

Keyworth Primary School

# Learning Letter

Monday 11<sup>th</sup> May - Friday 15<sup>th</sup> May 2020

Year 6 - Miri and Chontel's Maths group 6MC

## Maths this week

The focus for this week's learning is solving number problems. Use paper and a pencil to complete the tasks in the Word document.



You could also have a look at the PowerPoints / videos on Google Classroom to help you

## Lesson 1 -

### Learning question:

Can I solve **multiplication** and **division** problems?

### Success criteria:


- I can identify relevant information
- I can identify what a problem is asking me to do
- I can multiply and divide 1 and 2-digit numbers
- I can use the correct written strategy (x or ÷)

### Example slide

### What do you need to do?

- 1) Read each question carefully
- 2) Identify **important** information:
  - **Clues (key words)** to help you answer the question and see how many steps there are.
  - **Information and keywords** that tell you what your number sentence/s is/are.
  - **Confirm** what the main question is, after any calculations have been completed.
- 3) **Division** - do you need a **remainder**? Does it need to be a decimal?
- 4) **Will the inverse help me solve the problem?**

Sam earns 65p per week pocket money and likes to spend it on sweets. After 15 weeks, how much money does he have altogether?



$$\begin{array}{r} 65 \\ \times 15 \\ \hline 325 \\ 630 \\ \hline 975 \text{ p} \end{array}$$

$$975 \div 100 = 9.75$$

• What information is relevant?  • Which strategy should I use?

• Multiplication or division? How do you know?  • Do I need a remainder?

• How many calculations are needed? 2  • Have I answered the question?

**Resources:** Times table grid and place value grid

### Task:

1. There are **24 pencils** in a box. A school buys **437 boxes**. How many **pencils** does the school buy?
2. Plants are sold in trays of **45**. Ivana buys **328 trays** of plants. How many plants is this?
3. There are 12 eggs in a box. How many boxes will 192 eggs fill?
4. Write in the missing digits to make this correct.
 
$$\begin{array}{r} \square \quad 4 \quad \square \\ \times \quad \quad \quad 6 \\ \hline 2 \quad 0 \quad 5 \quad 2 \end{array}$$
5. A first class stamp costs **28p** and a second class stamp costs **19p**. How much does it cost to send **63** letters first class and **78** letters second class?
6. Calculate  $924 \div 22 =$
7. Write in the missing number- **Inverse**  
 $3400 \div \square = 100$
8. Write what the missing numbers could be.  
 $\square \times \square = 150$
9. Each missing digit in these calculations is **2, 5** or **7**. Write in the missing digits. You may use each digit more than once.  
 $\square + \square 1 \square 8 = \square \square$   
 $\square \square \times 3 = \square \square$
10. Kim knows that  $137 \times 28 = 3836$ . Explain how she can use this information to work out this multiplication  $138 \times 28$ .

# Lesson 2 -

Resources: Times table grid

## Learning question:

Can I solve number problems?

## Success criteria:

- I know what inverse operations means
- I can apply my knowledge of inverse operations to find unknown values
- I can decide the order of steps needed when solving a problem

**TIP:** Use the inverse. Go to the end and begin working your way backwards!

## Example:

I think of a number. I subtract 25 and add 2. I then multiply by 2. My answer is 154. What was my number?

Write the problem out as a number sentence, then reverse it:

$$\bullet \quad ? - 25 + 2 \times 2 = 154$$

$$\bullet \quad 154 \div 2 - 2 + 25 = ?$$

## Step 1:

$$154 \div 2 \text{ (inverse of 'multiply by 2' 'x 2')} = 77$$

## Step 2:

$$77 - 2 \text{ (inverse of 'add 2' '+ 2')} = 75$$

## Step 3:

$$75 + 25 \text{ (inverse of 'subtract 25' '- 25')} = 100$$

## Task:

- 1) I think of a number. I add 15 and multiply by 2. Then I divide by 2 and my answer is 16. What was my number?
- 2) I think of a number. I divide by 2 and add 98. My answer is 100. What was my number?
- 3) I think of a number. I add 50, multiply by 3 and subtract 25. My answer is 275. What was my number?
- 4) I think of a number. I multiply by 20, divide by 10 and subtract 5. The answer is 195. What was my number?
- 5) I think of a number. I double it, add 31, and then subtract 4. My answer is 149. What was my number?
- 6) I think of a number. I multiply it by 2, and then add 9. The answer is 20. What was my number?
- 7) I think of a number. I divide by 4, add 10 and then double it. My answer is 44. What was my number?
- 8) I think of a number. I square it, subtract 44 and add 10. My answer is 66. What was my number?

# Lesson 3 -

Resources: Times table grid

**Learning question:**

Can I recall square numbers and cube numbers and the notation for them?

**Success criteria:**

- I can mentally multiply up to 4 numbers
- I can mentally divide numbers up to two digits (square roots)
- I can sort numbers (below 200) into: square numbers and cube

Numbers (e.g. interpret  $8^2$  as  $8 \times 8 = 64$  and  $4^3 = 4 \times 4 \times 4 = 64$ ,  $5^2 = 25$ ).

$3^2$        $2^3$

What do you think these numbers and their symbols mean.

Square and cube numbers are numbers that can be either multiplied by themselves or multiplied by themselves (squared) and multiplied again (cubed).

## Squaring a number

$3^2$  means '3 squared', or  $3 \times 3$ .

The small 2 is an index number, or power.

It tells us how many times we should multiply 3 by itself.

e.g.  $7^2$  means '7 squared', or  $7 \times 7$ .

And  $10^2$  means '10 squared', or  $10 \times 10$ .

So,  $1^2 = 1 \times 1 = 1$

$3^2 = 3 \times 3 = 9$

etc

1, 4, 9... are known as square numbers.

## Cubing a number

$2 \times 2 \times 2$  means '2 cubed', and is written as  $2^3$ .

$1^3 = 1 \times 1 \times 1 = 1$

$2^3 = 2 \times 2 \times 2 = 8$

$3^3 = 3 \times 3 \times 3 = 27$

$4^3 = 4 \times 4 \times 4 = 64$

$5^3 = 5 \times 5 \times 5 = 125$

etc

1, 8, 27, 64, 125... are known as cube numbers.

1) Can you explain what a **squared number** is?

Example.....

2) Can you explain what a **cubed number** is?

Example.....

**Task 1:**

Can you sort these numbers below 500 into a Venn diagram with two sets: square numbers and cube?

4   27   8   16   125   1   36   49   64   25  
100   169

Square Number	Square and Cube Number	Cube Number
	64 (8x8) and (4x4x4)	8 (2x2x2)

**Task 2:**

- Answer the following sums,  $4^2 - 3 = 13$
- Find the letter that matches each answer
- Identify the celebrity

$5^2 - 2$	$2^3 + 4$	$3^3 - 14$	$2^3$	$4^2 - 9$	$5^2 + 1$	$2^3 + 4$

Find the corresponding letter to each of your answers to reveal the celebrity's name...

A	B	C	D	E	F	G	H	I	J	K	L	M
8	2	10	26	6	15	20	24	1	19	3	7	25

N	O	P	Q	R	S	T	U	V	W	X	Y	Z
13	12	22	14	23	9	4	5	1	17	11	18	16

The celebrity is...

\_\_\_\_\_

# Lesson 4 -

## Learning question:

Can I apply mathematical rules?

### Success criteria:

- I can use brackets in sums
- I can select which part of a sum I need to solve first
- I can solve mathematical number problems

- |           |   |
|-----------|---|
| <b>B</b>  | <b>B</b> rackets first                                      |
| <b>O</b>  | <b>O</b> ther (i.e. Powers and Square numbers, Roots, etc.) |
| <b>DM</b> | <b>D</b> ivision and <b>M</b> ultiplication (left-to-right) |
| <b>AS</b> | <b>A</b> ddition and <b>S</b> ubtraction (left-to-right)    |

$$15 + 7 \times 2 = \quad (9 + 4) \times 5 =$$

<b>B</b>	<b>B</b> rackets first
<b>O</b>	<b>O</b> rders (i.e. Powers and Square Roots, etc.)
<b>DM</b>	<b>D</b> ivision and <b>M</b> ultiplication (left-to-right)
<b>AS</b>	<b>A</b> ddition and <b>S</b> ubtraction (left-to-right)

This the order in which you answer the question:

**Brackets first**, then **square or cube numbers**, then **multiply or divide** and **lastly add or subtract**.

e.g.  $15 + 7 \times 2 =$

1)  $7 \times 2 = 14$  ('x' first)

2)  $15 + 14 = 29$

e.g.  $(9 + 4) \times 5 =$

1)  $9 + 4 = 13$  (brackets first)

2)  $13 \times 5 = 65$  (then 'x')

## Task:

Can you work out the answers to these sums?

### Example:

$$6 \times (7 + 9) =$$

1) Brackets:  $(7 + 9) = 16$

2) Multiplication:  $6 \times 16 = 96$

a)  $6 \times (7 + 9) =$

b)  $(6 \times 6) - (4 \times 4) =$

c)  $7 + 63 \div 9 =$

d)  $5 + 21 \div 7 =$

e)  $9 + 9 \times 9 =$

f)  $81 - 4 \times 4 =$

g)  $6 + 7 \times 8 =$

h)  $6^2 - (7 \times 3) =$

Add brackets to make these sums correct:

(**TIP**: Experiment with different options):

$8 + 4 \times 6 - 5 = 27$

i)  $8 + 4 \times 6 - 5 = 12$

Add brackets and operations (+ - x ÷) to make these sums correct (**TIP**: Experiment with different options):

j)  $4 \quad 4 \quad 3 = 16$

k)  $4 \quad 6 \quad 4 = 20$

Use < or > to show which sum is largest:

l)  $6 + 4 \times 3$  \_\_\_\_\_  $3 \times 4 + 6$

m)  $8 \times 8 - 20$  \_\_\_\_\_  $6 \times 6 + 20$

n)  $2 \times 32 + 46$  \_\_\_\_\_  $62 + 4 \times 9$

# Lesson 5 -

**Learning question:**

Can I apply my learning to solve problems in different contexts?

**Success criteria:**

- I can read each question carefully
- I can identify how many steps are needed
- I can use the appropriate written strategy
- I have ensured each question has been answered.

Multiplication division inverse  
BODMAS squared cubed order  
operations relevant.

Use your prior learning to solve these problems.

- Think about how and when you might need to use the **inverse**.
- Remember to use all of your written strategies
- **BODMAS** -Brackets, Other, x/÷, +/-
- **When solving a problem in context, identify the important information, then consider:**

How many steps?	?
Number sentences	???

(Is there a remainder? Do you need it? Do you need a decimal remainder?)

**Answer:**

???

**Task:** In today's lesson you will answer a selection of questions, applying your learning from over the last two weeks.

They will include multiplication, division, squared and cubed numbers and BODMAS.

1)  
 $( \square \div \square ) + 90 = 100$

2) In the circle write +, -, x, or ÷ to make the calculation correct.

18  $\square$  3 x 5 = 30

3) In this sequence, the rule to get the next number is (**TIP:** Inverse)

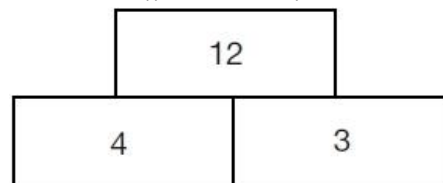
## Multiply by 2, and then add 3

$? \times 2 + 3 = 25$

Write the missing numbers.

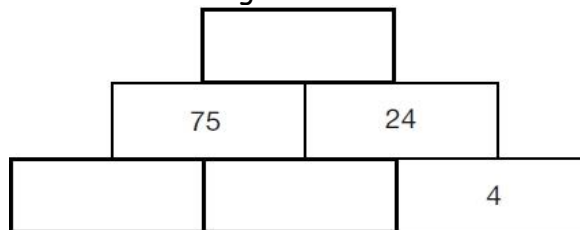
	<b>25</b>	<b>53</b>	
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4) In this tower, two numbers are multiplied to give the number above.



e.g.  $4 \times 3 = 12$   
 $12 \div 3 = 4$  /  $12 \div 4 = 3$

Write the missing numbers in the tower below to make it correct.



1) Adam is making booklets.

Each booklet must have 34 sheets of paper. He has 2 packets of paper.

There are 500 sheets of paper in each packet.

How many **complete** booklets can Adam make from 2 packets of paper?

= ..... **booklets**

(Is there a remainder? Should there be a remainder?)

