

Week Two: Multiplication and division

Don't forget to do your daily multiplication tables practise, your fluency and reasoning questions

Support: See the knowledge organiser at the end of the document (as last week)

Extension- there are two sheets after Friday's lesson

Extra: There is also a Y4 booklet to work through for additional practice.

Use counters or beans etc to support you where needed.

Always show your working out and make sure you lay out your calculations carefully. Lining up matters!

Monday- Code Crackers- Area revision

Tuesday- multiplying several numbers

Wednesday- linking multiplication and division

Thursday- factors and multiples

Friday- Code crackers- Multiplication

Additional sheets

Support

Answers

Monday:

Area Revision.

Area is the space taken up inside a shape. We can find the area of rectilinear shapes by multiplying the width by the length. Have a go at the questions to crack the codes.

National Backwards day (31 January)

.yad sdrawkcab lanoitan yppaH This fun celebration was the idea of Sarah Nicole and Megan Emily Scott in 1961. The history of having unusual (or backwards) days is very old. The ancient Romans celebrated Saturnalia. This day was very unusual as gambling was permitted and, in some cases, masters would serve their slaves. This was a day of merriment and liberty for all.

Solve each question below. Then use the key to find the answer to the joke. Letters can be used more than once.

1. 3 shapes have areas of 17 squares, 15 squares and 8 squares. Which area is the smallest?

2. Sally counts 5 rows of 8 squares in a rectangle. What is the area of the rectangle?

3. Shape A has an area of ___ squares.

4. A square is 5 x 5 squares. What is the area?

5. Shape B has an area of ___ squares.

Did you know?
Kangaroos can jump forwards and side to side but not backwards.

6. Shapes A and B together have an area of ___ squares.

7. Two rectangles have areas of 8 squares and 10 squares. Which is the smallest area?

8. Shape C has an area of ___ squares.

9. Shapes A, B, C, D together have an area of ___ squares.

10. A square is 3 by 3 squares. What is the area?

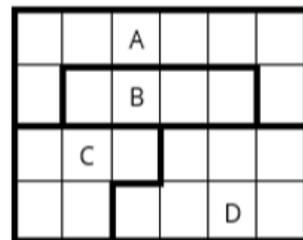
11. Shape D has an area of ___ squares.

12. Tony has two rectangles. One has an area of 2 squares, the other has an area of 5 squares. Which is smaller?

13. A rectangle is 1 square wide and 5 squares long. What is the area?

14. Shapes B and C together have an area of ___ squares.

15. Ben counts 3 rows of 12 squares. What is the area?



A	B	C	D	E	F	G	H	I	J	K	L	M
8	40	25	24	36	13	11	7	16	32	4	23	37
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
19	2	10	6	5	9	15	1	35	12	20	63	17

What has four legs and says ‘hgien’?

- 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Tuesday

Using Multiplication and Multiplying several numbers

Warm up

Complete these multiplications as quickly as you can. Remember, multiplication can be done in any order.

$2 \times 3 \times 5 =$ $3 \times 4 \times 6 =$ $15 \times 3 \times 2 =$ $8 \times 6 \times 3 =$ $5 \times 5 \times 3 =$



- 1 a) Amelia wants to choose one bucket and one spade. How many different ways can she do this?
 b) How does this link to the multiplication 5×4 ?

a)



I will draw a line from each bucket to each spade and count the lines.



There are 20 different ways for Amelia to choose one bucket and one spade.

b)

	Bucket 1	Bucket 2	Bucket 3	Bucket 4
Spade 1				
Spade 2				
Spade 3				
Spade 4				
Spade 5				

This links to the multiplication 5×4 because there are 5 rows of 4 different matches.

This is 5 lots of 4.

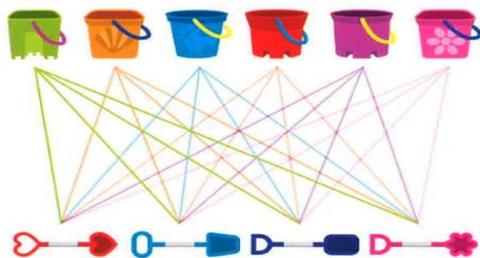
$5 \times 4 = 20$

I can see 5 rows of 4.

Each spade has 4 possible buckets. I did $4 + 4 + 4 + 4 + 4$.



- 1 How many different ways could you choose one bucket and one spade?



$$\square \times \square = \square$$

There are \square different ways to choose one bucket and one spade.

- 2 Zac chooses one T-shirt and one pair of shorts to wear.

There are 30 different ways that Zac could choose what to wear.



How many pairs of shorts does he have?

$$6 \times \square = 30$$

Zac has \square pairs of shorts.

3



CHALLENGE

- a) Choose two socks to make a mis-matched pair. How many different unique pairs could you choose?

I need to find out how many ways the socks can match up. I will make a grid.



Be careful not to count the same pair twice!



- b) Find a quicker way to work out how many pairs of socks you can make.

I wonder if multiplication could help me.



Try this question:

In a chocolate factory, Easter eggs are made in white, milk or plain chocolate. They are filled with either buttons, mim eggs, truffles or toffees. Each egg can be wrapped in either gold, silver, purple or blue foil. How many different eggs are produced? Show your solution.

Wednesday: Linking multiplication and division



How many stickers on the desk? How many different ways can you count them?

1 How many stickers are there on 6 sheets?



$$5 \times 2 \times 6 = \square \quad \text{or} \quad 2 \times 5 \times 6 = \square$$

$$\square \times 6 = \square \quad \square \times 6 = \square$$

There are \square stickers on 6 sheets.

2 A box contains 3 rows of 6 doughnuts.



a) How many doughnuts are there in 2 boxes?

$$\square \times \square \times \square = \square$$

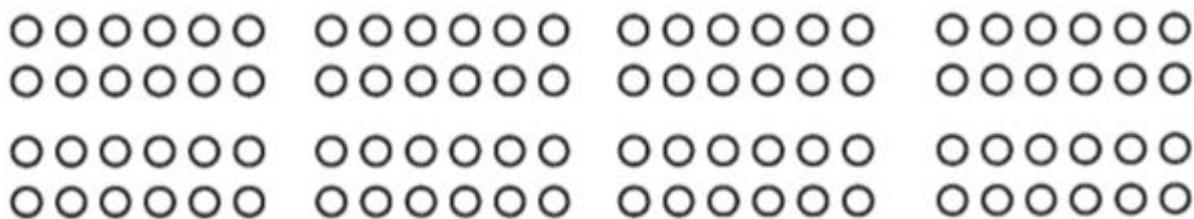
There are \square doughnuts in 2 boxes.

b) How many doughnuts are there in 5 boxes?

There are \square doughnuts in 5 boxes.

You could draw a diagram to help you.





Use this array to answer these questions:

$8 \times 12 =$ $12 \times 8 =$ 96 divided by 8 is 96 divided by 12 is

How many 12s in 96? 96 divided by 24 is 96 divided by 48 is

Can you find any other facts?

<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $4 \times \square = 28$	<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $\square \times 6 = 48$
<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $72 \div \square = 9$	<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $\square \div 9 = 5$
<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $72 \div \square = 6$	<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $\square \times 5 = 55$
<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $\square \times 4 = 28$	<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $\square \times 9 = 81$
<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $\square \div 7 = 7$	<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $56 \div \square = 7$
<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $\square \div 6 = 9$	<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $4 \times \square = 36$
<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $\square \times 12 = 144$	<p>Year 4 Multiplication and Division Missing Number Challenge Cards</p> $11 \times \square = 99$

Thursday: Multiples and factors

Warm up:

If I know that $13 \times 4 = 52$, what else do I know?

Multiples- the answers in a times table: eg. 3, 6, 9, 30, 42 etc are all multiples of 3 because if I count in 3s, I will say all of these numbers. These are all multiples of 3 and are divisible by 3.

Write 5 multiples of each of these numbers:

1. 4
2. 6
3. 10
4. 23
5. 15

True or false?

39 is a multiple of 3 and 13?

56 is a multiple of 8 and 7?

64 is a multiple of 8 and 9?

A factor is a number that a number can divide equally by. Factors usually come in pairs.

a) A factor is a number that divides by another number equally.
A factor pair is two numbers that multiply together to make the number.

I started from $1 \times$, then $2 \times$ and went one number at a time, until the numbers started repeating.

The factors of 12

1×12
 2×6
 3×4

So, we say the factors of 12 are 1, 12, 2, 6, 3 and 4. 12 has 6 factors.

Find all the factors of 36, 48, 15, 100, 32, 10, 28 and 64

Friday Multiplication and division code breakers

Maths Code Crackers | Year 4 | Multiplication and Division | Questions

Steve Jobs' birthday (24 January)

Steve Jobs was born in 1955 and was raised by adoptive parents in Cupertino, California. He was the co-founder of Apple Computers in 1976 along with Steve Wozniak. The pair started their company in Jobs' family garage. Jobs was one of the first entrepreneurs to realise how appealing a personal computer would be for people. In 1985, Jobs left Apple to make a new firm, NeXT Inc. he later returned to Apple.

Solve each question below. Then use the key to find the answer to the joke. Letters can be used more than once.

1. $51 \times ? = 510$

2. $49 \times 0 =$

3. $214 \times 6 =$

4. The factors of 14 are 1, 2, ? and 14

5. $? \times 1 = 80$

Did you know?
Steve Jobs had 4 children. Around the time his daughter Lisa was born, he named the new Apple computer the Apple Lisa.

6. $40 \div 4 =$

7. If $9 \times 7 = 63$, $63 \div 7 =$

8. $1 \times 3 \times 9 =$

9. $72 \times 5 =$

10. $38 \times 8 =$

11. The factors of 5 are 1 and ?

12. $2 \times 8 \times 5 =$

13. $7 \times 11 =$

14. $709 \times 6 =$

15. $305 \times 4 =$

16. $5 \times 1 =$

A	B	C	D	E	F	G	H	I	J	K	L	M
4,254	49	1	1,220	80	28	70	7	10	1,260	4	4,314	27
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
0	360	77	6	9	5	1,284	304	364	350	40	51	1,264

Where do all the cool mice live?

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

:

Using Times Tables

1

Fill in the four missing digits in the calculations below.

 $7 \times \square = \square 2$

 $9 \square + \square = 12$

2 marks

2

Dianné collects 72 eggs from her hens. She divides them into packs of 12. At the market she sells her packs for £3 each.

Fill in the boxes with calculations to work out how much money Dianne could make from selling all the eggs in packs of 12.

 = packs

 = £

2 marks

3

Nilesh says, "There are five different pairs of numbers between 1 and 12 that multiply to give the answer 36."

Explain why Nilesh is wrong.



2 marks

Continue the grid on the right until it contains all the answers to the 1-12 times tables. Looking at your grid, find all the numbers bigger than 12 that come up more than twice.

Can you explain why they come up more than twice?

Which numbers (of any size) only appear twice?

What have these numbers got in common with each other?

Which numbers (of any size) only appear once?

What have these numbers got in common with each other?

1	2	3	4	5
2	4	6	8	
3	6	9	12	
4	8			
5				

Mental Multiplying and Dividing

This page is on mental maths, so you need to do these calculations in your head.

- 1 A baker sells buns in packs of 6.
One morning the baker makes enough buns for 16 packs.

How many buns did the baker make?



buns

1 mark

- 2 Arash and Ned each have forty pet spiders. Spiders have 8 legs each.

How many legs do their spiders have in total?



legs

1 mark

- 3 Felicity ate 630 g of strawberries in one week.
She ate the same mass of strawberries each day that week.

Find the mass of strawberries
Felicity ate each day.



g

1 mark

Explain how you worked it out.



1 mark

- 4 Iain makes 5000 ml of fruit smoothie.
He spills 200 ml and shares the rest between 12 people.

What amount of fruit smoothie does each person get in millilitres?



ml

1 mark



$4 \times 7 = 28$. Use this calculation to solve: $28 + 4$ $280 + 2$ 70×40

Explain how you used $4 \times 7 = 28$ to work out each of your answers.

Think of a multiplication and a division that you can't solve using $4 \times 7 = 28$.

Explain why $4 \times 7 = 28$ can't help you solve your calculations and find
multiplications from the times tables that can. Explain your choices.

Multiplication and Division												Knowledge Organiser																																																															
Key Vocabulary	Multiplication and Division Facts											Use Place Value to Multiply and Divide Mentally																																																															
multiply	x	1	2	3	4	5	6	7	8	9	10	11	12	<p>$5 \times 1 = 5$ $5 \div 1 = 5$</p> <p>$5 \times 10 = 50$ $50 \div 10 = 5$</p> <p>$5 \times 100 = 500$ $500 \div 100 = 5$</p>																																																													
groups of	1	1	2	3	4	5	6	7	8	9	10	11	12																																																														
lots of	2	2	4	6	8	10	12	14	16	18	20	22	24																																																														
times	3	3	6	9	12	15	18	21	24	27	30	33	36																																																														
divide	4	4	8	12	16	20	24	28	32	36	40	44	48																																																														
share	5	5	10	15	20	25	30	35	40	45	50	55	60																																																														
remainder	6	6	12	18	24	30	36	42	48	54	60	66	72																																																														
factor	7	7	14	21	28	35	42	49	56	63	70	77	84																																																														
multiple	8	8	16	24	32	40	48	56	64	72	80	88	96																																																														
product	9	9	18	27	36	45	54	63	72	81	90	99	108																																																														
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	Factor pairs and Commutativity						Multiply Using Formal Written Methods																																																																				
	<p>The factors of 20 are 1, 2, 4, 5, 10 and 20. The factor pairs are: 1 and 20 2 and 10 4 and 5</p>						<table border="0"> <tr> <td>Th</td><td>H</td><td>T</td><td>O</td> <td>Th</td><td>H</td><td>T</td><td>O</td> </tr> <tr> <td></td><td>5</td><td>4</td><td>3</td> <td></td><td>5</td><td>4</td><td>3</td> </tr> <tr> <td>x</td><td></td><td></td><td>4</td> <td>x</td><td></td><td></td><td>4</td> </tr> <tr> <td></td><td></td><td>1</td><td>2</td> <td></td><td></td><td></td><td>4</td> </tr> <tr> <td></td><td></td><td>1</td><td>6</td><td>0</td> <td></td><td></td><td></td><td>4</td> </tr> <tr> <td></td><td></td><td>2</td><td>0</td><td>0</td><td>0</td> <td></td><td>2</td><td>1</td><td>7</td><td>2</td> </tr> <tr> <td></td><td></td><td>2</td><td>1</td><td>7</td><td>2</td> <td></td><td></td><td>1</td><td>1</td><td></td> </tr> </table> <p>Remember to move any regrouped numbers into the next column. After the next multiplication, add the regrouped number to the answer.</p>						Th	H	T	O	Th	H	T	O		5	4	3		5	4	3	x			4	x			4			1	2				4			1	6	0				4			2	0	0	0		2	1	7	2			2	1	7	2			1	1	
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Multiplication and Division												Knowledge Organiser	
Mental Calculations for Solving Problems						Integer Scaling Problems							
$(2 \times 3) \times 4 = 24$ 			$(2 \times 4) \times 3 = 24$ 			10 pencils 			$10 \times 4 = 40$ pencils 				
$(3 \times 4) \times 2 = 24$ 						75g 			$75g \times 2 = 150g$ 				
Short Division with Exact Answers													
<p>There are 69 tennis balls packed in tubes of 3.</p> <p>There are 23 tubes altogether.</p>						$69 \div 3 = 23$							

- 3 shapes have areas of 17 squares, 15 squares and 8 squares. Which area is the smallest? 8 **A**
- Sally counts 5 rows of 8 squares in a rectangle. What is the area of the rectangle? 40 **B**
- Shape A has an area of ___ squares. 8 **A**
- A square is 5 x 5 squares. What is the area? 25 **C**
- Shape B has an area of ___ squares. 4 **K**
- Shapes A and B together have an area of ___ squares. 12 **W**
- Two rectangles have areas of 8 squares and 10 squares. Which is the smallest area? 8 **A**
- Shape C has an area of ___ squares. 5 **R**
- Shapes A, B, C, D together have an area of ___ squares. 24 **D**
- A square is 3 by 3 squares. What is the area? 9 **S**
- Shape D has an area of ___ squares. 7 **H**
- Tony has two rectangles. One has an area of 2 squares, the other has an area of 5 squares. Which is smaller? 2 **O**
- A rectangle is 1 square wide and 5 squares long. What is the area? 5 **R**
- Shapes B and C together have an area of ___ squares. 9 **S**
- Ben counts 3 rows of 12 squares. What is the area? 36 **E**

What has four legs and says 'hgjen'?

A backwards horse.

- $51 \times ? = 510$ 10 **I**
- $49 \times 0 =$ 0 **N**
- $214 \times 6 =$ 1,284 **T**
- The factors of 14 are 1, 2, ? and 14 7 **H**
- $? \times 1 = 80$ 80 **E**
- $40 \div 4 =$ 10 **I**
- If $9 \times 7 = 63$, $63 \div 7 =$ 9 **R**
- $1 \times 3 \times 9 =$ 27 **M**
- $72 \times 5 =$ 360 **O**
- $38 \times 8 =$ 304 **U**
- The factors of 5 are 1 and ? 5 **S**
- $2 \times 8 \times 5 =$ 80 **E**
- $7 \times 11 =$ 77 **P**
- $709 \times 6 =$ 4,254 **A**
- $305 \times 4 =$ 1,220 **D**
- $5 \times 1 =$ 5 **S**

Where do all the cool mice live?

In their mousepads.