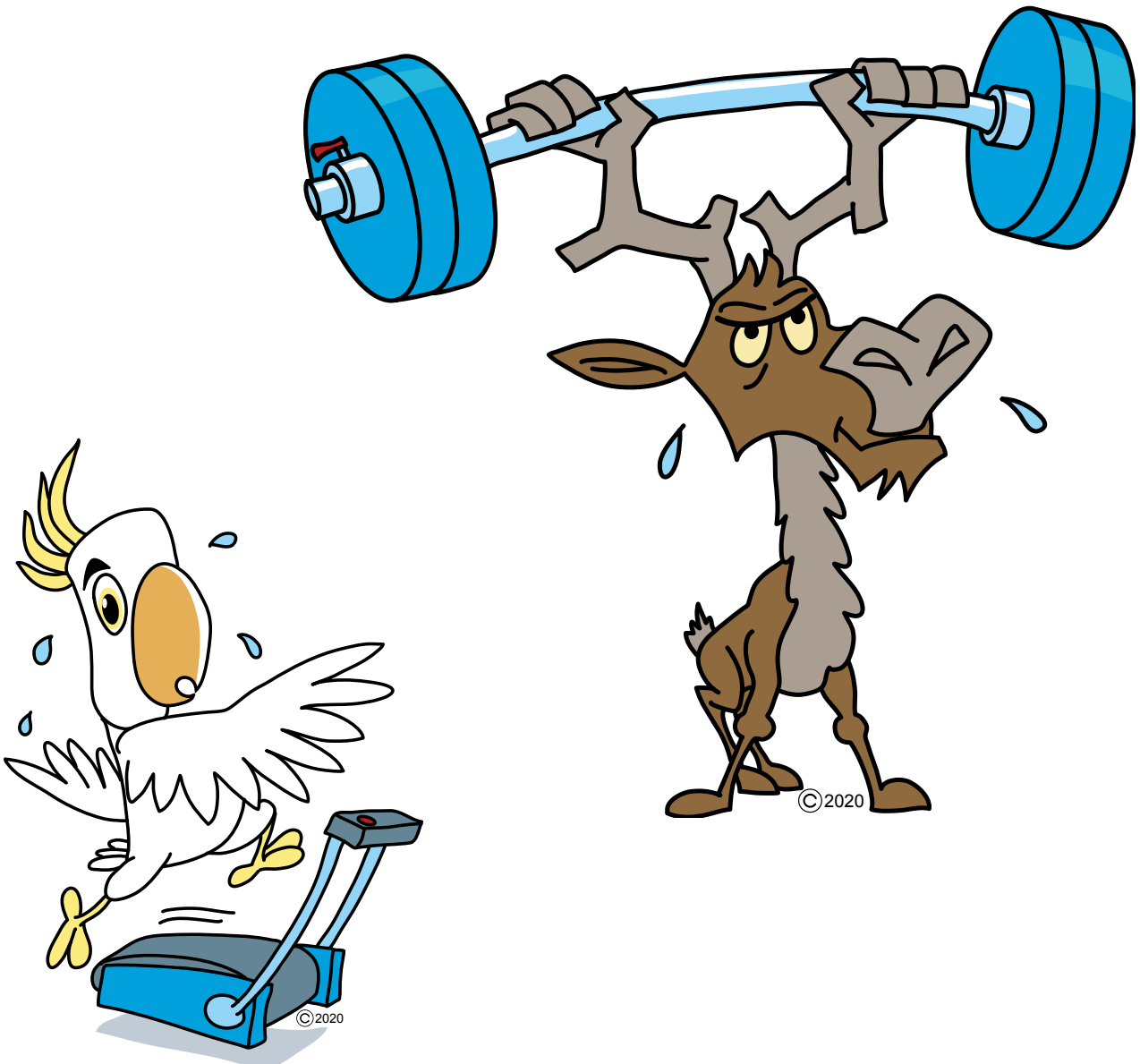
Colin and Coco's Deliberate Practice

Year 6 Unit 3

Multiplication ansd Division

Answers



Contents

This pack of deliberate practice is designed to be used flexibly to secure the manageable steps of this unit.
The table below indicates which activities are linked to which mangeable steps.

	Do It	Challenge It	Play It
Find common multiples of two numbers			1
Find common factors of two numbers	1	1	
Identify prime numbers	1		
Multiply a four-digit number by a two-digit number using long multiplication	2		
Divide a three-digit number by a two-digit number using a formal written method with no remainder		2	
Divide a three-digit number by a two-digit number using a formal written method with a whole number remainder	3		2
Divide a three-digit number by a two-digit number using a formal written method with a remainder expressed as a fraction		3	
Divide a three-digit number by a two-digit number using a formal written method with a remainder rounding to two decimal places			3
Divide a four-digit number by a two-digit number using a formal written method with no remainder	4		
Divide a four-digit number by a two-digit number using a formal written method with a whole number remainder	4	5	4
Divide a four-digit number by a two-digit number using a formal written method with a remainder expressed as a fraction		4	
Divide a four-digit number by a two-digit number using a formal written method with a remainder rounding to two decimal places	5	5	

Do It 1

Circle the prime numbers in each set.

17, 24, 33, 41

63, 31, 23, 81

19, 29, 35, 9

5, 15, 51, 59

3, 18, 27, 13

1, 11, 21, 31

List the common factors of each pair of numbers.

24 and 15	1, 3	27 and 36	1, 3, 9
18 and 30	1, 2, 3, 6,	42 and 72	1, 2, 3, 6
12 and 20	1, 2, 4	60 and 24	1, 2, 3, 4, 6, 12

Challenge It 1

Use any combination from the digits, 2, 3, 6 and 4 to make two 2-digit numbers.
You can repreat the digits.

List all the common factors of the two numbers.

Repeat this for several pairs of 2-digit numbers.

Common Multiples Game

Play It 1

You need:
A set of 3 - 12 cards (as shown at the bottom of this page.)

To play:
Shuffle the cards and place them in a deck, face down.
Players take it in turns to turn over the top two cards and state a common multiple of the two numbers.
They score that multiple. Cards are discarded.
Players are aiming to score as little as they can, so the lowest common multiple is the best one.

For example:
Player 1: I have turned over 4 and 6.
24 is a common multiple but so is 12 so I score 12

To win:
The winner is the player with the lowest total score when all the cards have been played.

3	4	5	6	7
8	9	10	11	12

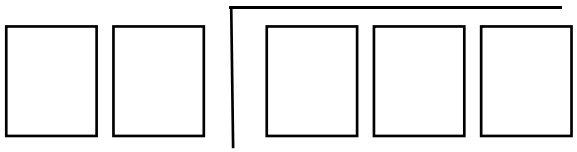
Do It 2

Use a formal written method to calculate:

	1	3	2	4			1	4	6	3				7	5	6	2
	×		3	5			×		4	5				×		3	8
4	6	3	4	0		6	5	8	3	5		2	8	7	3	5	6
	3	1	6	8			2	6	7	9				4	8	9	6
	×		1	7			×		3	4				×		4	7
5	3	8	5	6		9	1	0	8	6		2	3	0	1	1	2

Challenge It 2

Use the digits 2, 4, 6 and 8 in any combination to make a 3-digit number and a 2-digit number. Divide them using a formal written method.



Investigate calculations.

How many calculatioins can you find which have no remainder?

Formal Division Game

Play It 2

You need:
0 - 9 dice
(Calculator to check answers - optional)

To play:
Take it it turns to roll the dice to get five digits.
Both players use the same digits to make a 2-digit divisor and a 3-digit dividend.

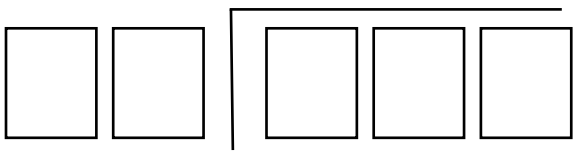
Both players calculate the answer to their calculation, writing any remainder as a whole number.

For example:

The numbers thrown are 4, 5, 5, 3 and 8.
Player 1: I am going to calculate 358 ÷ 45.
Player 2: I am going to calculate 855 ÷ 34

The player with the higher remainder scores 2 points.
If both players have the same remainder they score a point each.

To win:
The winner is the first player to score a total of 7 points.



Do It 3

Use a formal written method to calculate, giving any remainder as a whole number.

			2	8	r 2					3	6	r 3				2	6	r 11
1	3	3	6	6			1	6	5	7	9		1	7	4	5	3	
			3	8	r 12					3	4	r 10				2	7	r 17
2	3	8	8	6			2	7	9	2	8		3	2	8	8	1	

Challenge It 3

Match the calculation to the correct fraction remainder.
Fill in the missing buddies.

342 ÷ 14	$\frac{4}{14}$
330 ÷ 14	$\frac{10}{14}$
360 ÷ 14	$\frac{6}{14}$
382 ÷ 14	$\frac{8}{14}$
889 ÷ 23	$\frac{20}{23}$
833 ÷ 23	$\frac{15}{23}$
723 ÷ 23	$\frac{5}{23}$
802 ÷ 23	$\frac{10}{23}$

Remainders as Decimals Game

Play It 3

You need:
0 - 9 dice

To play:
Take it it turns to roll the dice to get five digits.
Both players use the same digits to make a 2-digit divisor and a 3-digit dividend.

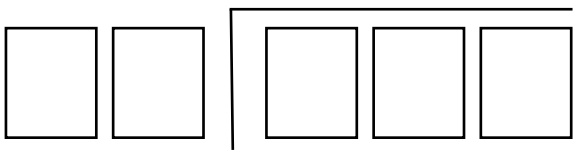
Both players calculate the answer to their calculation, writing any remainder to the 2 decimal places.

For example:

The numbers thrown are 4, 5, 5, 3 and 8.
Player 1: I am going to calculate 358 ÷ 45.
Player 2: I am going to calculate 855 ÷ 34

If your decimal remainder is greater than .5 score 2 points.
If your decimal remainder is less than .5 score 1 point.

To win:
The winner is the first player to score a total of 7 points.



Do It 4

Use a formal written method to calculate:

1. 5110 ÷ 14 365
2. 8395 ÷ 23 365
3. 6205 ÷ 17 365
4. 7232 ÷ 16 452
5. 6604 ÷ 26 254
6. 4410 ÷ 18 245

Use a formal written method to calculate, giving any remainder as a whole number.

1. 5140 ÷ 14 367 r 2
2. 8559 ÷ 23 372 r 3
3. 6487 ÷ 17 381 r 10
4. 7395 ÷ 16 462 r 3
5. 6900 ÷ 26 265 r10
6. 4620 ÷ 18 256 r 12

Challenge It 4

Match the calculation to the correct fraction remainder.
Fill in the missing buddies.

6500 ÷ 17	$\frac{4}{17}$
6536 ÷ 17	$\frac{10}{17}$
6708 ÷ 17	$\frac{6}{17}$
6532 ÷ 17	$\frac{8}{17}$
9797 ÷ 27	$\frac{20}{27}$
9320 ÷ 27	$\frac{23}{27}$
9568 ÷ 27	$\frac{5}{27}$
9470 ÷ 27	$\frac{10}{27}$

Formal Division Game

Play It 4

You need:
0 - 9 dice
(Calculator to check answers - optional)

To play:
Agree a 3-digit target between 250 and 450
Players are aiming for their quotient to be closer to this target than their opponent.

Both players roll the dice to get four digits.
They make a 4-digit number and divide it by 17

Both players calculate the answer to their calculation, writing any remainder as a whole number.

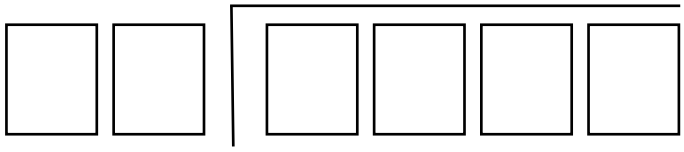
For example: Target agreed 265
Player 1: I have thrown 4, 5, 3 and 8.
I am going to calculate 4358 ÷ 17.

Player 2: I have thrown 4, 8, 9, 6
I am going to calculate 4869 ÷ 17

The player closer to the target scores a point.
Keep the target the same and throw again.

To win:
The winner is the first player to score a total of 4 points.

Change the target and play again.



Do It 5

Use a formal written method to calculate, writing the answers to 2 decimal places.

1. 7732 ÷ 16 483.25
2. 8306 ÷ 23 361.13
3. 6293 ÷ 17 370.18
4. 5132 ÷ 14 366.57
5. 7240 ÷ 27 268.15
6. 6094 ÷ 26 234.38
7. 4089 ÷ 18 227.17
8. 8823 ÷ 35 252.09

Challenge It 5

Solve these using a formal written method each time.

1. Colin types at 27 words per minute. The document has 2,538 words.
   Will Colin finsh typing the document in one and a half hours? No (94 minutes)

2. Colin is making necklaces. Each necklace uses 48 beads.
   Colin has 7,350 beads. How many necklaces can he make? 153

3. Coco is feeding her chickens. Each chicken eats 35g of seed.
   She has ten 500g bags of seed. How many chickens can she feed?
   How many grams of seed is left?
   142 chickens
   30g left

4. A shopkeeper buys 32 copies of a computer game for £4,664 in total.
   How much do they each cost? £145.75

6. Colin is saving to buy a car. It costs £8,646
   He can pay for the car in 24 installments.
   How much does he pay in each installment? £360.25

Divide by a Multiple Game

Play It 5

You need:
0 - 9 dice
(Calculator to check answers - optional)

To play:
5670 is the dividend for this game.

Players take it in turns to roll the dice. They choose a 2-digit multiple of their number as their divisor.

Both players calculate the answer to their calculation, writing any remainder as a decimal to 2 decimal places.

For example:
Player 1: I have thrown 8
I am going to calculate 5670 ÷ 16
The answer to 2 d.p.s is 354.38

Player 2: I have thrown 6
I am going to calculate 5670 ÷ 18
The answer is 315

If their answer has 2 or more decimal places they score 2 points.
If it has only 1 decimal place they score 1 point.
If there is no remainder they do not score.

(Players cannot repeat a calculation)

To win:
The winner is the first player to score a total of 7 points.

$$\square\square \overline{)\,5\,6\,7\,0}$$