shorter

		Tallest & Shortest	Tallest & Shortest
	Length and Weight **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the lengths and weights of classroom objects. Show children how the spreadsheet can sort them automatically and order by length or weight.	2Calculate Spreadsheets	2Calculate Resources
	Length and Weight 2Investigate **databases** Create a database of objects with information including fields; length, weight, capacity, waterproof (y/n), stackable (y/n). You can pose questions like which item would be best for packing your clothes in to go away for a week? or a day? which would be best for bringing water to school in?	2Investigate	2Investigate Resources

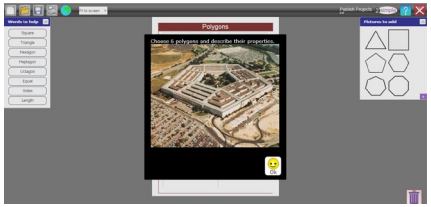
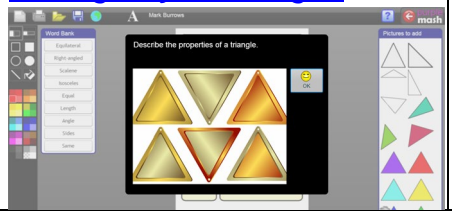
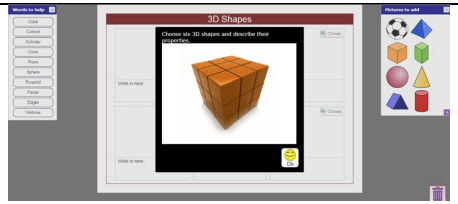
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
○ time (hours, minutes, seconds) • Recognise and know the value of different denominations of coins and notes. • Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] • Recognise and use language relating to dates, including days of the week, weeks, months and years. • Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	which would be good for packing your toys in? Then show how to search the database.		
	Time **Use of Mathematics printable resources**	Clock proformas, days of the week, months of the year resources.	Printable Time Resources
		Worksheets to accompany ready-made activities	Printable Time Resources
	Time **Ready-made activities in Time Category**	**Telling the time quiz**	Y1 Time Quiz
		Sequencing activity – Racing positions	Y1 Time: Racing Positions
		What's the Time Mr. Wolf? – 10 progressive cloze activities with accompanying printable worksheets	What's the time Mr Wolf? - worksheets
		Paint Projects – Clock 1 Draw the hands on the clock. Then draw a picture to show what happens at that time.	Paint project: Clock (A)
		Paint Project – Clock 2 Drag the numbers onto the digital clock face. Then draw a picture to show what happens at that time.	Paint project: Clock (D)
		Paint Project – Clock 3	Paint project: Big Clock

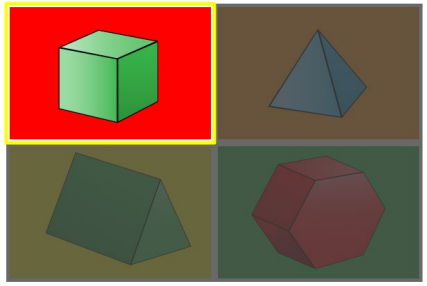
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
		Shade out the numbers on a digital clock face and draw what happens.	
	Time Create 2Quiz sequencing activities where the children place the days of the week, months, years or events in chronological order using the required language.	2Quiz	2DIY & 2Quiz Resources
	Money **Ready-made 2Calculate Spreadsheet – Shopping, Going Shopping and Special offers** Using a spreadsheet to price objects and pay for them with coins. Includes lesson plan, premade spreadsheet and video to develop number problem-solving skills. You can also create your own **2Calculate** activities to set as 2Dos.	2Calculate Spreadsheets Activity can be accessed by pupils from within 2Calculate tool.	2Calculate Resources
	Money Ready-made activities in Money Category	Money pairs game	Money pairs game
		Money up to 10p	Money up to 10p (A)
			Money up to 10p (B)

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
		Money up to 20p	Money up to 20p (A)
			Money up to 20p (B)
		Money up to 50p	Money up to 50p (A)
			Money up to 50p (B)
		Money up to £1	Money up to £1 (A)
			Money up to £1 (B)
			Money up to £1 (C)
			Money up to £1 (D)
	Money **Maths City 1; Toyshop** videos and money activity Fill the shelves with toys and add prices, add toys to the shopping basket then pay (with 1p coins)		Watch the help video within the program for guidance on what children do in the activities. Printable resources are also available Maths City Resources
	Financial Capability activities Aimed at Y1-6 a collection of a variety of activities	Financial Education 	Financial Capability Lesson Ideas
	Capacity **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the capacities of classroom objects.	2Calculate Spreadsheets	

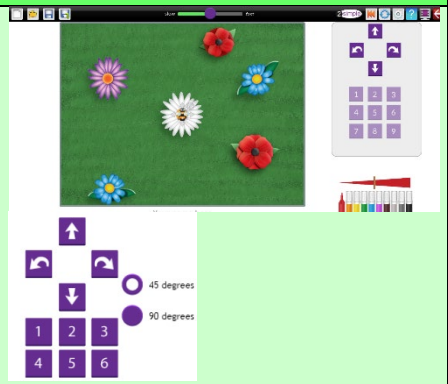
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
	2Quiz – Sequencing and labelling Create quizzes where children order and label lengths, weights, capacities or time using full/empty, more than, less than, half, half full, quarter.	2Quiz	2DIY & 2Quiz Resources

Geometry – Properties of a Shape

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Recognise and name common 2-D and 3-D shapes, including: o 2-D shapes [for example, rectangles (including squares), circles and triangles] o 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. **1G-1 Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.**	**Use of Mathematics printable resources**	2D and 3D shape dominoes, memory games and posters	Printable Shape Resources
	Paint Projects **Basic Shapes (2D)** **Rectangles** **Circles** **Squares** **Triangles**	Paint project: Basic Shapes Paint project: Rectangular_things Paint project: Round Things Paint project: Square Things Paint project: Triangular Things	
	2D shape pairs game	2D shape pairs game	
	Writing Projects **3D Shapes** Choose 6 3D shapes and describe their properties **Polygons** Choose 6 polygons and describe their properties **Triangle Properties**	Writing Project: 3D Shapes Writing Project: Polygons  Writing Project: Triangles 	

1G-2 Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.	Describe the properties of a triangle		
	2Quiz Create 2Quiz labelling activities where the children label objects with their shapes (2D and 3D).	2Quiz	2DIY & 2Quiz Resources
	2Design and Make Pupils can use the 3D shapes in 2Design and Make to create nets with topic related designs, print them and fold them into the 3D shapes. Pupils could make 3D boxes in different 3D shapes.		2Design & Make Guide

Geometry – Position and Direction

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Describe position, direction and movement, including whole, half, quarter and three quarter	**2Go** Use the ready-made templates to guide the bee around, using directional controls.  Change the input method in settings to extend children's knowledge of directional control. There are several Challenges for children to try.		2Go User Guide and Lesson Ideas

Year 2

Number – Number and Place Value

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. • Recognise the place value of each digit in a two-digit number (tens, ones) • Identify, represent and estimate numbers using different representations, including the numberline. • Compare and order numbers from 0 up to 100; use and = signs. • Read and write numbers to at least 100 in numerals and in words.	**Use of Mathematics printable resources**	Number lines, 100 squares, number cards, place value	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
			Printable Place Value worksheets
		Times Tables – for identifying number patterns when counting in 2s, 3s, 5s and 10s. Includes printable games.	Printable Times Tables resources
	Ready-made activities	Digits and words to 100	Digits and words to 100
		Numbers to 100 quiz	Numbers to 100 quiz
		Number sequencing	Number sequencing
		Number Bonds to 20 – pairs game	Number Bonds to 20 – pairs game
		Number Bonds to 20 – spreadsheet activity	Number Bonds to 20 – spreadsheet activity
		Tens and Ones	Tens and Ones
		Order Numbers (<,>,= signs)	Order Numbers
		Counting in 2s, 3s and 5s	Counting in Steps

<table>
<tr><td rowspan="4">• Use place value and number facts to solve problems.

<u>2NPV–1 Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning.</u>

<u>2NPV–2 Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10.</u></td><td rowspan="2"></td><td>Place Value Models – Tens & Ones</td><td>Tens & Ones</td></tr>
<tr><td>Place Value Models – Up to hundreds</td><td>Up to hundreds</td></tr>
<tr><td>Use 2Quiz Sequencing questions to create some number sequencing and cloze quizzes. Can the children continue the sequence in their books?</td><td>2Quiz</td><td>2DIY & 2Quiz Resources</td></tr>
<tr><td><u>2Race</u>
Set up multiplayer games. Choose your track type and question types; pre-set choices include:

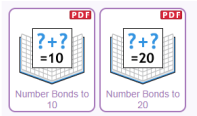
• One less/more than
• Odd/eve
• Comparison
• Number bond
• Addition
• Subtraction
• Multiplication
• Division
• Times tables</td><td>2Race
  </td><td></td></tr>
</table>

	Use 2Investigate example databases to explore the language of: equal to, more than, less than (fewer), most, least.	2Investigate	2Investigate Resources
	Use 2Investigate example database **Numbers** to investigate numbers that are odd/even, divisible by 5 by using the search options in the database to display them pictorially.	2Investigate	2Investigate Resources
	2Calculate Place Value Spreadsheets. Helps children recognise the place value of each digit in a two-digit number (tens, ones). Use as a whiteboard resource or for individuals to challenge and test themselves.	https://www.purplemash.com/site#app/pup/2calc_place_value_TU	

Number – Addition and Subtraction

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources

Pupils should be taught to:
 	
• solve problems with addition and subtraction:
  ○ Using concrete objects and pictorial representations, including those involving numbers, quantities and measures.
  ○ Applying their increasing knowledge of mental and written methods.
• Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
• Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:
  ○ A two-digit number and ones.
  ○ A two-digit number and tens.
	Use of Mathematics printable resources	Number lines, place value and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources

			Printable Place Value worksheets
		Number bonds 	Printable Number Bonds
	Ready-made activities in Addition & Subtraction Category	Number bonds to 20 pairs game	Number bonds to 20 pairs game
		Number bonds to 100 in 10s pairs game	Number bonds to 100 in 10s pairs game
		Matching Models (+ & -)	Matching Models
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve	2Race 	2Race

○ Two two-digit numbers. ○ Adding three one-digit numbers • Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. **2NF–1 Secure fluency in addition and subtraction facts within 10, through continued practice.** **2AS–1 Add and subtract across 10.** **2AS–2 Recognise the subtraction structure of**	• Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables		
	Maths Quiz Generate your own maths quizzes. Test the children on +, - or X of varying complexity.	2Quiz	2DIY & 2Quiz Resources
	Maths Cloze Use **2Quiz** to create some number sequencing and cloze quizzes.	2Quiz	2DIY & 2Quiz Resources
	Pairs Create your own matching pairs game of varying complexity. Match number bonds to 20, maths questions with their answer.	2DIY Pairs	2DIY & 2Quiz Resources

<table>
<tr>
<td rowspan="2"><u>‘difference’ and answer questions of the form, “How many more...?”.</u>

<u>2AS–3 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number.</u>

<u>2AS–4 Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers.</u></td>
<td>Bond Bubbles
Aim the bubble blower by clicking near a target bubble at the top of the screen. If the total of the bubble and the one it hits are the target number the bubbles will fall. Three levels of challenge. . Up to 20, 200 and finally 400.</td>
<td> 
</td>
<td>Use Bond Bubbles Challenge A. Use the teacher icon at the top of the screen to change the target number</td>
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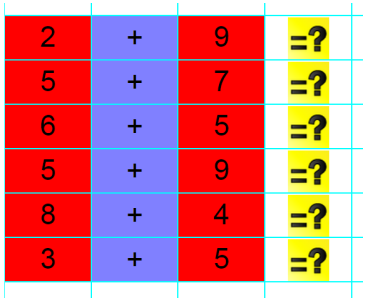
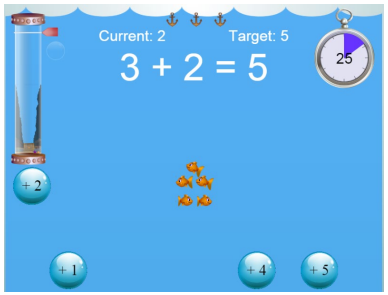
<td><u>2Calculate Spreadsheets</u>
Includes premade lesson plans and videos to develop number problem-solving skills. Create your own activities to set as 2Dos.
<u>2Calculate Lessons:</u>
Shopping
On a Plate
1p and 2p
Going Shopping
Special Offers
2Pattern</td>
<td>2Calculate Spreadsheets
 

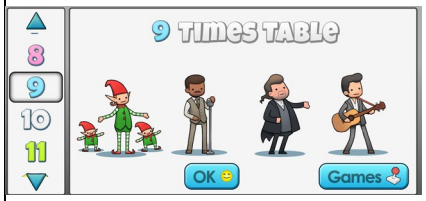
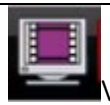
Can be accessed by pupils from within 2Calculate tool.</td>
<td>2Calculate Resources</td>
</tr>
</table>

	A-Fish-metric Develop basic number skills with 4 levels of difficulty. Levels 1 and 2 cover addition and subtraction, level 3 multiplication and level 4 advanced multiplication.		

Number – Multiplication and Division

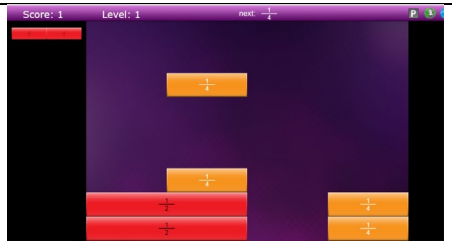
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. • Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Times Tables	Printable Times Tables resources
	Ready-made activities	2Go activity – Counting in 2s -Level 1 -Level 2	Counting in 2s, Level 1 Counting in 2s, Level 2
		2Go activity – Counting in 5s -Level 1 -Level 2	Counting in 5s, Level 1 Counting in 5s, Level 2
		2Go activity – Counting in 10s -Level 1 -Level 2	Counting in 10s, Level 1 Counting in 10s, Level 2
		Odd and Even	Odd and Even
		Multiplication Facts for 2,5,10 times tables.	Multiplication Facts for 2,5,10 times tables.
		Arrays – Division Statements	Arrays – Division Statements
		Multiplication Expressions	Multiplication Expressions
		Relating ÷ and x to objects	Relating Operators to Objects
		Division by counting equal groups	Division by counting equal groups

and division facts, including problems in contexts. **2MD–1 Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.** **2MD–2 Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).**		Arrays as repeated addition – Expressions	Arrays as repeated addition – Expressions
		Arrays as repeated addition – matching statements to array.	Arrays as repeated addition – matching statements to array
	Use 2Investigate example database **Numbers** to investigate numbers that are odd/even, divisible by 5 by using the search options in the database to display them pictorially.	2Investigate	2Investigate Resources
	Maths Quiz Generate your own maths quizzes. Test the children on +, - or X of varying complexity. Use Venn diagrams (in **grouping**) to explore number patterns e.g. numbers in 2x table, in 5x table (in both). Children can develop their own.	2Quiz  Example at Y3 Venn Multiples	2DIY & 2Quiz Resources

	Table Toons The children develop their multiplication skills through song. The children create their own musical playlist using a range of different songs. Games consolidate these skills. Ranging from 2x to 12x	Tabletoons 	 Watch the help video from within Table Toons to find out how to make full use of this tool.
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills.	2Calculate Spreadsheets	2Calculate Resources Create your own activities to set as 2Dos.
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond • Addition	2Race 	2Race

	• Subtraction • Multiplication • Division • Times tables		
	A-Fish-metric Develop basic number skills with 4 levels of difficulty. Levels 1 and 2 cover addition and subtraction, level 3 multiplication and level 4 advanced multiplication.	Level 3 multiplication	

Number – Fractions

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Recognise, find, name and write fractions $^1/_3$, ¼, $^2/_4$, and ¾ of a length, shape, set of objects or quantity. • Write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of $^2/_4$ and ½.	**Use of Mathematics printable resources**	Fraction Walls	Printable Fractions Resources
	Fraction Wall Guide the falling fractions as they drop down from the top of the screen. Position the fractions so they contain a whole. Three levels of challenge that increases the complexity of the numbers used and the speed.		Use Challenge A, Levels 2-4
	Fractonio's Pizzeria Develop fraction skills with 3 levels of difficulty.	Level 1: Pizza Rookie 	Level 1: Pizza Rookie asks the children to use simple fractions to create a pizza. Level 2: Pizza Master encourages the children to use mixed fractions and level 3: Pizza King converts fractions into percentages.
	Ready-made activities	Halves	Halves
		Quarters	Quarters
		Equivalent Fractions	Equivalent Fractions

Measurement

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. • Compare and order lengths, mass, volume/capacity and record the results using >, < and =. • Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value. • Find different combinations of coins that equal the same amounts of money.	**Length and Weight** **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the lengths and weights of classroom objects. Show children how the spreadsheet can sort them automatically and order by length or weight.	2Calculate Spreadsheets	2Calculate Resources
	Length and Weight 2Investigate **databases** Create a database of objects with information including fields; length, weight, capacity, waterproof (y/n), stackable (y/n). Use the search facilities to practice the use of >, < and = symbols.	2Investigate	2Investigate Resources
	Time **Use of Mathematics printable resources**	Clock proformas, days of the week, months of the year resources.	Printable Time Resources
		Worksheets to accompany ready-made activities	Printable Time Resources

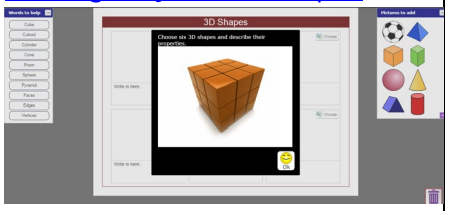
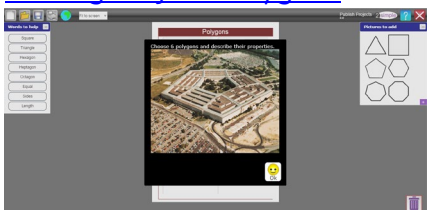
• Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. • Compare and sequence intervals of time. • Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. • Know the number of minutes in an hour and the number of hours in a day.	**Time** **Ready-made activities in** Time Category	**Telling the time quiz**	https://www.purplemash.com/#app/pup/maths_activities_Y1_time_quiz
		Sequencing activity – Racing positions	https://www.purplemash.com/#app/pup/maths_activities_Y1_time_racing_positions
		What's the Time Mr. Wolf? – 10 progressive cloze activities with accompanying printable worksheets	What's the time Mr Wolf? - worksheets
		Paint Projects – Clock 1 Draw the hands on the clock. Then draw a picture to show what happens at that time.	Paint project: Clock (A)
		Paint Project – Clock 2	Paint project: Clock (D)
		Paint Project – Clock 3 Shade out the numbers on a digital clock face and draw what happens.	Paint project: Big Clock
		Writing Project Choose 6 clocks and write the time and what happens	Time Writing Project
	Money **Ready-made activities in** Money Category	Money pairs game	Money pairs game
		Shop- Multi-drag game	Shop- Multi-drag game
		Money up to 10p	Money up to 10p - A
			Money up to 10p - B
		Calculating change from 10p	Calculating change from 10p - A

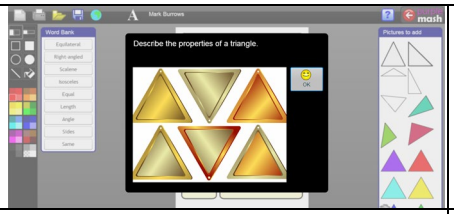
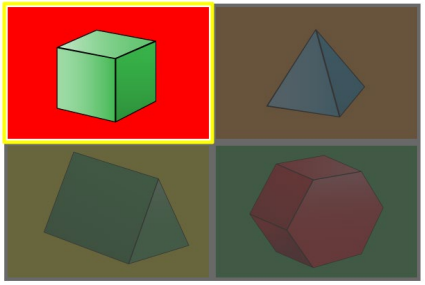
			Calculating change from 10p - B
		Money up to 20p	Money up to 20p - A
			Money up to 20p - B
		Calculating change from 20p	Calculating change from 20p - A
			Calculating change from 20p - B
		Money up to 50p	Money up to 50p - A
			Money up to 50p - B
		Calculating change from 50p	Calculating change from 50p - A
			Calculating change from 50p - B
		Money up to £1	Money up to £1 - A
			Money up to £1 - B
			Money up to £1 - C
			Money up to £1 - D
		Calculating change from £1	Calculating change from £1 - A
			Calculating change from £1 - B
			Calculating change from £1 - C
			Calculating change from £1 - D
	Money **Ready-made 2Calculate Spreadsheets – Shopping, Going Shopping and Special offers** Using a spreadsheet to price objects and pay for them with coins. Includes lesson plans, premade spreadsheets and videos to develop number problem-solving skills.	2Calculate Spreadsheets Activity can be accessed by pupils from within 2Calculate tool.	2Calculate Resources

	You can also create your own **2Calculate** activities to set as 2Dos.		
	Financial Capability activities Aimed at Y1-6 a collection of a variety of activities	Financial Education 	Financial Capability Lesson Ideas
	Practice of >, < and =. Symbols Use of the 2Investigate example databases and worksheets to search the databases and find records meeting specific criteria.	2Investigate	2Investigate Resources
	Capacity **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the capacities of classroom objects.	2Calculate Spreadsheets	
	Temperature Combine with science experimentation. Use or **2Calculate** to record results. Use these tools to create **2Graph** line graphs of the data.	2Calculate Spreadsheets	
	2Quiz – Sequencing and labelling Create quizzes where children order and label lengths, weights, capacities or time	2Quiz	2DIY & 2Quiz Resources

	using the vocabulary in the curriculum requirements e.g. full/empty, more than, less than, half, half full, quarter.		

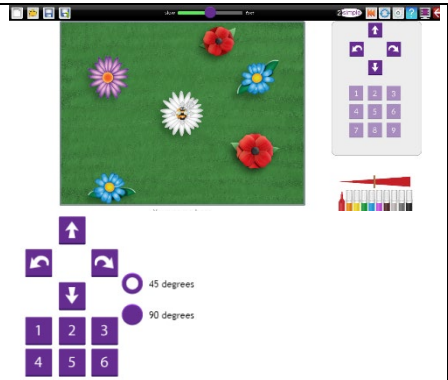
Geometry – Properties of a Shape

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • Compare and sort common 2-D and 3-D shapes and everyday objects. **2G–1 Use precise language to**	**Use of Mathematics printable resources**	2D and 3D shape dominoes, memory games and posters	Printable Time Resources
	Ready-made activities	**Basic Shapes (2D)**	Paint project: Basic Shapes
		Rectangles	Paint project: Rectangular_things
		Circles	Paint project: Round Things
		Squares	Paint project: Square Things
		Triangles	Paint project: Triangular Things
		2D shape pairs game	2D shape pairs game
	Writing Projects **3D Shapes** Choose 6 3D shapes and describe their properties **Polygons** Choose 6 polygons and describe their properties **Triangle Properties** Describe the properties of a triangle	Writing Project: 3D Shapes  Writing Project: Polygons  Writing Project: Triangles	

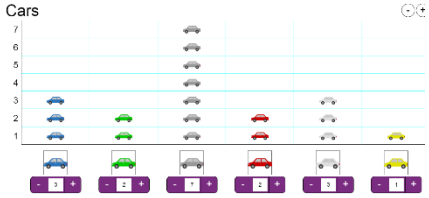
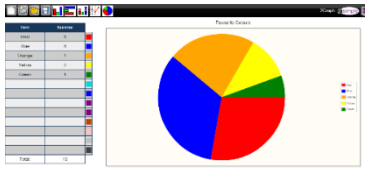
describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties.			
	2Quiz Create 2Quiz labelling activities where the children label objects with their shapes (2D and 3D).	2Quiz	2DIY & 2Quiz Resources
	2Design and Make Pupils can use the 3D shapes in 2Design and Make to create nets with topic related designs, print them and fold them into the 3D shapes. Pupils could make 3D boxes in different 3D shapes.		2Design & Make Guide

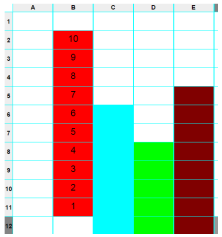
Geometry – Position and Direction

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources

Pupils should be taught to: • Order and arrange combinations of mathematical objects in patterns and sequences. • Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).	**2Go** Use the ready-made templates to guide the bee around, using directional controls.  Change the input method in settings to extend children's knowledge of directional control. There are several Challenges for children to try.		2Go User Guide and Lesson Ideas

Statistics

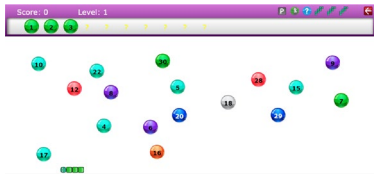
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. • Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. Ask and answer questions about totalling and comparing categorical data.).	**Ready-made activities: Statistics**	**Graph activity**	Graph activity
		Venn Diagrams	Venn Diagrams
		Tally Tables and Data Tables	Tally Tables and Data Tables
	2Count Design and make simple pictograms based around common themes including cars, dice, fruit, eyes, fruit and pets.	2Count 	2Count Guide
	2Graph Create a range of bar, block, line and pie charts to show information gathered from elsewhere.	2Graph 	2Graph Guide
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills.	2Calculate Spreadsheets	2Calculate Resources

	Create your own activities to set as 2Dos e.g. create a simple bar chart to show eye colours in the class. **<u>Relevant 2Calculate Lessons:</u>** Nice Ices That's my Favourite Special Offers Block Chart, Bar Chart	 Can be accessed by pupils from within 2Calculate tool.	

Year 3

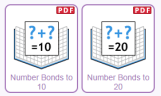
Number – Number and Place Value

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. • Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). • Compare and order numbers up to 1000. • Identify, represent and estimate numbers using different representations. • Read and write numbers up to 1000 in numerals and in words.	**Use of Mathematics printable resources**	Number lines, 100 squares, number cards, place value	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
			Printable Place Value worksheets
		Times Tables – in 100 squares, memory cards and dominoes.	Printable Times Tables resources
	Ready-made Place Value Activities	Tens and Ones	Tens and Ones
		Order Numbers (<,>,= signs)	Order Numbers
		Numbers to 1000	Numbers to 1000
		Place value in 3-digit numbers	Place value in 3-digit numbers
		Multiples of 4	Multiples of 4
		Multiples of 8	Multiples of 8
		Numbers to 1000 in words	Numbers to 1000 in words
		Numbers to 1000	Numbers to 1000
		Converting between place value – 10,000	Converting between place value – 10,000
		Converting to a number – Up to 10,000	Converting to a number – Up to 10,000

• Solve number problems and practical problems involving these ideas. **3NPV–1 Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10.** **3NPV–2 Recognise the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning.** **3NPV–3 Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.** **3NPV–4 Divide 100 into 2, 4, 5 and 10 equal parts, and read**	**2Calculate Place Value Spreadsheets.** Helps children recognise the place value of each digit in a three-digit number (tens, ones). Use as a whiteboard resource or for individuals to challenge and test themselves.	Tens and Ones Hundreds, Tens and Ones Thousands, Hundreds, Tens and Ones	
	Use **2Quiz Sequencing questions** to create some number sequencing and cloze quizzes. Can the children continue the sequence in their books?	2Quiz	2DIY & 2Quiz Resources
	Game **Sequence Snake:** Eat the numbered balls to complete the sequence. Three levels of challenge that increases the complexity of the numbers used and the speed. – use challenge B.	Sequence Snake 	
	Use 2Investigate example databases to explore the language of:	2Investigate	2Investigate Resources

scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.	equal to, more than, less than (fewer), most, least.		
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables	2Race 	2Race
	Use 2Investigate example database **Numbers** to investigate numbers that are odd/even, divisible by 5 by using the search options in the database to display them pictorially.	2Investigate	2Investigate Resources

Number – Addition and Subtraction

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Add and subtract numbers mentally, including: o A three-digit number and ones. o A three-digit number and tens o A three-digit number and hundreds • Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. • Estimate the answer to a calculation and use inverse operations to check answers • Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Number bonds 	Printable Number Bonds
	Ready-made activities	HTO + O	HTO + O
		HTO + T	HTO + T
		HTO + H	HTO + H
		HTO – O	HTO – O
		HTO – T	HTO – T
		HTO – H	HTO – H
		Fact Families	Fact Families
		Matching related + & - facts	Matching related + & - facts
	Maths Quiz Generate your own maths quizzes. Test the children on +, - or X of varying complexity. Use for mental maths practice and testing.	2Quiz	2DIY & 2Quiz Resources
	2Race	2Race	2Race

<table>
<tr>
<td rowspan="2"><u>3NF–1 Secure fluency in addition and subtraction facts that bridge 10, through continued practice.</u>

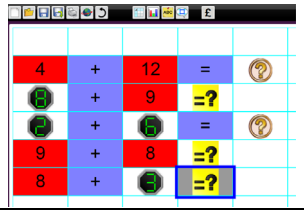
<u>3NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10).</u>

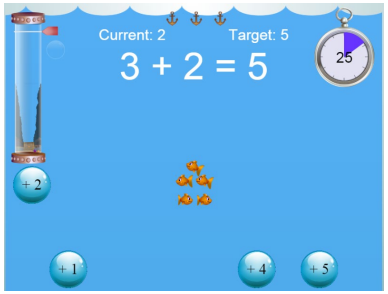
3AS–1 Calculate complements to 100.

3AS–2 Add and subtract up to three-digit numbers using columnar methods.

<u>3AS–3 Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition, and understand the</u></td>
<td>Set up multiplayer games. Choose your track type and question types; pre-set choices include:

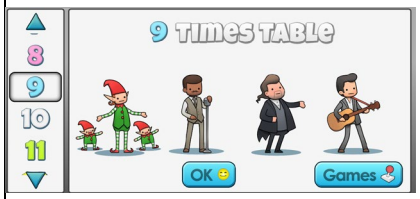
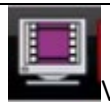
• One less/more than
• Odd/eve
• Comparison
• Number bond
• Addition
• Subtraction
• Multiplication
• Division
• Times tables</td>
<td>  </td>
<td></td>
</tr>
<tr>
<td>Bond Bubbles
Aim the bubble blower by clicking near a target bubble at the top of the screen. If the total of the bubble and the one it hits are the target number the bubbles will fall. Three levels of challenge. . Up to 20, 200 and finally 400.</td>
<td> 
</td>
<td>Use Bond Bubbles Challenge B and levels 8-12.</td>
</tr>
</table>

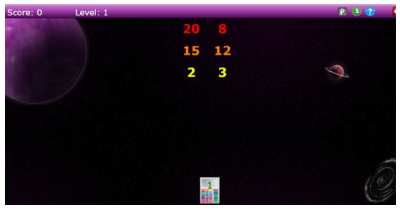
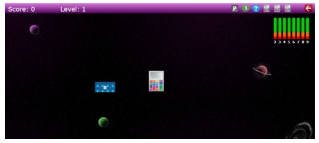
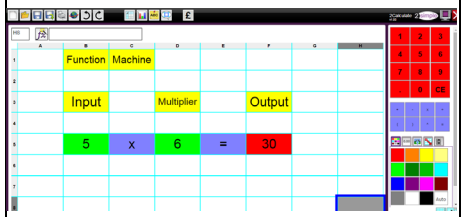
related property for subtraction.	**Funky Platform** Make the number on the calculator equal the to the target number by jumping on the SUM platforms. Gain bonus points by doing this in as few moves as possible.	Funky Platform 	Three levels of challenge that increases the complexity of the numbers used and the speed. Use challenge B and levels 4 upwards
	2Calculate Random number sums example	Addition Spreadsheet 	Use 2Calculate random number tool to create problems for the children to solve. Set these as 2Dos.
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills. **2Calculate Lessons:** Two Number Test Even Numbers Counting Machine 1 & 2 Sequences	2Calculate Spreadsheets Can be accessed by pupils from within 2Calculate tool.	2Calculate Resources

	A-Fish-metric Develop basic number skills with 4 levels of difficulty. Levels 1 and 2 cover addition and subtraction, level 3 multiplication and level 4 advanced multiplication.		

Number – Multiplication and Division

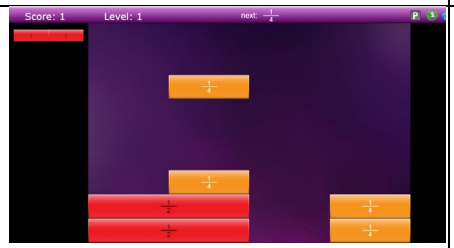
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. • Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. • Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Times Tables	Printable Times Tables resources
	Ready-made activities	Multiplication Facts for 2,5,10 times tables.	Multiplication Facts for 2,5,10 times tables.
		Sorting Multiples	Sorting Multiples
		3 x table pairs	3 x table pairs
		3 x table spreadsheet	3 x table spreadsheet
		4 x table pairs	4 x table pairs
		4 x table spreadsheet	4 x table spreadsheet
		8 x table pairs	8 x table pairs
		8 x table spreadsheet	8 x table spreadsheet
		Multiplication Facts for 3,4,8 times tables.	Multiplication Facts for 3,4,8 times tables.
	Use 2Investigate example database **Numbers** to investigate numbers that are odd/even, divisible by 5 by using the search options in the database to display them pictorially.	2Investigate	2Investigate Resources

3NF–2 Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. **3MD–1 Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.**	**Maths Quiz** Generate your own maths quizzes. Test the children on +, - or X of varying complexity.	2Quiz	2DIY & 2Quiz Resources
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables	2Race 	2Race
	Table Toons The children develop their multiplication skills through song. The children create their own musical playlist using a range of different songs. Games consolidate these	Tabletoons 	 Watch the help video from within Table Toons to find out how to make full use of this tool.

	skills. Ranging from 2x to 12x		
	Dividers Divide the numbers before they reach the calculator by firing factors at them. Three levels of challenge that increases the complexity of the numbers used and the speed.	Dividers 	Use Challenge A. Remember you can change the level using the teachers tab at the top of the screen
	Factoroids Break down the factors into equal parts. Three levels of challenge that increases the complexity of the numbers used and the speed.	Factoroids 	Use Challenge A. Remember you can change the level using the teachers tab at the top of the screen
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills. **2Calculate Lessons:** Counting Machine 1 & 2 Sequences	2Calculate Spreadsheets 	2Calculate Resources Ask the children to create their own number machine spreadsheet. Create your own activities to set as 2Dos.

	A-Fish-metric Develop basic number skills with 4 levels of difficulty. Levels 1 and 2 cover addition and subtraction, level 3 multiplication and level 4 advanced multiplication.	Level 3 multiplication 	
	Pairs	Create your own matching pairs game of varying complexity. Match times tables questions with their answer.	2DIY & 2Quiz Resources

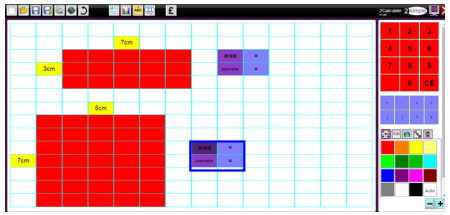
Number – Fractions

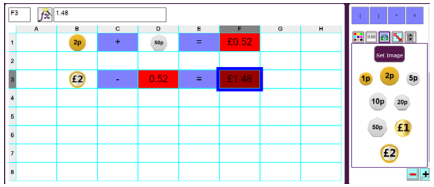
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. • Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. • Recognise and show, using diagrams, equivalent fractions with small denominators. • Add and subtract fractions with the same denominator	**Use of Mathematics printable resources**	Fraction Walls	Printable Fractions Resources
	Fraction Wall Guide the falling fractions as they drop down from the top of the screen. Position the fractions so they contain a whole. Three levels of challenge that increases the complexity of the numbers used and the speed.		Use Challenge A, Levels 2-4. You can change the level using the teachers tab at the top of the screen.
	Fractonio's Pizzeria Develop fraction skills with 3 levels of difficulty.	Level 1: Pizza Rookie 	**Level 1**: Pizza Rookie asks the children to use simple fractions to create a pizza. **Level 2:** Pizza Master encourages the children to use mixed fractions and **Level 3:** Pizza King converts fractions into percentages.
		Equivalent Fractions	Equivalent Fractions

within one whole [for example, $^5/_7 + {}^1/_7 = {}^6/_7$]. • Compare and order unit fractions, and fractions with the same denominators. • Solve problems that involve all of the above. **3F–1 Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.** **3F–2 Find unit fractions of quantities using known division facts (multiplication tables fluency).** **3F–3 Reason about the location of any fraction within 1 in the linear number system.** **3F–4 Add and subtract fractions with the same denominator, within 1.**	Ready-made fractions activities	Fraction Quiz	Fraction Quiz
		Finding Matching Expressions	Finding Matching Expressions
		Fraction Bar	Fraction Bar
		Fraction of Number Lines	Fraction of Number Lines
		Unit Fractions on A Number Line 1	Unit Fractions on A Number Line 1
		Unit Fractions on A Number Line 2	Unit Fractions on A Number Line 2

Measurement

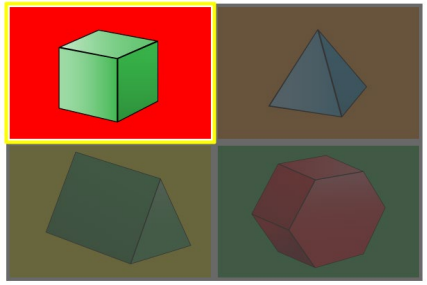
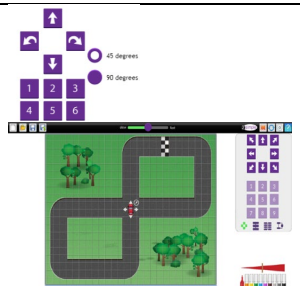
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). • Measure the perimeter of simple 2-D shapes. • Add and subtract amounts of money to give change, using both £ and p in practical contexts. • Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. • Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning,	**Length and Weight** **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the lengths and weights of classroom objects. Show children how the spreadsheet can sort them automatically and order by length or weight.	2Calculate	2Calculate Resources
	Length and Weight 2Investigate **databases** Create a database of objects with information including fields; length, weight, capacity, waterproof (y/n), stackable (y/n). Use the search facilities to practice the use of >, < and = symbols.	2Investigate	2Investigate Resources
	Time **Use of Mathematics printable resources**	Clock proformas, days of the week, months of the year resources.	Printable Time Resources
		Worksheets to accompany ready-made activities	Printable Time Resources
		Roman Numerals	Printable Roman Numerals

afternoon, noon and midnight. • Know the number of seconds in a minute and the number of days in each month, year and leap year. • Compare durations of events [for example to calculate the time taken by particular events or tasks].	**Time** **Ready-made activities in Time Category**	**What's the Time Mr. Wolf? – 10 progressive cloze activities with accompanying printable worksheets**	What's the time Mr Wolf? - worksheets
		Time Conversions	Time Conversions
		Clock faces	Clock faces
		Telling the time	Telling the time
		Pairs game	Pairs game
		Writing Project	Time Writing Project
		Units of Time	Units of Time
		AM or PM	AM or PM
	Perimeter **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the lengths and widths of 2D shapes and create formulae to calculate perimeter (and area).	2Calculate Spreadsheets 	2Calculate Resources
	Ready-made activities in Measurement Category	Convert units of measure	Convert units of measure
		Perimeter	Perimeter

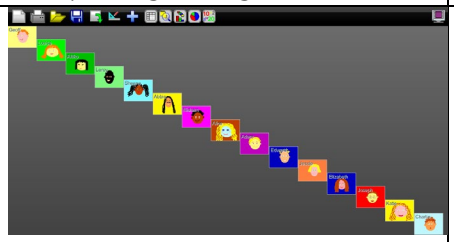
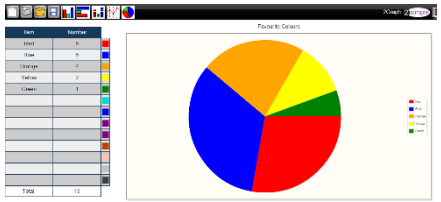
	Money **2Calculate Spreadsheets** Use of the money images and currency formatting of cells to explore mathematics with money and calculate change. Use images to create a virtual shop and set simulated shopping tasks.	2Calculate Spreadsheets 	2DIY & 2Quiz Resources
	Money Ready-made activities in Money Category	Shop multi-drag game	Shop multi-drag game
		Calculating change from 10p	Calculating change from 10p - A
			Calculating change from 10p - B
		Calculating change from 20p	Calculating change from 20p - A
			Calculating change from 20p - B
		Calculating change from 50p	Calculating change from 50p - A
			Calculating change from 50p - B
		Calculating change from £1	Calculating change from £1 - A
			Calculating change from £1 - B
			Calculating change from £1 - C
			Calculating change from £1 - D
	Financial Capability activities Aimed at Y1-6 a collection of a variety of activities	Financial Education 	Financial Capability Lesson Ideas
	Capacity **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the capacities of classroom objects.	2Calculate Spreadsheets	

Geometry – Properties of a Shape

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. • Recognise angles as a property of shape or a description of a turn. • Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	**Use of Mathematics printable resources**	2D and 3D shape dominoes, memory games and posters	Printable Shape Resources
	Ready-made shape activities	2D shape pairs game	2D shape pairs game
		2D shape perimeter	2D shape perimeter
		3D shape pairs game	3D shape pairs game
		Label 2D and 3D shapes	Label 2D and 3D shapes
		Sort into 2D and 3D shapes	Sort into 2D and 3D shapes
		Types of lines	Types of lines
		3D shape branching database	3D shape branching database
		Writing Project - 3D Shapes	Writing Project: 3D Shapes
		Writing Project - Polygons	Writing Project: Polygons
		Writing Project - Triangle Properties	Writing Project: Triangles
		Paint Project -_Basic Shapes (2D)	Paint project: Basic Shapes
		Paint Project -_Rectangles	Paint project: Rectangular_things
		Paint Project -_Circles	Paint project: Round Things
		Paint Project -_Squares	Paint project: Square Things
		Paint Project -_Triangles	Paint project: Triangular Things
	2Quiz Create 2Quiz labelling activities where the children label objects with their shapes (2D and 3D).	2Quiz	2DIY & 2Quiz Resources

3G–1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations. **3G–2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.**	**2Design and Make** Pupils can use the 3D shapes in 2Design and Make to create nets with topic related designs, print them and fold them into the 3D shapes. Pupils could make 3D boxes in different 3D shapes.		2Design & Make Guide
	2Go Use the ready-made templates to guide the object around the screen or begin to write a more complicated series of instructions Change the input method in settings to extend children's knowledge of directional control. There are several Challenges for children to try.		2Go User Guide and Lesson Ideas
	Logo Write instructions of developing complexity to control the on screen turtle using simple logo commands	https://www.purplemash.com/#app/tools/2logo 	https://www.purplemash.com/site#app/guides/2Logo_Guide

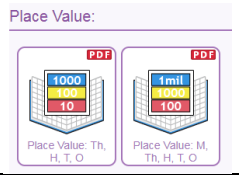
Statistics

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Interpret and present data using bar charts, pictograms and tables. • Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	**Ready-made statistics activities**	Graph activity	Graph activity
		Interpreting Block Graphs	Interpreting Block Graphs
		Interpreting Pictograms	Interpreting Pictograms
	2InvestigateCreate databases and watch the computer move the data cards around the screen to perform meaningful searches and sorts; Perform advanced and / or searches; Make reports on the database; Update data / pictures across a network instantly		2Investigate Resources Use the ready-made databases and accompanying worksheets to practice problem solving using data.
	2Graph Create a range of bar, block, line and pie charts to show information gathered from elsewhere.	2Graph 	2Graph Guide
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills.	2Calculate Spreadsheets	2Calculate Resources

	Create your own activities including scaled bar charts and tables. **<u>Relevant 2Calculate Lessons:</u>** Frequency Tables	 Can be accessed by pupils from within 2Calculate tool.	

Year 4

Number – Number and Place Value

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Count in multiples of 6, 7, 9, 25 and 1000. • Find 1000 more or less than a given number. • Count backwards through zero to include negative numbers. • Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). • Order and compare numbers beyond 1000. • Identify, represent and estimate numbers using different representations. • Round any number to the nearest 10, 100 or 1000.	**Use of Mathematics printable resources**	Number lines, 100 squares, number cards, place value	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Times Tables – in 100 squares, memory cards and dominoes.	Printable Times Tables resources
		Roman Numerals	Printable Roman Numerals
		Place Value 	Printable Place Value worksheets
	Ready-made place value activities	Numbers to 1000	Numbers to 1000
		Place value in 3-digit numbers	Place value in 3-digit numbers
		Multiples of 6,7,9,25,1000	Multiples of 6,7,9,25,1000
		Count in multiples of 6, 7, 9, 25 and 1000 quiz	Count in multiples of 6, 7, 9, 25 and 1000 quiz
		Roman Numerals	Roman Numerals
		Roman Numerals	Roman Numerals
		Thousands	Thousands
		Rounding spreadsheet	Rounding spreadsheet
		Find 1000 less	Find 1000 less

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- Solve number and practical problems that involve all of the above and with increasingly large positive numbers.
- Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.

4NPV–1 Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.

4NPV–2 Recognise the place value of each digit in *four*-digit numbers, and compose and decompose *four*-digit numbers using standard and non-standard partitioning.

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<td rowspan="10"></td>
<td>Find 1000 more</td>
<td>Find 1000 more</td>
</tr>
<tr>
<td>Order and compare numbers beyond 1000</td>
<td>Order and compare numbers beyond 1000</td>
</tr>
<tr>
<td>Values of Digits – TTh</td>
<td>Values of Digits – TTh</td>
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<td>Write numbers in figures -TTh</td>
<td>Write numbers in figures -TTh</td>
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<td>Sort the Numbers -TTh</td>
<td>Sort the Numbers -TTh</td>
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<tr>
<td>Number Patterns</td>
<td>Number Patterns</td>
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<tr>
<td>Partitioning to Find Unknown 1</td>
<td>Partitioning to Find Unknown 1</td>
</tr>
<tr>
<td>Partitioning to Find Unknown 2</td>
<td>Partitioning to Find Unknown 2</td>
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<tr>
<td>2Calculate Place Value Spreadsheets.
Helps children recognise the place value of each digit in a three-digit number (tens, ones). Use as a whiteboard resource or for individuals to challenge and test themselves.</td>
<td>Tens and Ones Spreadsheet
Hundreds, Tens and Ones Spreadsheet
Thousands, Hundreds, Tens and Ones Spreadsheet</td>
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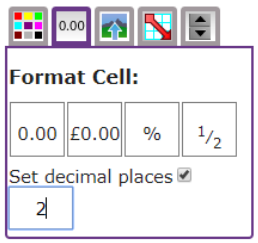
<tr>
<td>2-Player place value game</td>
<td>2-Player place value game</td>
</tr>
<tr>
<td>Place value in 4-digits</td>
<td>Place value in 4-digits</td>
</tr>
<tr>
<td>2Calculate
Explore formatting with numbers of decimal places; relate to rounding.</td>
<td>2Calculate Spreadsheets
 
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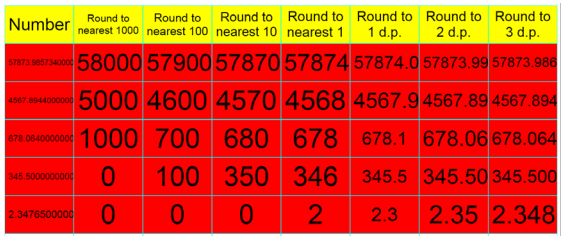
<td>2Calculate Resources
 
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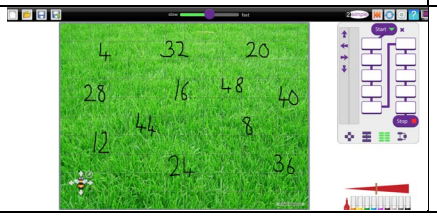
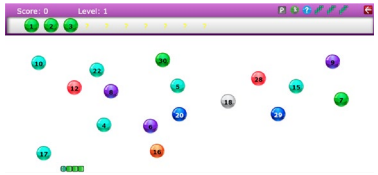
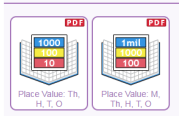
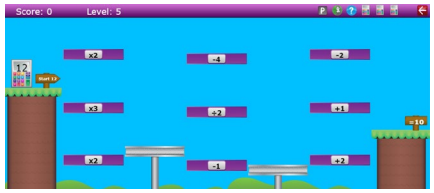
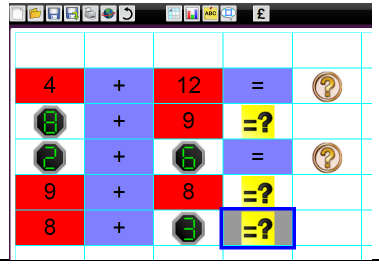
4NPV–3 Reason about the location of any *four*-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. **4NPV–4 Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.**	Use **2Quiz Sequencing questions** to create some number sequencing and cloze quizzes. Can the children continue the sequence in their books?	2Quiz	2DIY & 2Quiz Resources
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables	2Race 	2Race
	Use **2Go** to create an activity where the children have to visit all of the numbers in the correct order.		2Go User Guide and Lesson Ideas

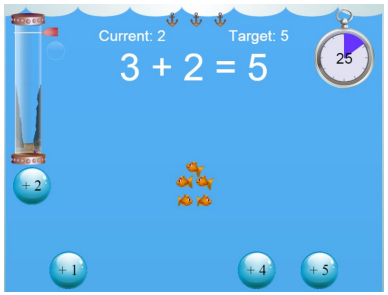
	Game **Sequence Snake:** Eat the numbered balls to complete the sequence. Three levels of challenge that increases the complexity of the numbers used and the speed. – use challenge B.	Sequence Snake 	

Number – Addition and Subtraction

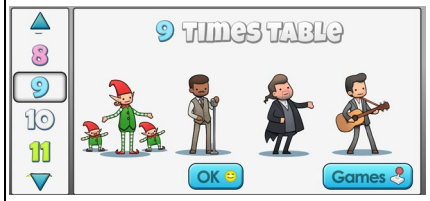
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. • Estimate and use inverse operations to check answers to a calculation. • Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. **4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)**	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Place Value 	Printable Place Value worksheets
	Ready-made activities	Missing Numbers in Equations 1	Missing Numbers in Equations 1
		Missing Numbers in Equations 2	Missing Numbers in Equations 2
		Random Number Addition Example	Random Number Addition Example
	Maths Quiz Generate your own maths quizzes. Test the children on +, - or X of varying complexity. Use for mental maths practice and testing.	2Quiz	2DIY & 2Quiz Resources
	Bond Bubbles Aim the bubble blower by clicking near a target bubble at the top of the screen. If the total of the		Use Bond Bubbles Challenge B and levels 8-12.

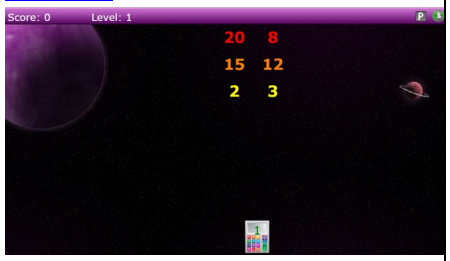
	bubble and the one it hits are the target number the bubbles will fall. Three levels of challenge: Up to 20, 200 and finally 400.		
	Funky Platform Make the number on the calculator equal the to the target number by jumping on the SUM platforms. Gain bonus points by doing this in as few moves as possible.	Funky Platform 	Three levels of challenge that increases the complexity of the numbers used and the speed. Use challenge B and levels 4 upwards
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division	2Race 	2Race

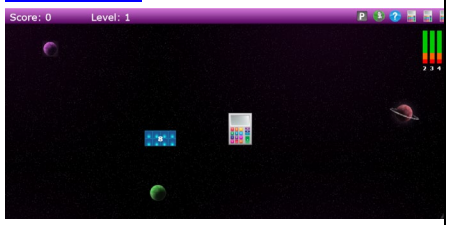
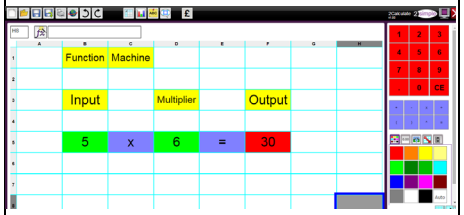
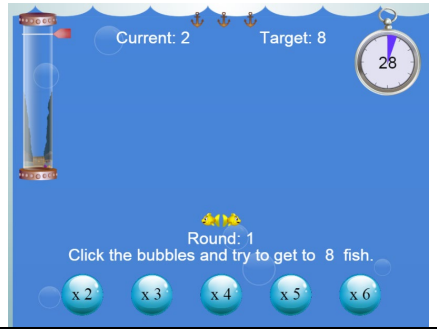
	• Times tables		
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills. **2Calculate Lessons:** Two Number Test Counting Machine 1 & 2 Sequences Magic Squares	2Calculate Spreadsheets	2Calculate Resources
	2Calculate Random number additions example	2Calculate Random number additions example	Use 2Calculate random number tool to create problems for the children to solve. Set these as 2Dos. 

	A-Fish-metric Develop basic number skills with 4 levels of difficulty. Levels 1 and 2 cover addition and subtraction, level 3 multiplication and level 4 advanced multiplication.		

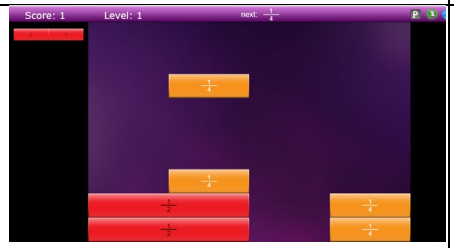
Number – Multiplication and Division

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Recall multiplication and division facts for multiplication tables up to 12 × 12 • Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers. • Recognise and use factor pairs and commutativity in mental calculations. • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. • Solve problems involving multiplying and adding, including using the	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Times Tables	Printable Times Tables resources
	Ready-made activities Activities listed here are for Y4, use activities for other year groups to review and revise areas.	Multiplication Pairs	Multiplication Pairs
		Multiplication quiz	Multiplication quiz
		Multiplication facts spreadsheet	Multiplication facts spreadsheet
		Multiplication fact pairs	Multiplication fact pairs
		Multiplication Quiz	Multiplication Quiz
		Using Known Facts 1	Using Known Facts 1
		Using Known Facts 2	Using Known Facts 2
		Dividing By 10 – 2Calculate	Dividing By 10 – 2Calculate
		Dividing By 10 – 2Quiz	Dividing By 10 – 2Quiz
		Word Problems	Word Problems
	Table Toons The children develop their multiplication skills through song. The children create their own musical playlist using a range of different songs. Games consolidate these	Tabletoons 	 Watch the help video from within Table Toons to find out how to make full use of this tool.

distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. **4NF–1 Recall multiplication and division facts up to 12 x 12 and recognise products in multiplication tables as multiples of the corresponding number.** **4NF–2 Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.** **4NF–3 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100)**	skills. Ranging from 2x to 12x		
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables	2Race 	2Race
	Dividers Divide the numbers before they reach the calculator by firing factors at them. Three levels of challenge that increases the complexity of the numbers used and the speed.	Dividers 	Use Challenge A and B. You can change the level using the teachers tab at the top of the screen.

4MD–1 Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. **4MD–2 Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.** **4MD–3 Understand and apply the distributive property of multiplication.**	**Factoroids** Break down the factors into equal parts. Three levels of challenge that increases the complexity of the numbers used and the speed.	Factoroids 	Use Challenge A and B. You can change the level using the teachers tab at the top of the screen
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills. Create your own activities to set as 2Dos. **2Calculate Lessons:** Counting Machine 1 & 2 Sequences	2Calculate Spreadsheets 	2Calculate Resources Ask the children to create their own number machine spreadsheet.
	A-Fish-metric Develop basic number skills with 4 levels of difficulty. Levels 1 and 2 cover addition and subtraction, level 3 multiplication and level 4 advanced multiplication.	Level 3 multiplication 	

Number – Fractions

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Recognise and show, using diagrams, families of common equivalent fractions. • Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. • Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. • Add and subtract fractions with the same denominator	**Use of Mathematics printable resources**	Fraction Walls	Printable Fractions Resources
	Fraction Wall Guide the falling fractions as they drop down from the top of the screen. Position the fractions so they contain a whole. Three levels of challenge that increases the complexity of the numbers used and the speed.		Use Challenge A, Levels 2-4. You can change the level using the teachers tab at the top of the screen.
	Fractonio's Pizzeria Develop fraction skills with 3 levels of difficulty.	Level 2: Pizza Master 	**Level 1:** Pizza Rookie asks the children to use simple fractions to create a pizza. **Level 2:** Pizza Master encourages the children to use mixed fractions and **level 3:** Pizza King converts fractions into percentages.
	Ready-made fractions activities	Tenths and Hundredths Pairs	Tenths and Hundredths Pairs
		Fraction Quiz	Fraction Quiz

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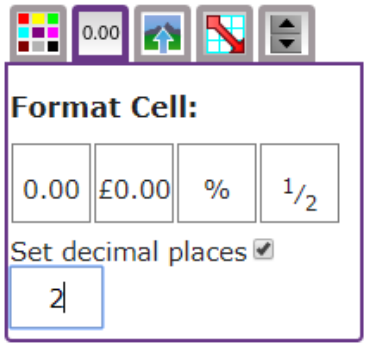
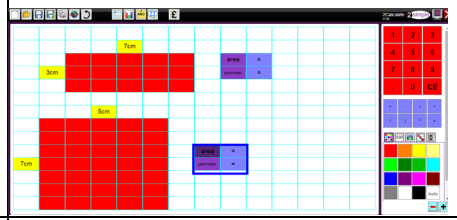
Recognise and write decimal equivalents of any number of tenths or hundredths.
Recognise and write decimal equivalents to ¼, ½, ¾.
Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.
Round decimals with one decimal place to the nearest whole number.
Compare numbers with the same number of decimal places up to two decimal places.
Solve simple measure and money problems involving fractions and decimals to two decimal places

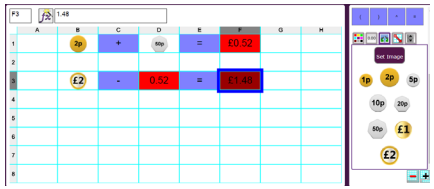
<u>4F–1 Reason about the location of mixed numbers in the linear number system.</u>

<u>4F–2 Convert mixed numbers</u>
</td>
<td rowspan="8"></td>
<td>Decimals and fractions quiz</td>
<td>Decimals and fractions quiz</td>
</tr>
<tr><td>Rounding spreadsheet</td><td>Rounding spreadsheet</td></tr>
<tr><td>Rounding placing activity</td><td>Rounding placing activity</td></tr>
<tr><td>Comparing fractions</td><td>Comparing fractions</td></tr>
<tr><td>Comparing decimals</td><td>Comparing decimals</td></tr>
<tr><td>Hundredths</td><td>Hundredths</td></tr>
<tr><td>Mixed & Improper Fractions – Sort</td><td>Mixed & Improper Fractions – Sort</td></tr>
<tr><td>Mixed & Improper Fractions – Pair</td><td>Mixed & Improper Fractions – Pair</td></tr>
<tr>
<td><u>2DIY - Placing</u>
Place numbers or objects in their correct place.</td>
<td>2DIY Pairs</td>
<td>2DIY & 2Quiz Resources
Round numbers with one decimal place to the nearest whole number.</td>
</tr>
<tr>
<td>2Calculate Spreadsheets
Explore formatting with numbers of decimal places; relate to rounding.
Explore formatting as fractions. Convert to decimals and multiply by 10 or 100. Use the  </td>
<td> 
</td>
<td>2Calculate Resources</td>
</tr>
</table>

to improper fractions and vice versa. **4F–3 Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.**	tool to compare fractions and decimals.		

Measurement

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Convert between different units of measure [for example, kilometre to metre; hour to minute] • Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres. • Find the area of rectilinear shapes by counting squares. • Estimate, compare and calculate different measures, including money in pounds and pence • Read, write and convert time between analogue and digital 12- and 24-hour clocks. • Solve problems involving converting from hours to minutes; minutes to seconds;	**Use of Mathematics printable resources**	Clock proformas, days of the week, months of the year resources.	Printable Time Resources
	Conversions **2Calculate Spreadsheets** Create a conversion tool; see Upper KS2 Lesson – Miles to Kilometers. Apply this to other units as well.	2Calculate Spreadsheets	2Calculate Resources
	Perimeter **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the lengths and widths of 2D shapes and create formulae to calculate perimeter (and area).	2Calculate Spreadsheets 	2Calculate Resources
	Ready-made activities in Measurement Category	Convert units of measure	Convert units of measure
		Perimeter	Perimeter
		Convert between different units of measure quiz	Convert between different units of measure quiz

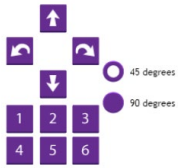
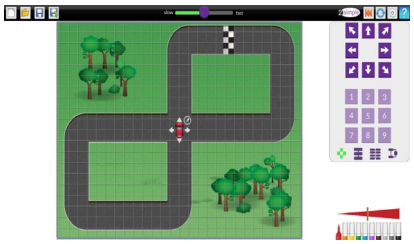
years to months; weeks to days.		Area of shapes	Area of shapes
	Area **2Calculate Spreadsheets** Use ready-made activities Sheep Shapes (lower KS2) and Area (Upper KS2).	2Calculate Spreadsheets	2Calculate Resources
	Money **2Calculate Spreadsheets** Use of the money images and currency formatting of cells to explore mathematics with money and calculate change. Use images to create a virtual shop and set simulated shopping tasks.	2Calculate Spreadsheets 	2Calculate Resources
	Financial Capability activities Aimed at Y1-6 a collection of a variety of activities	Financial Education 	Financial Capability Lesson Ideas
	Time **Ready-made activities in Time Category**	Time Conversions	Time Conversions
		Clock faces	Clock faces
		Telling the time	Telling the time
		Pairs game	Pairs game
		Years and Months	Years and Months
		Convert Between Units of Time	Convert Between Units of Time
		Time Problems	Time Problems

Geometry – Properties of a Shape

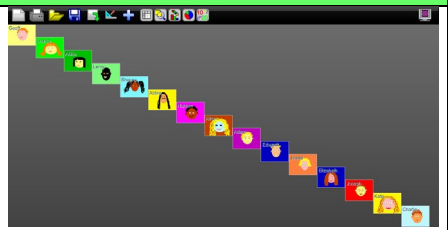
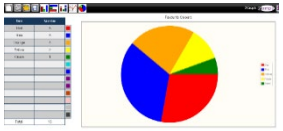
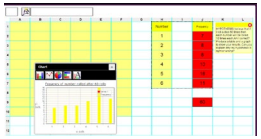
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. • Identify acute and obtuse angles and compare and order angles up to two right angles by size. • Identify lines of symmetry in 2-D shapes presented in different orientations. • Complete a simple symmetric figure with respect to a specific line of symmetry. **4G–1 Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.**	**Use of Mathematics printable resources**	2D and 3D shapes	Printable Shape Resources
	Symmetry - Paint Projects 1 line of symmetry Reflections Textures Rangoli patterns	 2Paint Reflections Reflections and Texture Rangoli patterns	
	Ready-made shape activities	3D shape pairs game	3D shape pairs game
		3D shape branching database	3D shape branching database
		2D shape pairs game	2D shape pairs game
		Acute and Obtuse angles	Acute and Obtuse angles
		Lines of Symmetry	Lines of Symmetry
		Shape slideshow	Shape slideshow
		Name 2D shapes 2	Name 2D shapes 2
		Name 2D shapes 3	Name 2D shapes 3
		Ordering Angles	Ordering Angles
		Regular or Irregular Polygons	Regular or Irregular Polygons
		Writing Project - Polygons	Writing Project - Polygons
		Writing Project - Triangle Properties	Writing Project - Triangle Properties
		Writing Project - Quadrilaterals	Writing Project - Quadrilaterals

4G–2 Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. **4G–3 Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.**			

Geometry – Position and Direction

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Describe positions on a 2-D grid as coordinates in the first quadrant. • Describe movements between positions as translations of a given unit to the left/right and up/down. • Plot specified points and draw sides to complete a given polygon.	**2Go** Use the ready-made templates to guide the object around the screen or begin to write a more complicated series of instructions  Change the input method in settings to extend children's knowledge of directional control. There are several Challenges for children to try.	 	2Go User Guide and Lesson Ideas
	Logo Write instructions of developing complexity to control the on screen turtle using simple logo commands	https://www.purplemash.com/#app/tools/2logo 	https://www.purplemash.com/site#app/guides/2Logo_Guide
	Use of Mathematics printable resources		Printable Shape Resources
	Ready Made Coordinate Activities	Coordinates	Coordinates
		Coordinates 2	Coordinates 2

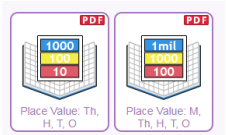
Statistics

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. • Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	2InvestigateCreate databases and watch the computer move the data cards around the screen to perform meaningful searches and sorts; Perform advanced and / or searches; Make reports on the database; Update data / pictures across a network instantly		2Investigate Resources Use the ready-made databases and accompanying worksheets to practice problem solving using data.
	2Graph Create a range of bar, block, line and pie charts to show information gathered from elsewhere.	2Graph 	2Graph_Guide
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills. Create your own activities including scaled bar charts and tables.	2Calculate Spreadsheets  Can be accessed by pupils from within 2Calculate tool.	2Calculate Resources **Relevant 2Calculate Lessons:** Intermediate Points (Upper KS2)
	Ready-made activities at Statistics Activities	Interpreting Block Graphs	Interpreting Block Graphs

		Interpreting Pictograms	Interpreting Pictograms

Year 5

Number – Number and Place Value

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit. • Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. • Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero. • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	**Use of Mathematics printable resources**	Number lines, 100 squares, number cards, place value	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Roman Numerals	Printable Roman Numerals
		Place Value 	Printable Place Value worksheets
	Ready-made activities Listed are those designed for Y5, look at previous years' resources for revision of topics	Numbers to 1,000,000	Numbers to 1,000,000
		Roman Numerals	Roman Numerals
		Multiples of 6,7,9,25,1000	Multiples of 6,7,9,25,1000
		Thousands	Thousands
		Rounding spreadsheet	Rounding spreadsheet
		Counting in steps of powers of ten spreadsheet	Counting in steps of powers of ten spreadsheet
		Rounding to nearest 100	Rounding to nearest 100
		Rounding to Estimate	Rounding to Estimate
		Comparing and Ordering Decimals	Comparing and Ordering Decimals

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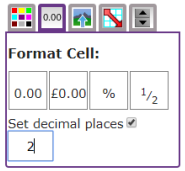
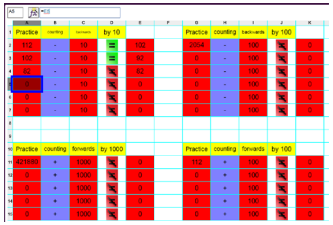
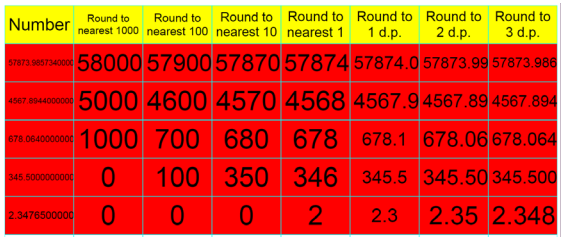
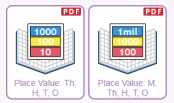
Solve number problems and practical problems that involve all of the above.
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.

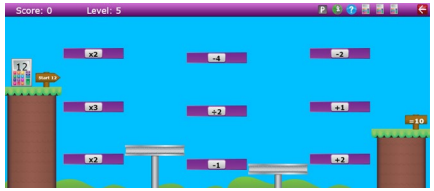
<u>5NPV–1 Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1.</u>
<u>Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01.</u>
<u>Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.</u>
<u>5NPV–2 Recognise the place value of each digit in numbers with up to 2 decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.</u>
</td>
<td rowspan="3"></td>
<td>Locating Decimals – Number line</td>
<td>Locating Decimals – Number line</td>
</tr>
<tr>
<td>Number Sequences</td>
<td>Number Sequences</td>
</tr>
<tr>
<td>2Calculate Place Value Spreadsheets.
Help children recognise the place value of each digit. Use as a whiteboard resource or for individuals to challenge and test themselves.</td>
<td>Thousands, Hundreds, Tens and Ones</td>
</tr>
<tr>
<td>2-Player place value game</td>
<td>2-Player place value game</td>
</tr>
<tr>
<td><u>2Calculate</u>

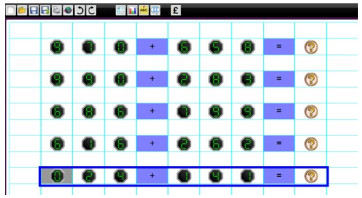
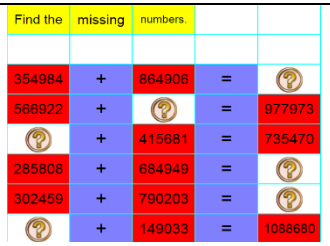
• Create activities using 2Calculate set as 2Dos.
Use the =? tool to verify their answers. Include negative numbers through zero.
• Explore formatting with numbers of decimal places; and rounding.</td>
<td>2Calculate Spreadsheets
 
</td>
<td>2Calculate Resources
 

</td>
</tr>
<tr>
<td><u>2Race</u>
Set up multiplayer games. Choose your</td>
<td>2Race</td>
<td>2Race</td>
</tr>
</table>

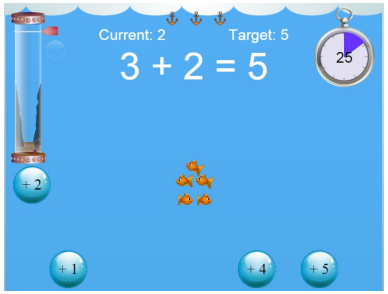
5NPV–3 Reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. **5NPV–4** Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts. **5NPV–5 Convert between units of measure, including using common decimals and fractions.**	track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond • Addition • Subtraction • Multiplication • Division • Times tables		
	Game **Sequence Snake:** Eat the numbered balls to complete the sequence. Three levels of challenge that increases the complexity of the numbers used and the speed. – use challenge C.	Sequence Snake 	

Number – Addition and Subtraction

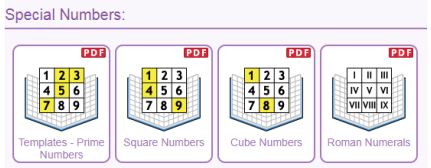
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). • Add and subtract numbers mentally with increasingly large numbers. • Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. **5NF–2 Apply place-value knowledge to known additive and multiplicative number facts**	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Place Value 	Printable Place Value worksheets
	Maths Quiz Generate your own maths quizzes. Test the children on +, - or X of varying complexity. Use for mental maths practice and testing.	2Quiz	2DIY & 2Quiz Resources
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond	2Race 	2Race

(scaling facts by 1 tenth or 1 hundredth).	• Addition • Subtraction • Multiplication • Division • Times tables		
	Bond Bubbles Aim the bubble blower by clicking near a target bubble at the top of the screen. If the total of the bubble and the one it hits are the target number, the bubbles will fall. Three levels of challenge: Up to 20, 200 and finally 400.		Use Bond Bubbles Challenge C.
	Funky Platform Make the number on the calculator equal the to the target number by jumping on the SUM platforms. Gain bonus points by doing this in as few moves as possible.	Funky Platform 	Three levels of challenge that increases the complexity of the numbers used and the speed. Use challenge C.

	2Calculate Random number sums example	Y5 Addition Spreadsheet	Use 2Calculate random number tool to create problems for the children to solve. Set these as 2Dos. 
	2Calculate Missing Numbers	2Calculate Missing Numbers	
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills. **2Calculate Lessons:** Number Stories Making Formulae	2Calculate Spreadsheets Can be accessed by pupils from within 2Calculate tool.	2Calculate Resources

	A-Fish-metric Develop basic number skills with 4 levels of difficulty. Levels 1 and 2 cover addition and subtraction, level 3 multiplication and level 4 advanced multiplication.		

Number – Multiplication and Division

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. • Know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers. • Establish whether a number up to 100 is prime and recall prime numbers up to 19. • Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Times Tables	Printable Times Tables resources
		Prime, Square and Cubed numbers 	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
	Ready-made activities Activities listed here are for Y5, use activities for other year groups to review and revise areas.	Prime Numbers	Prime Numbers
		Prime Numbers 2	Prime Numbers 2
		Decomposing large numbers	Decomposing large numbers
		Multiplication of HTU x U	Multiplication of HTU x U
		Square and cube numbers	Square and cube numbers
		Multiplying and dividing by powers of 10	Multiplying and dividing by powers of 10
		Multiplying Numbers	Multiplying Numbers
		Multiplication HTU x U	Multiplication HTU x U
		Multiplying HTU x TU	Multiplying HTU x TU
		Multiplication 2 Digit	Multiplication 2 Digit
		Division with remainders	Division with remainders
		Division whole number	Division whole number

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Multiply and divide numbers mentally drawing upon known facts.
Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.
Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}).
Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.
Solve problems involving addition, subtraction, multiplication and division and a combination of these,

</td>
<td></td>
<td>Division by a single number</td>
<td>Division by a single number</td>
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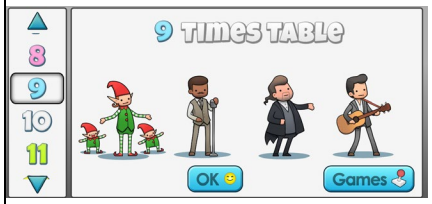
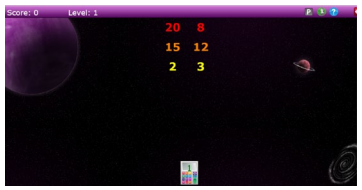
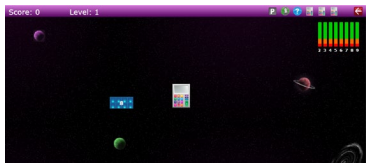
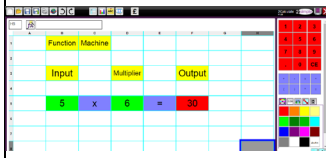
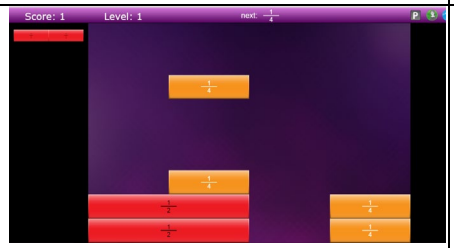
<tr>
<td></td>
<td>Division questions</td>
<td>Division questions</td>
</tr>
<tr>
<td><u>Table Toons</u>
The children develop their multiplication skills through song. The children create their own musical playlist using a range of different songs. Games consolidate these skills. Ranging from 2x to 12x</td>
<td>Tabletoons
 
</td>
<td>  Watch the help video from within Table Toons to find out how to make full use of this tool.</td>
</tr>
<tr>
<td><u>2Race</u>
Set up multiplayer games. Choose your track type and question types; pre-set choices include:

One less/more than
Odd/eve
Comparison
Number bond
Addition
Subtraction
Multiplication
Division
Times tables
</td>
<td>2Race
  </td>
<td>2Race</td>
</tr>
</table>

including understanding the meaning of the equals sign. • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. **5NF–1 Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.** **5NF–2 Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).** **5MD–1 Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.** **5MD–2 Find factors and multiples of positive whole**	**Dividers** Divide the numbers before they reach the calculator by firing factors at them. Three levels of challenge that increases the complexity of the numbers used and the speed.	Dividers 	Use Challenge C. You can change the level using the teachers tab at the top of the screen.
	Factoroids Break down the factors into equal parts. Three levels of challenge that increases the complexity of the numbers used and the speed.	Factoroids 	Use Challenge C. You can change the level using the teachers tab at the top of the screen
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills. Create your own activities to set as 2Dos.	2Calculate Spreadsheets 	2Calculate Resources Ask the children to create their own number machine spreadsheet.
	2Calculate Create activities using 2Calculate set as 2Dos	2Calculate Spreadsheets	2Calculate Resources

numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors. **5MD–3 Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.** **5MD–4 Divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context.**	using the =? tool to verify their answers.		

Number – Fractions

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Compare and order fractions whose denominators are all multiples of the same number. • Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $^2/_5 + ^4/_5 = ^6/_5 = 1\ ^1/_5$] • Add and subtract fractions with the same denominator and denominators that are multiples of the same number.	**Use of Mathematics printable resources**	Fraction Walls	Printable Fractions Resources
	Fraction Wall Guide the falling fractions as they drop down from the top of the screen. Position the fractions so they contain a whole. Three levels of challenge that increases the complexity of the numbers used and the speed.		Use Challenge C. You can change the level using the teachers tab at the top of the screen.
	Fractonio's Pizzeria Develop fraction skills with 3 levels of difficulty.	Level 2: Pizza Master 	Level 1: Pizza Rookie asks the children to use simple fractions to create a pizza. Level 2: Pizza Master encourages the children to use mixed fractions and level 3: Pizza King converts fractions into percentages.
	Ready-made activities	Tenths and Hundredths Pairs	Tenths and Hundredths Pairs
		Decimals and fractions quiz	Decimals and fractions quiz
		Comparing fractions	Comparing fractions
		Rounding spreadsheet	Rounding spreadsheet
		3 decimal places	3 decimal places
		Compare fractions	Compare fractions

<table>
<tr>
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- Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
- Read and write decimal numbers as fractions [for example, 0.71 = $^{71}/_{100}$].
- Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
- Round decimals with two decimal places to the nearest whole number and to one decimal place
- Read, write, order and compare numbers with up to three decimal places.
- Solve problems involving number up to three decimal places.
- Recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per hundred’, and write percentages as a fraction

</td>
<td rowspan="5"></td>
<td>Rounding To Nearest Whole Number</td>
<td>Rounding To Nearest Whole Number</td>
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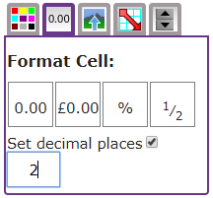
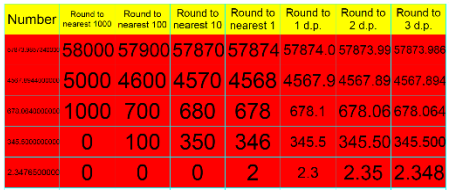
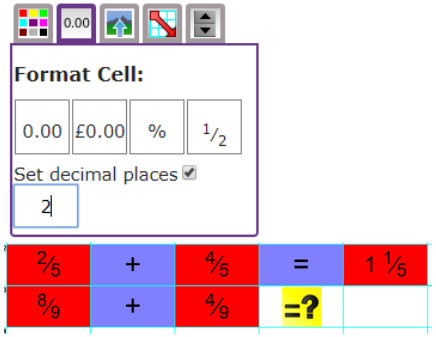
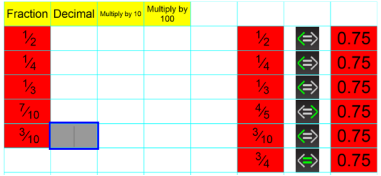
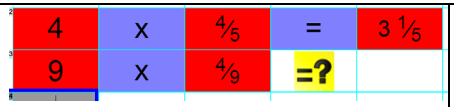
<tr>
<td>Fraction Equations</td>
<td>Fraction Equations</td>
</tr>
<tr>
<td>Fraction Calculations</td>
<td>Fraction Calculations</td>
</tr>
<tr>
<td>Comparing Mixed Numbers</td>
<td>Comparing Mixed Numbers</td>
</tr>
<tr>
<td>Mixed and Improper Fractions – Sort</td>
<td>Mixed and Improper Fractions – Sort</td>
</tr>
<tr>
<td>Mixed and Improper Fraction – Pair</td>
<td>Mixed and Improper Fraction – Pair</td>
</tr>
<tr>
<td><u>2Calculate</u>
Explore formatting with numbers of decimal places; relate to rounding.</td>
<td>2Calculate Spreadsheets
 
</td>
<td>2Calculate Resources
 
</td>
</tr>
<tr>
<td><u>2Calculate</u>
Explore formatting as fractions and percentages. Convert to decimals and multiply by 10 or 100.</td>
<td>2Calculate Spreadsheets
 
</td>
<td>2Calculate Resources
 
</td>
</tr>
</table>

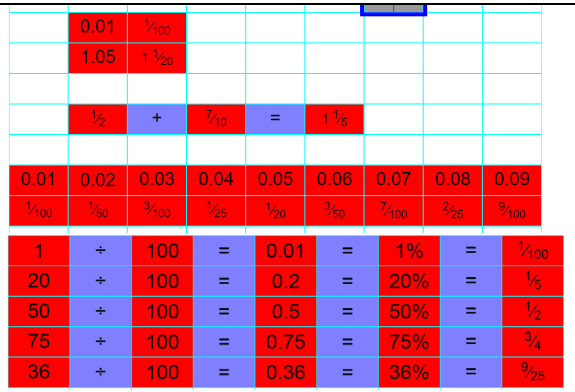
- with denominator 100, and as a decimal.
- Solve problems which require knowing percentage and decimal equivalents of ½, ¼, $^1/_5$, $^2/_5$, $^4/_5$ and those fractions with a denominator of a multiple of 10 or 25.

5F–1 Find non-unit fractions of quantities.

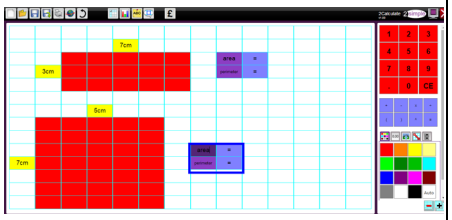
5F–2 Find equivalent fractions and understand that they have the same value and the same position in the linear number system.

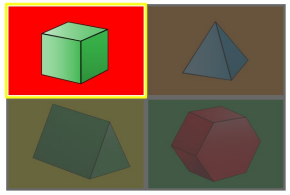
5F–3 Recall decimal fraction equivalents for ½, ¼, $^1/_5$. and $^1/_{10}$ and for multiples of these proper fractions.





Measurement

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre). • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints. • Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. • Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and	**Conversions** **2Calculate Spreadsheets** Create a conversion tool; see Upper KS2 Lesson – Miles to Kilometers. Apply this to other units as well.	2Calculate Spreadsheets	2Calculate Resources
	Perimeter **2Calculate Spreadsheets** Create a spreadsheet for pupils to record the lengths and widths of 2D shapes and create formulae to calculate perimeter (and area). Create composite shapes and apply these formulae.	2Calculate Spreadsheets 	2Calculate Resources
	Ready-made activities in Measures Category	Convert units of measure	Convert units of measure
		Units of Measurement	Units of Measurement
		Perimeter	Perimeter
		Area	Area
	Area **2Calculate Spreadsheets** Use ready-made activities Sheep Shapes (lower KS2) and Area (Upper KS2).	2Calculate Spreadsheets	2Calculate Resources

estimate the area of irregular shapes. • Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water]. • Solve problems involving converting between units of time. • Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	**2Design and Make** Create annotated cuboids using 2Design & Make with size information in the nets; children can calculate the volumes.		2Design & Make Guide
	Financial Capability activities Aimed at Y1-6 a collection of a variety of activities	Financial Education 	Financial Capability Lesson Ideas
	Time **Ready-made activities in Time Category**	Time Conversions	Time Conversions
		12 Hour and 24 Hour Conversions	12 Hour and 24 Hour Conversions
		Timetables	Timetables

Geometry – properties of a shape

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources

Pupils should be taught to:
 	
• Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.
• Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
• Draw given angles, and measure them in degrees (°).
• Identify:
  ○ Angles at a point and one whole turn (total 360°)
  ○ Angles at a point on a straight line and ½ a turn (total 180°).
  ○ Other multiples of 90°.
• Use the properties of rectangles to deduce related facts and find missing lengths and angles.
	Use of Mathematics printable resources	2D and 3D shapes	Printable Shape Resources

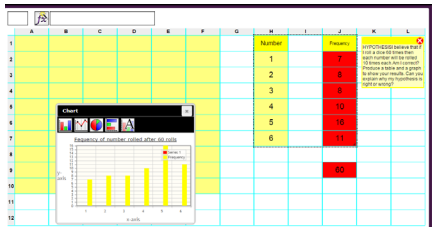
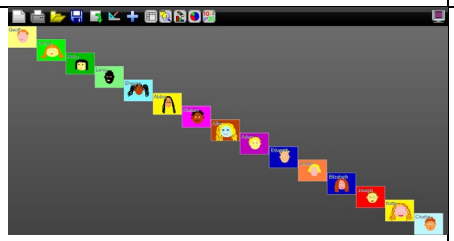
	Ready-made shape activities	Angles	Angles
		3D Shapes	3D Shapes
		Estimate angles	Estimate angles
		Types of angles	Types of angles
	Logo Explore angles using the Logo turtle.	2Logo 	2Logo Guide

• Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. **5G–1 Compare angles, estimate and measure angles in degrees (°) and draw angles of a given size.** **5G–2 Compare areas and calculate the area of rectangles (including squares) using standard units.**			

Geometry – Position and Direction

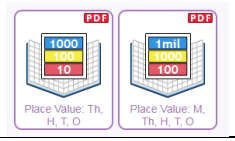
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	**Logo** Use Logo to draw a simple shape. Using the Pen Up and Pen Down translate the shape (10,2)	2Logo 	2Logo Guide

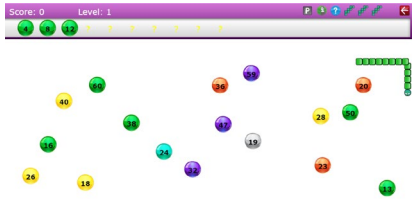
Statistics

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Solve comparison, sum and difference problems using information presented in a line graph. • Complete, read and interpret information in tables, including timetables.	**2Calculate Spreadsheets** Includes premade lesson plans and videos to develop number problem-solving skills. Create your own activities including scaled bar charts and tables. **Relevant 2Calculate Lessons:** Intermediate Points (Upper KS2)	2Calculate Spreadsheets  Can be accessed by pupils from within 2Calculate tool.	2Calculate Resources
	Ready-made activities in Measures Category	Timetables	Timetables
		Interpreting Timetables	Interpreting Timetables
	2Investigate Create databases and watch the computer move the data cards around the screen to perform meaningful searches and sorts; Perform advanced and / or searches; Make reports on the database; Update data / pictures across a network instantly		2Investigate Resources Use the ready-made databases and accompanying worksheets to practice problem solving using data.

Year 6

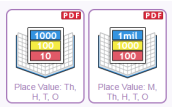
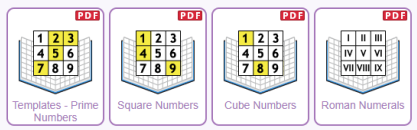
Number – Number and Place Value

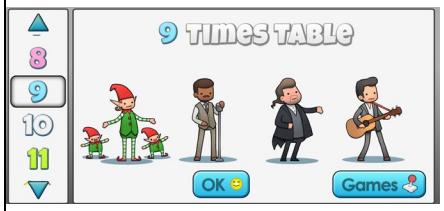
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit. • Round any whole number to a required degree of accuracy. • Use negative numbers in context and calculate intervals across zero. • Solve number and practical problems that involve all of the above. **6NPV–1 Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1**	**Use of Mathematics printable resources**	Number lines, 100 squares, number cards, place value	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Place Value 	Printable Place Value worksheets
	Ready-made place value activities Also look at previous years' resources in this area for revision of topics	Numbers to 10,000,000	Numbers to 10,000,000
		Rounding	Rounding
		Rounding spreadsheet	Rounding spreadsheet
		Number Lines – Placing Numbers	Number Lines – Placing Numbers
		Negative Number Lines	Negative Number Lines
		Negative Numbers	Negative Numbers
		Positive & Negative Integers	Positive & Negative Integers
		Negative/Positive	Negative and Positive Numbers
		Problem Solving (+ - X ÷)	Problem Solving
		Find the missing number (+ - X ÷)	Find the missing number
		Problems Involving Decimals	Problems Involving Decimals

tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). **6NPV–2 Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.** **6NPV–3 Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.** **6NPV–4 Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.**		Journey Distances Decimals	Journey Distances Decimals
		Number Pattern Rules	Number Pattern Rules
		Number Patterns	Number Patterns
		2Calculate Place Value Spreadsheets. Help children recognise the place value of each digit. Use as a whiteboard resource or for individuals to challenge and test themselves.	Thousands, Hundreds, Tens and Ones Spreadsheet
	Game **Sequence Snake:** Eat the numbered balls to complete the sequence. Three levels of challenge that increases the complexity of the numbers used and the speed. – use challenge C.	Sequence Snake 	Use 2DIY Game Sequence Snake to make a game suited to your pupils. 2DIY Snake Watch the help video in the app for a quick overview of how to do this.
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond	2Race 	2Race

	• Addition • Subtraction • Multiplication • Division • Times tables		

Number – Addition, Subtraction, Multiplication and Division

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. • Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context. • Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.	**Use of Mathematics printable resources**	Number lines and 100 squares	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
		Place Value  	Printable Place Value worksheets
		Prime, Square and Cubed numbers  	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
	Ready-made place value activities Also look at previous years' resources in this area for revision of topics	Long Division	Long Division
		Common Factors and Primes	Common Factors and Primes
		Multiplication – 2 by 3 Digits	Multiplication – 2 by 3 Digits
		Multiplication – multiple digits	Multiplication – multiple digits
		Missing Numbers (x)	Missing Numbers (x)
		Missing Numbers (x & ÷)	Missing Numbers (x & ÷)
		Multiples of 10 (x & ÷)	Multiples of 10 (x & ÷)
		Long Multiplication	Long Multiplication
		Multiplying Decimals	Multiplying Decimals

• Perform mental calculations, including with mixed operations and large numbers. • Identify common factors, common multiples and prime numbers. • Use their knowledge of the order of operations to carry out calculations involving the four operations. • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why Mathematics – key stages 1 and 2 40 Statutory requirements. • Solve problems involving addition, subtraction, multiplication and division. • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.		Mental Calculations	Mental Calculations
	Maths Quiz Generate your own maths quizzes. Test the children on +, - or X of varying complexity. Use for mental maths practice and testing.	2Quiz	2DIY & 2Quiz Resources
	Table Toons The children develop their multiplication skills through song. The children create their own musical playlist using a range of different songs. Games consolidate these skills. Ranging from 2x to 12x	Tabletoons 	 Watch the help video from within Table Toons to find out how to make full use of this tool.
	2Race Set up multiplayer games. Choose your track type and question types; pre-set choices include: • One less/more than • Odd/eve • Comparison • Number bond	2Race 	2Race

<table>
<tr>
<td rowspan="3"><u>6AS/MD–1 Understand that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).</u>

<u>6AS/MD–2 Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.</u>

<u>6AS/MD–3 Solve problems involving ratio relationships.</u>

<u>6AS/MD–4 Solve problems with 2 unknowns.</u></td>
<td>• Addition
• Subtraction
• Multiplication
• Division
• Times tables</td>
<td></td>
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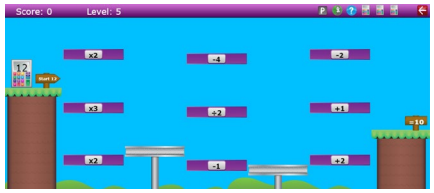
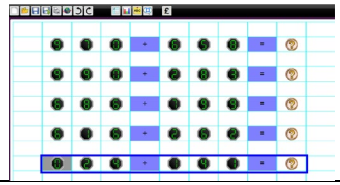
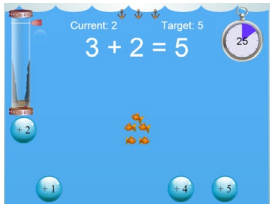
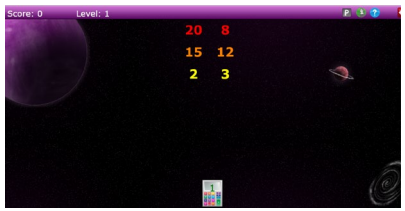
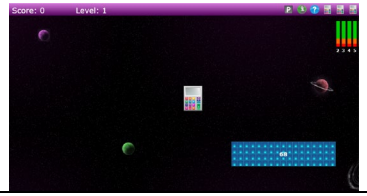
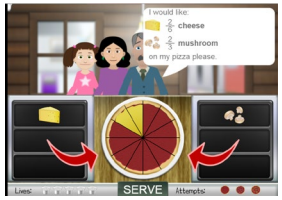
<tr>
<td><u>Bond Bubbles</u>
Aim the bubble blower by clicking near a target bubble at the top of the screen. If the total of the bubble and the one it hits are the target number the bubbles will fall. Three levels of challenge. . Up to 20, 200 and finally 400.</td>
<td> 
</td>
<td>Use Bond Bubbles Challenge C.</td>
</tr>
<tr>
<td><u>Funky Platform</u>
Make the number on the calculator equal the to the target number by jumping on the SUM platforms. Gain bonus points by doing this in as few moves as possible.</td>
<td><u>Funky Platform</u>
 
</td>
<td>Three levels of challenge that increases the complexity of the numbers used and the speed.
Use challenge C.</td>
</tr>
</table>

	2Calculate Random number sums example	Y5 Addition Spreadsheet	Use 2Calculate random number tool to create problems for the children to solve. Set these as 2Dos. 
	2Calculate Spreadsheets Includes premade lesson plans and videos to develop number problem-solving skills. **2Calculate Lessons:** Number Stories Making Formulae Area	2Calculate Spreadsheets Can be accessed by pupils from within 2Calculate tool.	2Calculate Resources
	A-Fish-metric Develop basic number skills with 4 levels of difficulty. Levels 1 and 2 cover addition and subtraction, level 3 multiplication and level 4 advanced multiplication.		

	Dividers Divide the numbers before they reach the calculator by firing factors at them. Three levels of challenge that increases the complexity of the numbers used and the speed.	Dividers 	Use Challenge C. You can change the level using the teachers tab at the top of the screen.
	Factoroids Break down the factors into equal parts. Three levels of challenge that increases the complexity of the numbers used and the speed.	Use Challenge C. You can change the level using the teachers tab at the top of the screen 	Factoroids

Number – Fractions

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. • Compare and order fractions, including fractions > 1. • Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. • Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, ¼ × ½ = $^1/_8$]. • Divide proper fractions by whole numbers [for example, $^1/_3$ ÷ 2 = $^1/_6$].	**Use of Mathematics printable resources**	Fraction Walls	Printable Fractions Resources
	Fraction Wall Guide the falling fractions as they drop down from the top of the screen. Position the fractions so they contain a whole. Three levels of challenge that increases the complexity of the numbers used and the speed.		Use Challenge C. You can change the level using the teachers tab at the top of the screen.
	Fractonio's Pizzeria Develop fraction skills with 3 levels of difficulty.	Level 2: Pizza Master 	**Level 1:** Pizza Rookie asks the children to use simple fractions to create a pizza. **Level 2:** Pizza Master encourages the children to use mixed fractions and **Level 3**: Pizza King converts fractions into percentages.
		Fraction and Decimal Pairs	Fraction and Decimal Pairs

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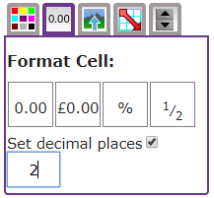
Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $^{3}/_{8}$].
Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.
Multiply one-digit numbers with up to two decimal places by whole numbers.
Use written division methods in cases where the answer has up to two decimal places.
Solve problems which require answers to be rounded to specified degrees of accuracy.
Recall and use equivalences between simple fractions, decimals and percentages,

</td>
<td rowspan="8">Ready-made activities in https://www.purplemash.com/#tab/pm-home/maths/numbers/number_fractions</td>
<td>Compare and Order fractions</td>
<td>Compare and Order fractions</td>
</tr>
<tr><td>Writing Fractions – LCM</td><td>Writing Fractions – LCM</td></tr>
<tr><td>Prime Factorisation & HCF</td><td>Prime Factorisation & HCF</td></tr>
<tr><td>Comparing Fractions</td><td>Comparing Fractions</td></tr>
<tr><td>Fractions, Decimals and Percentages</td><td>Fractions, Decimals and Percentages</td></tr>
<tr><td>Equivalent Fractions</td><td>Equivalent Fractions</td></tr>
<tr><td>Fraction Calculations</td><td>Fraction Calculations</td></tr>
<tr><td>Fraction Sentences</td><td>Fraction Sentences</td></tr>
<tr>
<td><u>2Calculate</u>
Explore formatting with numbers of decimal places; relate to rounding.</td>
<td>2Calculate Spreadsheets
 
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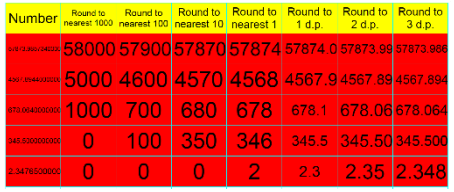
<td>2Calculate Resources
 
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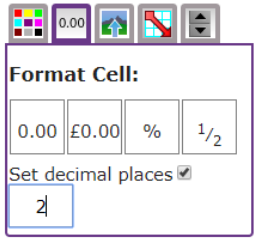
<tr>
<td><u>2Calculate</u>
Explore formatting as fractions and percentages. Convert to decimals and multiply by 10 or 100.</td>
<td>2Calculate Spreadsheets
 
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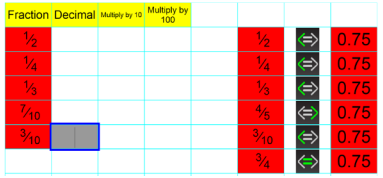
<td>2Calculate Resources
 
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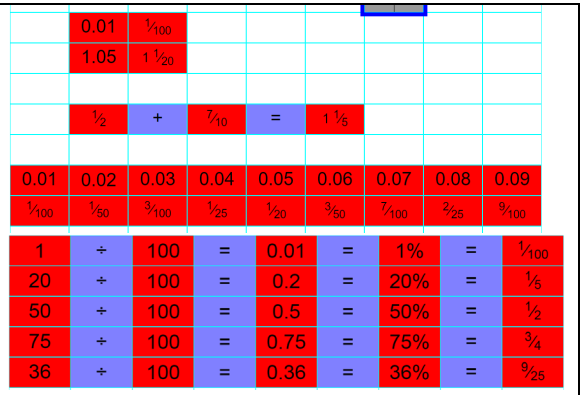
</table>

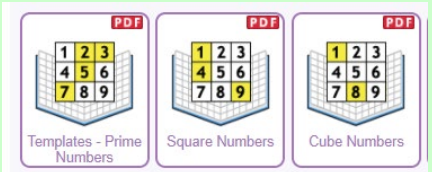
including in different contexts. **6F–1 Recognise when fractions can be simplified, and use common factors to simplify fractions.** **6F–2 Express fractions in a common denomination and use this to compare fractions that are similar in value.** **6F–3 Compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy.**			

Ratio and Proportion

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. • Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. • Solve problems involving similar shapes where the scale factor is known or can be found. • Solve problems involving unequal sharing and grouping	**Conversions** **2Calculate Spreadsheets** Create a conversion tool; see Upper KS2 Lesson – Miles to Kilometers. Use Converting Money lesson – find missing values using conversion rates. Use 25% off lesson to practice calculating percentages of amounts.	2Calculate Spreadsheets	2Calculate Resources
	Financial Capability activities Aimed at Y1-6 a collection of a variety of activities 	Financial Education	Financial Capability Lesson Ideas

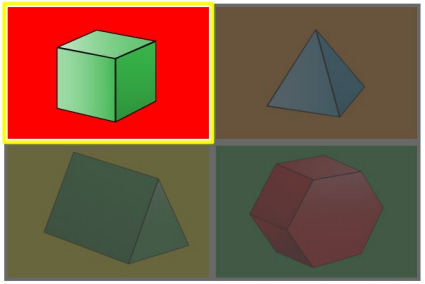
using knowledge of fractions and multiples.	**Logo** Write instructions of developing complexity to control the on screen turtle using simple logo commands. Ask the children to draw regular shapes and then to draw new shapes with a given scale factor	https://www.purplemash.com/#app/tools/2logo 	https://www.purplemash.com/site#app/guides/2Logo_Guide

Algebra

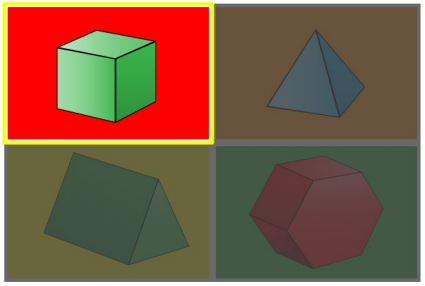
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Use simple formulae. • Generate and describe linear number sequences. • Express missing number problems algebraically. • Find pairs of numbers that satisfy an equation with two unknowns. • Enumerate possibilities of combinations of two variables.	**Use of Mathematics printable resources**	Special Numbers – explore patterns 	Printable Number Lines, Number cards, Number Squares, Place value, special numbers resources
	2Calculate Spreadsheets Use spreadsheet lessons that include formulae. Such as **Making Formulae**	2Calculate Spreadsheets	2Calculate Resources
	2Calculate Spreadsheets Use formulae in spreadsheets to create and explore number sequences. Build complexity onto Lower KS2 lesson Sequences.	2Calculate Spreadsheets	2Calculate Resources
	2Quiz Create quizzes for number sequences. Question formats; sequencing, multiple choice, text, labelling and cloze could be used for this.	2Quiz	2DIY & 2Quiz Resources

Measurement

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. • Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places. • Convert between miles and kilometres. • Recognise that shapes with the same areas can have different perimeters and vice versa.	**Use of Mathematics printable resources**	Properties of triangles	Printable Shape Resources
	Conversions **2Calculate Spreadsheets** Create a conversion tool; see **Upper KS2 Lesson – Miles to Kilometres**. Apply this to other units as well. **Upper KS2 lesson – Making Formulae** **Upper KS2 lesson – Converting Money**	2Calculate Spreadsheets	2Calculate Resources
	Area and Perimeter **2Calculate Spreadsheets** Build upon Lower KS2 Lesson – Sheep Shapes	2Calculate Spreadsheets	2Calculate Resources
	Ready-made activities in Measures Category	Perimeter	Perimeter
		Area	Area
		Convert units of measure	Convert units of measure
		Convert measures to solve problems	Convert measures to solve problems

• Recognise when it is possible to use formulae for area and volume of shapes. • Calculate the area of parallelograms and triangles. • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].		Convert units (m and mm)	Convert units (m and mm)
		Matching volume and capcity	Matching volume and capcity
		Volume and Capacity	Volume and Capacity
		Prefixes in units of measurement	Prefixes in units of measurement
	2Design and Make Create annotated cuboids using 2Design & Make with size information in the nets; children can calculate the volumes.		2Design & Make Guide

Geometry – Properties of a Shape

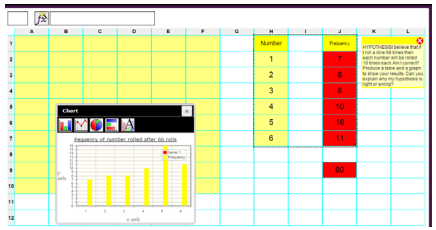
National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Draw 2-D shapes using given dimensions and angles. • Recognise, describe and build simple 3-D shapes, including making nets. • Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius. • Recognise angles where they meet at a point, are on a straight line, or are	**Use of Mathematics printable resources**	2D and 3D shapes	Printable Shape Resources
	Logo Explore angles using the Logo turtle.	https://www.purplemash.com/#app/tools/2logo 	https://www.purplemash.com/site#app/guides/2Logo_Guide
	2Design and Make Create, edit and make 3D shapes from nets.		2Design & Make Guide
	Ready-made activities at Shape activities	Angles	Angles
		3D Shapes	3D Shapes
		Unknown angles in triangles	Unknown angles in triangles

vertically opposite, and find missing angles. **6G–1 Draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.**		shape problems	shape problems

Geometry – Position and Direction

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Describe positions on the full coordinate grid (all four quadrants). • Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.	**Use of Mathematics printable resources**	Coordinates	Printable Shape Resources
	Logo Use Logo to draw a simple shape. Using the Pen Up and Pen Down translate the shape (10,2)	https://www.purplemash.com/#app/tools/2logo 	https://www.purplemash.com/site#app/guides/2Logo_Guide
	2Go Create a resource on 2Go and print it off. Ask the children to answer questions relating to the resource. E.g. use a map of Europe and ask the children where they would land if they travelled (3,4) from Madrid		

Statistics

National Curriculum Statement	Purple Mash Resource	Direct link to resource	Link to Planning and Resources
Pupils should be taught to: • Interpret and construct pie charts and line graphs and use these to solve problems. • Calculate and interpret the mean as an average.	**2Calculate Spreadsheets** Includes premade lesson plans and videos to develop number problem-solving skills. Create your own activities including scaled bar charts and tables. **Relevant 2Calculate Lessons:** Intermediate Points (Upper KS2) Mean Class sizes	2Calculate Spreadsheets  Can be accessed by pupils from within 2Calculate tool.	2Calculate Resources