Maths

Multiplication and Division

Need a coherently planned sequence of lessons to complement this resource?

Divide with Remainders

	1	2	4	r3
5	6	$^{1}2$	$^{2}3$	

Aim

- To divide 4-digit numbers by 1-digit numbers with remainders.

Success Criteria

- I can use the formal method correctly.
- I can work methodically, always beginning with the largest number.
- I can exchange numbers correctly when necessary.
- I can write my remainder correctly in my answer.

Remember It

Can you complete the mixed-up times table grid?

×	4	6	7	3
9	**36**	**54**	**63**	**27**
8	**32**	**48**	**56**	**24**
3	**12**	**18**	**21**	**9**
5	**20**	**30**	**35**	**15**

In the grid, there are two square numbers - write which numbers they are and a definition of what a square number is!

Which of the following numbers are in the 7 times table?

76 **84** 22 **49**

15 **28** 39

Which of the following numbers is NOT in the 9 times table?

89 9 18 36

81 **34** 54

What are Remainders?

Sometimes, when we are dividing numbers, the dividend can be exactly divisible by the divisor and will provide a quick answer.

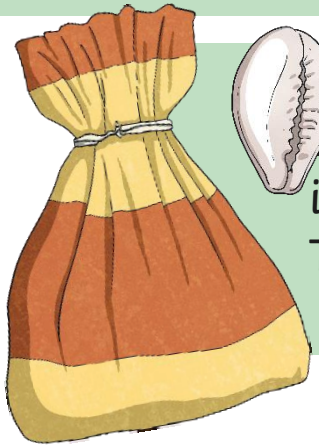
For example:

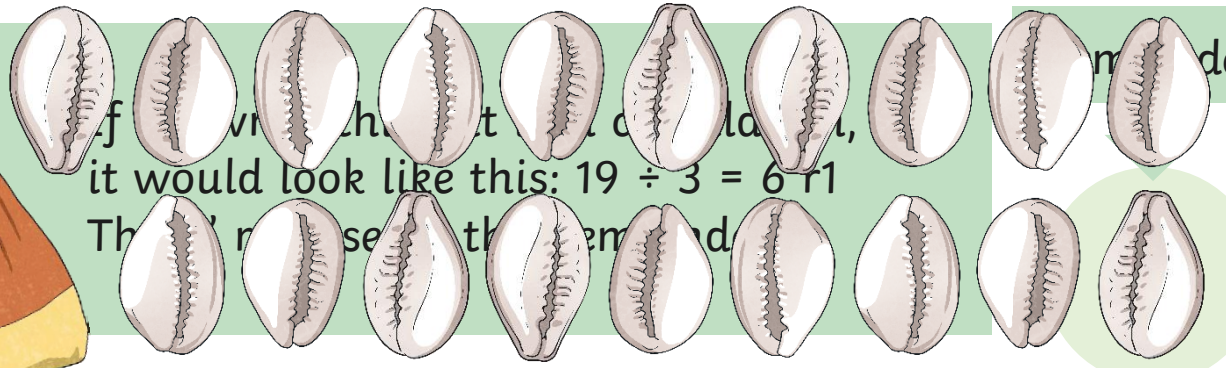
	1	2	4	9
6	7	$^{1}4$	$^{2}9$	$^{5}4$

However, sometimes, it's not so straightforward.
Some numbers are not exactly divisible by their divisor.
Let's investigate what happens when we are presented with this problem.

What are Remainders?

Let's share the shells out equally between the three friends.
There are 19 shells in total. They want to share them between themselves.

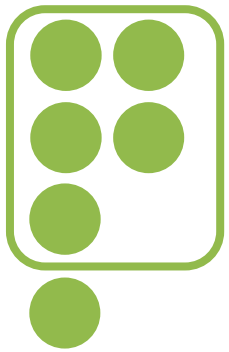
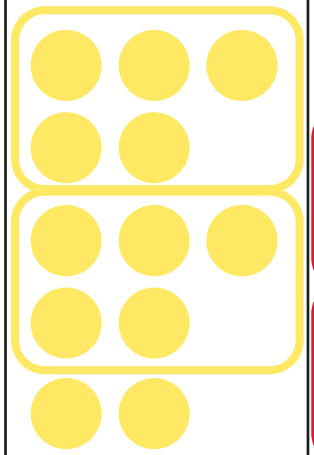
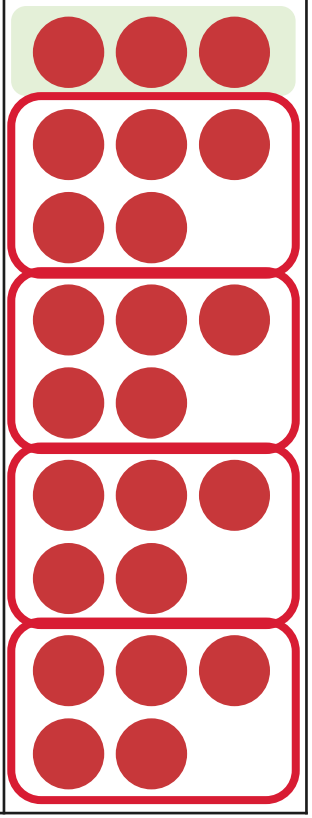




We can check that this works by doing the calculation: 6 × 3 = 18 + 1 = 19

Dividing 3-Digit Numbers with Remainders

623 ÷ 5 = 124 r3

100s	10s	1s
		

Our final answer is
623 ÷ 5 = 124 r3

	1	2	4	r3
5	6	$^{1}2$	$^{2}3$	

We need to write r after our answer to represent the word 'remainder' and then 3 after it.

Dividing with Remainders

Ivy has been completing some division calculations.
Do you agree with her answers? Explain your reasoning.

4	9	2	÷	7	=	7	0	r2	
5	2	8	÷	4	=	1	3	1	r4
7	4	3	÷	8	=	9	2	r7	

A remainder cannot be greater than or equal to the divisor. Another group can be made.

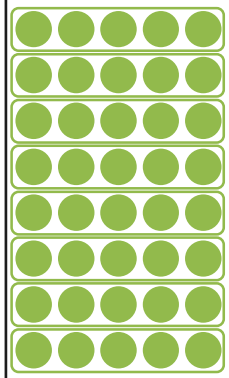
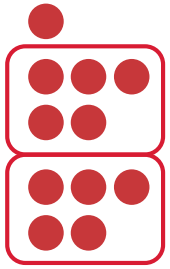
		7	0	r2
7	4	9	2	

	1	3	2	
4	5	$^{1}2$	8	

		9	2	r7
8	7	4	$^{2}3$	

Dividing 3-Digit Numbers with Remainders

4061 ÷ 5 = 812 r1

1000s	100s	10s	1s
			

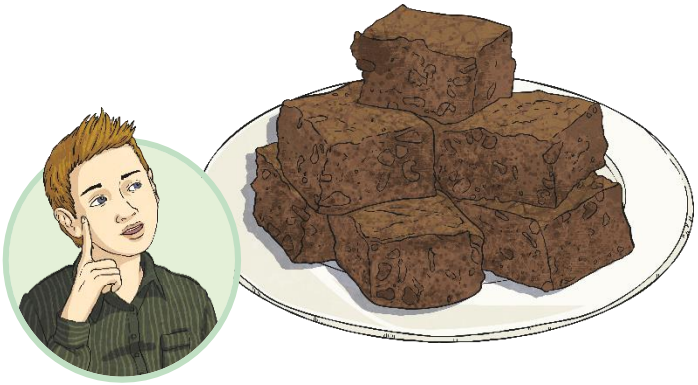
Our final answer is
4061 ÷ 5 = 812 r1

		8	1	2 r1
5	4	0	6	$^{1}1$

So we can write 2 above the line in the ones column and r1 after to represent the remaining one counter.

What do remainders mean?

Felix is making brownies for a school fair. He makes 1645 brownies and begins to place them in boxes. He can put 8 brownies in one box. How many boxes will Felix need altogether?



		2	0	5	r5
8	1	6	4	$^{4}5$	

To find the answer to this question, we need to first complete the

These remaining 5 brownies would still need a box!

This means that the answer to this question is **<u>206 boxes</u>**.

many boxes Felix will need. 1645 divided by 8 will make 205 full boxes with 5 brownies left over.

Multiply 4 digits by 1 digit

Dividing with Remainders

To divide 4-digit numbers by 1-digit numbers with remainders.

1) Solve the division problems.

a)

3	1	8	6	4

b)

4	4	8	8	7

c)

5	1	6	5	7

d)

3	2	7	1	4

e)

4	8	9	2	7

f)

6	4	3	2	8

1) How much chocolate sauce is left over if...

a) 1286 ml is shared between 4 children?

b) 3546 ml is shared between 5 children?

c) 6577 ml is shared between 3 children?

d) 8947 ml is shared between 4 children?

iding with Remainders

ivide 4-digit numbers by 1-digit numbers with remainders.

problems.

b) 2587 ÷ 4

d) 3673 ÷ 6

f) 6605 ÷ 7

ate sauce is left over if...

ıred between 4 children?

b) 7820 ml is shared between 9 children?

ıred between 6 children?

d) 8632 ml is shared between 7 guests?

iding with Remainders

ivide 4-digit numbers by 1-digit numbers with remainders.

ate sauce is left over if...

ıred between 4 children?

b) 3792 ml is shared between 9 children?

ıred between 8 children?

d) 6832 ml is shared between 7 children?

ıred between 8 children?

f) 5242 ml is shared between 7 children?

e calculations, but he isn't sure if he's got the answers right.
em for him? What mistakes have been made?

7

'0 r2

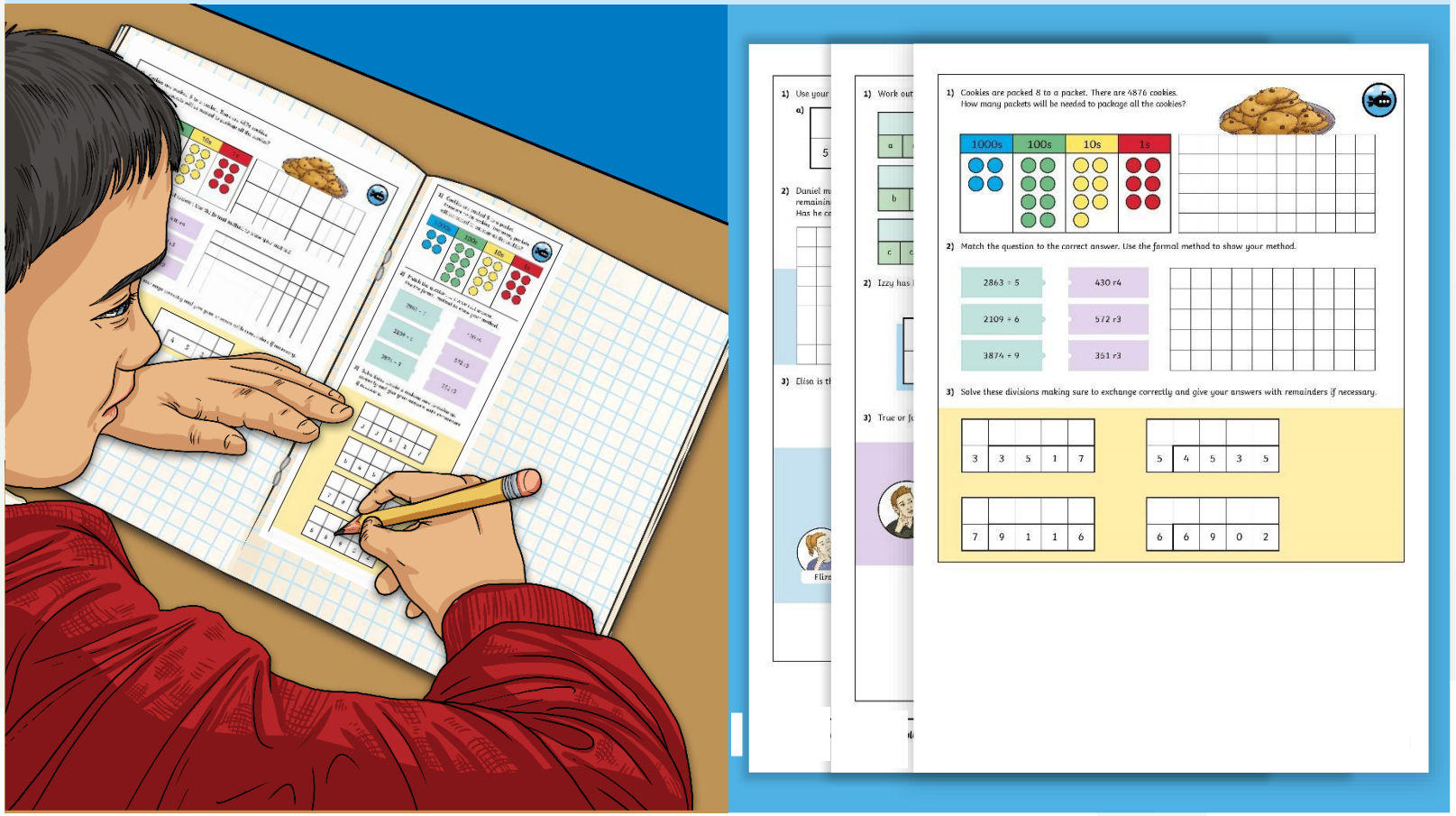
9

' r2

'9

Diving into Mastery

Dive in by completing your own activity!



Think it over

Jamie and Will are discussing remainders.
Who is correct? Justify your answer.

Jamie

Remainders can only ever be numbers smaller than the divisor.

Remainders can be any number.

Will

Jamie is correct. Remainders cannot be larger than the divisor. If they are, it means another group can be made!

Aim

- To divide 4-digit numbers by 1-digit numbers with remainders.

Success Criteria

- I can use the formal method correctly.
- I can work methodically, always beginning with the largest number.
- I can exchange numbers correctly when necessary.
- I can write my remainder correctly in my answer.