MATHS PARENT WORKSHOP

Year 5

MON 13 JAN 2025

	10	2	5	3	4	8	6	7	9	11	12
10	10 x 10	10 x 2	10 x 5	10 x 3	10 x 4	10 x 8	10 x 6	10 x 7	10 x 9	10 x 11	10 x 12
2	2 x 10	2 x 2	2 x 5	2 x 3	2 x 4	2 x 8	2 x 6	2 x 7	2 x 9	2 x 11	2 x 12
5	5 x 10	5 x 2	5 x 5	5 x 3	5 x 4	5 x 8	5 x 6	5 x 7	5 x 9	5 x 11	5 x 12
3	3 x 10	3 x 2	3 x 5	3 x 3	3 x 4	3 x 8	3 x 6	3 x 7	3 x 9	3 x 11	3 x 12
4	4 x 10	4 x 2	4 x 5	4 x 3	4 x 4	4 x 8	4 x 6	4 x 7	4 x 9	4 x 11	4 x 12
8	8 x 10	8 x 2	8 x 5	8 x 3	8 x 4	8 x 8	8 x 6	8 x 7	8 x 9	8 x 11	8 x 12
6	6 x 10	6 x 2	6 x 5	6 x 3	6 x 4	6 x 8	6 x 6	6 x 7	6 x 9	6 x 11	6 x 12
7	7 x 10	7 x 2	7 x 5	7 x 3	7 x 4	7 x 8	7 x 6	7 x 7	7 x 9	7 x 11	7 x 12
9	9 x 10	9 x 2	9 x 5	9 x 3	9 x 4	9 x 8	9 x 6	9 x 7	9 x 9	9 x 11	9 x 12
11	11 x 10	11 x 2	11 x 5	11 x 3	11 x 4	11 x 8	11 x 6	11 x 7	11 x 9	11 x 11	11 x 12
12	12 x 10	12 x 2	12 x 5	12 x 3	12 x 4	12 x 8	12 x 6	12 x 7	12 x 9	12 x 11	12 x 12

NO DATA	0 - 1 s	1 - 2 s	2 - 3 s	3 - 4 s	4 - 5 s	5 - 6 s	6 - 7 s	7 - 8 s	8 - 9 s	9 - 10 s	> 10 s

Let's have a practice at some Times Table Rockstars now!

KEY INSTANT RECALL FACTS

What facts should children be able to recall quickly and off the top of their heads?

These key instant recall facts play into every aspect of their maths and are hugely important.

Key Instant Recall Facts

Year 5 – Autumn 1

I know decimal number bonds to 1 and 10.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

Some examples:

0.6 + 0.4 = 1	3.7 + 6.3 = 10
0.4 + 0.6 = 1	6.3 + 3.7 = 10
1 – 0.4 = 0.6	10 – 6.3 = 3.7
1– 0.6 = 0.4	10 – 3.7 = 6.3
0.75 + 0.25 = 1	4.8 + 5.2 = 10
0.25 + 0.75 = 1	5.2 + 4.8 = 10
1 – 0.25 = 0.75	10 – 5.2 = 4.8
1 – 0.75 = 0.25	10 – 4.8 = 5.2

Key Vocabulary

What do I **add** to 0.8 to make 1?

What is 1 **take away** 0.06?

What is 1.3 **less than** 10?

How many more than 9.8 is 10?

What is the **difference** between 0.92 and 10?

This list includes some examples of facts that children should know. They should be able to answer questions including missing number questions e.g. 0.49 + ◯ = 10 or 7.2 + ◯ = 10.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Buy one get three free - If your child knows one fact (e.g. 8 + 5 = 13), can they tell you the other three facts in the same fact family?

Use number bonds to 10 - How can number bonds to 10 help you work out number bonds to 100?

Play games – There are missing number questions at www.conkermaths.com . See how many questions you can answer in just 90 seconds. There is also a number bond pair game to play.

Key Instant Recall Facts

Year 5 – Autumn 2

I know the multiplication and division facts for all times tables up to 12 × 12 .

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

Please see separate sheet for all times table facts.

Key Vocabulary

What is 12 **multiplied by** 6?

What is 7 **times** 8?

What is 84 **divided by** 7?

They should be able to answer these questions in any order, including missing number questions e.g. 7 × ◯ = 28 or ◯ ÷ 6 = 7.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

Speed Challenge – Take two packs of playing cards and remove the kings. Turn over two cards and ask your child to multiply the numbers together (Ace = 1, Jack = 11, Queen = 12). How many questions can they answer correctly in 2 minutes? Practise regularly and see if they can beat their high score.

Online games – There are many games online which can help children practise their multiplication and division facts. www.conkermaths.org is a good place to start.

Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.

KEY INSTANT RECALL FACTS

Thus, they should be practiced and recited regularly to ensure retention.

Key Instant Recall Facts

Year 5 – Spring 1

I can recall metric conversions.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

1 kilogram = 1000 grams

1 kilometre = 1000 metres
1 metre = 100 centimetres
1 metre = 1000 millimetres
1 centimetre = 10 millimetres

1 litre = 1000 millilitres

They should also be able to apply these facts to answer questions.

e.g. How many metres in 1½ km?

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Look at the prefixes – Can your child work out the meanings of *kilo-*, *centi-* and *milli-*? What other words begin with these prefixes?

Be practical – Do some baking and convert the measurements in the recipe.

How far? – Calculate some distances using unusual measurements. How tall is your child in mm? How far away is London in metres?

Key Instant Recall Facts

Year 5 – Spring 2

I can identify prime numbers up to 20.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

A prime number is a number with no factors other than itself and one.

The following numbers are prime numbers:

2, 3, 5, 7, 11, 13, 17, 19

Key Vocabulary

prime number
composite number
factor
multiple

A composite number is divisible by a number other than 1 or itself.

The following numbers are composite numbers:

4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20

Children should be able to explain how they know that a number is composite.

E.g. 15 is composite because it is a multiple of 3 and 5.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

It's really important that your child uses mathematical vocabulary accurately. Choose a number between 2 and 20. How many correct statements can your child make about this number using the vocabulary above?

Make a set of cards for the numbers from 2 to 20. How quickly can your child sort these into prime and composite numbers? How many even prime numbers can they find? How many odd composite numbers?

KEY INSTANT RECALL FACTS

Key Instant Recall Facts

Year 5 – Summer 1

I can recall square numbers up to 12^2 and their square roots.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

$1^2 = 1 \times 1 = 1$
$2^2 = 2 \times 2 = 4$
$3^2 = 3 \times 3 = 9$
$4^2 = 4 \times 4 = 16$
$5^2 = 5 \times 5 = 25$
$6^2 = 6 \times 6 = 36$
$7^2 = 7 \times 7 = 49$
$8^2 = 8 \times 8 = 64$
$9^2 = 9 \times 9 = 81$
$10^2 = 10 \times 10 = 100$
$11^2 = 11 \times 11 = 121$
$12^2 = 12 \times 12 = 144$

$\sqrt{1} = 1$
$\sqrt{4} = 2$
$\sqrt{9} = 3$
$\sqrt{16} = 4$
$\sqrt{25} = 5$
$\sqrt{36} = 6$
$\sqrt{49} = 7$
$\sqrt{64} = 8$
$\sqrt{81} = 9$
$\sqrt{100} = 10$
$\sqrt{121} = 11$
$\sqrt{144} = 12$

Key Vocabulary

What is 8 **squared**?

What is 7 **multiplied by itself**?

What is the **square root** of 144?

Is 81 a **square number**?

Children should also be able to recognise whether a number below 150 is a square number or not.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Cycling Squares – At http://nrich.maths.org/1151 there is a challenge involving square numbers. Can you complete the challenge and then create your own examples?

Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.

Key Instant Recall Facts

Year 5 – Summer 2

I can find factor pairs of a number.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

Children should now know all multiplication and division facts up to 12 × 12. When given a number in one of these times tables, they should be able to state a factor pair which multiply to make this number. Below are some examples:

$24 = 4 \times 6$
$24 = 8 \times 3$
$56 = 7 \times 8$
$54 = 9 \times 6$

$42 = 6 \times 7$
$25 = 5 \times 5$
$84 = 7 \times 12$
$15 = 5 \times 3$

Key Vocabulary

Can you find a **factor** of 28?

Find two numbers whose **product** is 20.

I know that 6 is a factor of 72 because 6 multiplied by 12 equals 72.

Top Tips

The secret to success is practising **little** and **often**. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Play games - There is an activity at www.conkermaths.org to practise finding factor pairs

Think of the question – One player thinks of a times table question (e.g. 4 × 12) and states the answer. The other player has to guess the original question.

Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.

HOW IS MATHS TAUGHT AT DILKES?

Each week the children will engage with a different mathematical topic.

These build on the knowledge they have gained in previous years and ensure they apply what has been previously learnt, while also extending their knowledge further.

TOPICS TAUGHT THROUGHOUT THE YEAR IN Y5

Aut 1

1. Place value
2. Number knowledge
3. Addition
4. Subtraction
5. Mental strategies
6. Assessment Week
7. Time

Aut 2

1. Multiplication
2. Division
3. Fractions, decimals and percentages
4. Money
5. Measure
6. Assessment Week
7. Mental strategies

Spring 1

1. Number properties
2. Shape (this week!)
3. Angles
4. Position and Direction
5. Assessment Week
6. Measure

Spring 2

1. Using and applying + and –
2. Data handling
3. Fractions, decimals and percentages
4. Area and Perimeter
5. Assessment Week
6. Angles and probability

Summer 1

1. Algebra
2. Using and applying knowledge
3. Using and applying multiplication
4. Using and applying division
5. Assessment Week
6. 2-Step problems (4 operations)

Summer 2

1. Interpreting data and timetables
2. Number patterns and sequences
3. Fractions, decimals and percentages
4. Outdoor Maths
5. Assessment Week
6. Percentages and ratio
7. Angles

YEAR 5 EXPECTATIONS

CAT Year 5 Expectations

	Number & Calculation	Measurement & Geometry	Problem solving & Statistics
Autumn 24	I can confidently read, write and order numbers to 1,000,000 and beyond saying what each digit represents. I can count back through 0 (including negative nos) and interpret them in context. I can say some square numbers and give factors of numbers (with factor pairs and common factors). I can order decimals to 2 places. I can use a range of methods to check my work, including estimation. I can use efficient methods for addition and subtraction including simple columns. I can give 2 decimals that add to 1. I can add and subtract decimals to one decimal place. I can round numbers to the nearest 10, 100, 1000, 10,000, 100,000 and 1,000,000. I can use a formal written method for the multiplication and division of up to 4 digit by 2 digit numbers. I can read Roman numerals to 1000 I can count in steps of powers of 10 I can explain and say square numbers to 100 and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers. I can +/- fractions with same denominator I can solve 4 digit addition and subtraction. I can interpret remainders appropriate to context. I can compare and order fractions with different denominators with the same multiple. I can recognise and write equivalent fractions. I can recognise and use thousandths. I can read and write decimals as fractions. I can read, write, order and compare numbers with up to 3d.p. I can recognise and describe number patterns giving the next number. I can count in multiples of 6, 7, 9, 25 and 1,000. I understand the meaning of the = sign.	I can recognise fractions and find fractions of simple shapes. I can convert £ to p and solve problems using the four operations and decimal notation. I can covert between cm and m. I can tell the time – analogue (incl Roman numerals and 12/ 24 hr clocks) . I can solve time problems converting between units. I can use negative numbers on a number line and temperature scale from -40 to 100. I can solve time problems which cross the hour interval. I can measure length to within 2mm. I can 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 of up to 3 decimal places. I can read, write and convert time between analogue and digital (12 and 24 hr).	I can make my own suggestions as to how to solve a problem and explain it to others. I can present my information in a clear and organised way I can solve problems involving multiplying and adding, including using the distributive law to multiply 2-digit numbers by 1-digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. I can use rounding to determine accuracy. I can use related vocabulary and units when explaining my answer I can check answers and ensure solutions make sense in the context of the problem I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals. **Ongoing Fluency:** I can say my multiplication facts for all times tables up to 12 x 12 and can work out the division facts for these tables. I can double and halve numbers to 30. I can count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. I can instantly recall facts for all times tables up to 12 x12 and can work out the division facts for these tables.

YEAR 5 EXPECTATIONS

Spring 25	I can identify multiples and factors (including factors pairs and common factors). I can know and use prime, prime factors and composite numbers. I can count on or back in 10s, 100s, and 1000s from any number to 7 digits. I can multiply and divide whole numbers and decimals by 10, 100 and 1000 I can explain what cubed numbers are and use the correct notation. I can multiply ThHTO X TO I can say percentages, equivalent fractions and decimal notation including 50%, 10%, 20% I can give one or two numbers between a pair of numbers to 5000. I can recognise mixed numbers. I can order simple fractions with the same denominator and understand the terms numerator and denominator. I can use doubling, near doubling, halving to support multiplication and division work. I can add decimals to 2 places. I can use a range of methods to check my work, including using a calculator and estimation. I can recognise percentages and write percentages as a fraction. I can recognise and write decimal equivalents of any no of tenths/ hundredths I can recognise and convert between mixed nos and improper fractions	I can find the reflection of a shape in a diagonal line of symmetry. I can estimate volume and capacity. I can distinguish between regular and irregular polygons based on reasoning about equal sides and angles I can identify: Angles at a point; Angles on a straight line; Other multiples of 90° I can find the area and perimeter of rectangles. I can measure and compare the perimeter/area of composite rectilinear shapes. I can estimate, draw and measure angles I can measure angles to within 2 degrees I can identify angles in degrees, estimate and compare acute, obtuse and reflex angles. I can compare and classify geometric shapes I can identify 3D shapes from 2D representations I can recognise, describe and build 3D shapes. I can translate a shape horizontally and vertically. I can find the area and perimeter of shapes that can be divided into 2 rectangles. I can identify, describe and represent the position of a shape following a reflection or translation with vocab (& know that shape has not changed) I can plot, draw and translate 2D shapes in different orientation of grids. I can reflect shapes in a mirror line. I can use and interpret co-ordinates in the first quadrant.	I can compare data sets making comparisons between both sets of data I can understand how to calculate the mean of a set of data I can interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. I can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. I can solve problems converting between units of time.
Summer 26	I can use % and fractions to describe proportions of a whole. I understand the concept of ratio. I can compare and order fractions including improper fractions I can multiply and divide proper fractions and mixed nos by whole nos I can use simple formula. I can generate and describe simple linear sequences. I can express missing number problems algebraically. I can find pairs of numbers that satisfy an equation with two unknowns. I can describe and use simple proportions. E.g. in recipes.	I can use +/-/ x/÷ solve problems involving measure using decimal notation, incl scaling I can read and interpret timetables. I can understand and use approximate equivalences between metric units and common imperial units, such as inches, pounds and pints. I can use the properties of rectangles to deduce related facts, find missing lengths and angles. I can distinguish between regular and irregular polygons. I am beginning to understand opposite and alternate angles	I can check my methods and justify my findings. I can work in an organised, systematic way from the beginning. I can interpret the scale on bar and line graphs I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. I can solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator or a multiple of 10 or 25. I can recognise key information and irrelevant information when solving a problem.

HOW IS A MATHS LESSON STRUCTURED?

Starter – The children will be given an engaging activity to do with an area for development.

Present – The children will then explore the day's learning in a range of ways that rely heavily on children's involvement and use of mathematical verbal reasoning. The teacher will model the new learning and the children will have a change to practice it with support.

Apply – the children will then work through a range of tasks independently, moving from fluency tasks to reasoning and problem-solving tasks.

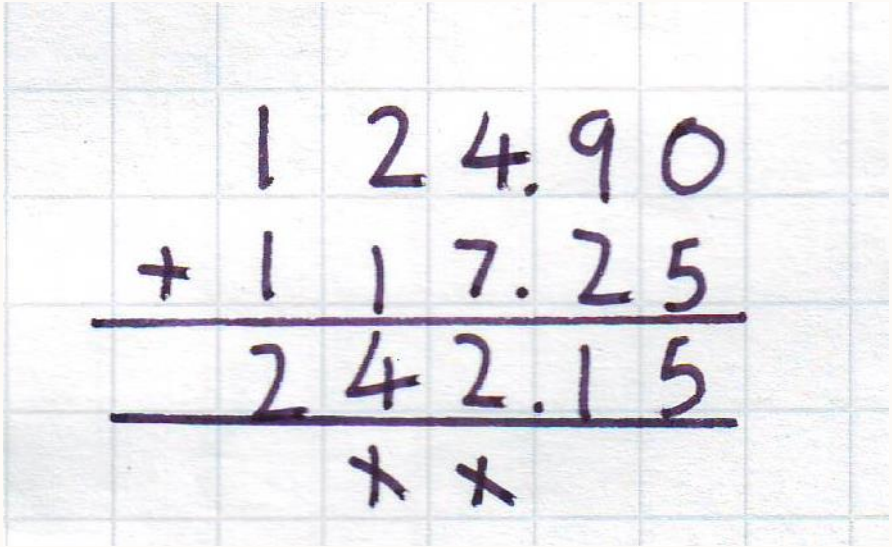
Review – The children will be given opportunity to review the learning, usually applying it to a problem or in a task that requires them to give a detailed explanation.

CALCULATIONS FOR THE 4 OPERATIONS.

ADDITION AND SUBTRACTION

Column method

- Involves a very good knowledge of place value and number bonds to twenty
- Language for addition: carry over, sum of, altogether, more, total, plus, increase, together
- Language for subtraction: exchange (used to be known as “borrow”), difference, decrease, fewer, between, reduce, minus, take
- Same for both whole and decimal numbers
- 5/6 digit numbers used.



TYPES OF QUESTIONS (+ -)

FLUENCY

10,498 – 9,938

1,847.5 + 18,162

559.2 – 18.24

83 + ___ = 498 - 29

REASONING

Explain, using examples, why this statement is **incorrect:**

$$\begin{array}{r} 6\square 5 \\ -\ 2\square 4 \\ \hline \square\square 1 \end{array}$$

The digit in the red box must be 4

Correct or Incorrect?

$$\begin{array}{r} 13.6 \\ +\ 6.72 \\ \hline 8.08 \\ 1 \end{array} \qquad \begin{array}{r} 8395 \\ +\ 7237 \\ \hline 15632 \\ 11 \end{array} \qquad \begin{array}{r} 8469 \\ +\ 837 \\ \hline 9296 \\ 1\ 1 \end{array}$$

PROBLEM SOLVING

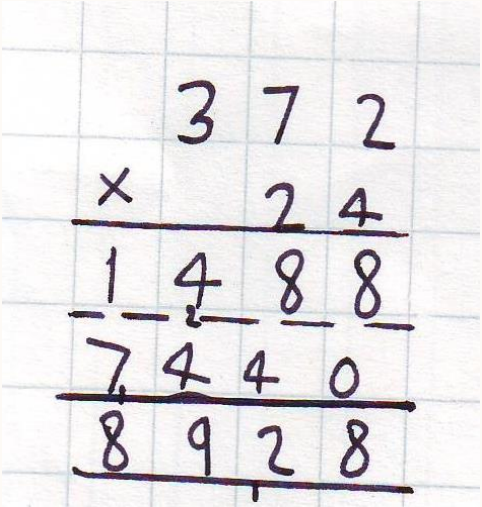
Deeper Learning

Captain Conjecture says,
'When working with whole numbers, if you add two 2-digit numbers together the answer cannot be a 4-digit number.'
Do you agree? Explain your reasoning.

MULTIPLICATION

Formal column method (long multiplication)

- 4-digit by 2-digit.
- Involves an excellent knowledge of times tables and number bonds to 20 (not using fingers!)
- Multiply by the ones column, then multiply by the tens column.
- Language for multiplication: product, multiply, lots of, times, groups of, multiple, factors, square numbers



Multiplication of decimals:

- Still the same method
- Teach them to "ignore" the decimal place and then include it at the end

```
12.5
x  2
 1.0   (2.0 x 0.5)
 4.0   (2.0 x 2.0)
20.0   (2.0 x 10.0)
25.0
```

TYPES OF QUESTIONS (X)

FLUENCY

857 x 28

28.4 x 34

REASONING

Part-Complete Examples

$$\begin{array}{r} 63 \\ \times\ 53 \\ \hline 189 \\ \square\square 50 \\ {\scriptstyle 1} \\ \hline \square\square\square 9 \end{array} \qquad \begin{array}{r} 24 \\ \times\ 16 \\ \hline \square\square 4 \\ {\scriptstyle 2} \\ 24\square \\ \hline \square\square\square \end{array} \qquad \begin{array}{r} 81 \\ \times\ 46 \\ \hline 486 \\ \square\square\square\square \\ \hline 3\square\square\square \end{array}$$

6a. A TV package costs £1,419 per house.

23 houses on Brook Street buy this package. The TV salesperson says the total cost is £32,607.

Is he correct? Explain your answer.

PROBLEM SOLVING

This represents the multiplication of a 4-figure number by 3.

The whole calculation uses each of the digits $0 - 9$ once and once only.

The 4-figure number contains three consecutive numbers, which are not in order. The third digit is the sum of two of the consecutive numbers.

The first, third and fifth figures of the five-digit product are three consecutive numbers, again not in order. The second and fourth digits are also consecutive numbers.

Can you replace the stars in the calculation with figures?

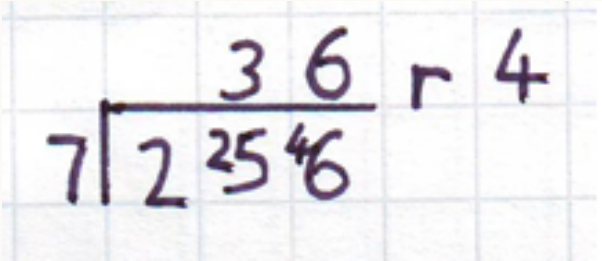
DIVISION

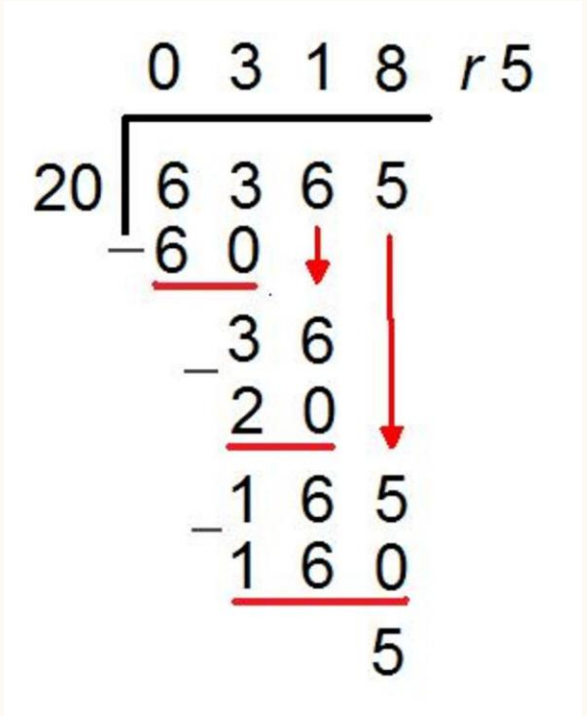
Two methods: long division (dividing by a 2-digit number) and "bus stop" (dividing by a 1-digit number)

- Involves an excellent knowledge of times tables
- Language for division: share equally, divisible by, divided by, group, prime numbers, factors
- "Remainders" to be presented as remainder, then fractions, then decimals

Division of decimals:

- Still the same method
- Knowledge of place value





TYPES OF QUESTIONS (÷)

FLUENCY

$3841 \div 5$

$287.3 \div 4$

$3974 \div 14$

REASONING

Which Answer?

745 ÷ 4

Find the correct calculation.
Spot the mistakes.

$$4\overline{)7^{3}4^{2}5} \quad 185\text{ r }5$$

$$4\overline{)7^{3}4^{2}5} \quad 186\text{ r }1$$

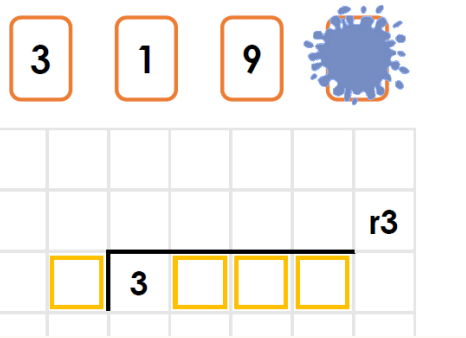
$$4\overline{)7^{3}4^{2}5} \quad 196\text{ r }1$$

		2	3
	3	9	1
	3	4	
		5	1
		5	1
			0

What is the missing number in Teddy's division?

PROBLEM SOLVING

9b. Arrange the number cards below to create a division with a remainder of 3. Discover the number hidden by the splat and complete the calculation.



HOW CAN YOU HELP YOUR CHILD?

- Ensure they complete Mirodo homework weekly – this is always related to the work they have done in class that week or is practicing a skill that the children had misconceptions on during the last assessment and helps them consolidate their learning.
- Ensure they know and practice their key instant recall facts.
- TTRockstars – times table knowledge feeds into a huge amount of the methods we use and so it is key that children know these well.

ANY QUESTIONS?