Unit 6 – Multiplication and division

1 Multiples of 10

➜ pages 8–11

Discover

1. a) Bella has collected **7** bean bags.
Bella scored **70**.
b) Andy has collected **13** bean bags.
Andy scored **130**.

Think together

1 a) 170
b) 210

2. a) 11 tens 23 tens
b) Children should match:
34 × 10 340
13 × 10 130
10 × 43 430

3.

●	15	105	501
●	●	●	55
93	●	●	●
●	●	301	●

2 Related calculations

➜ pages 12–15

Discover

1. a) There are **18** balloons in total.
b) There are **180** candles in total.
6 × 3 ones is 18 ones.
So, 6 × 3 tens is 18 tens.
6 × 3 and 6 × 30 are related facts.

Think together

1. a) 8 × 2 = **16**
b) 8 × 20 = **160**

2. a) 4 × 3 = **12**
4 × 30 = **120**

b) i) 7 × 5 = **35**
ii) 7 × 50 = **350**
iii) 70 × 5 = **350**
iv) 6 × 4 = **24**
v) 6 × 40 = **240**
vi) 60 × 4 = **240**

3. a) 4 × 5 = 20
40 × 5 = **200**
5 × 40 = **200**

b) 2 × 4 = 8
20 × 4 = **80**
4 × 40 = **80**

3 Reasoning about multiplication

➜ pages 16–19

Discover

1 a) **Lexi** has more apples.

b) Richard has **12** apples. Lexi has **15** apples.
12 + 15 = 27
There are **27** apples in total.

Think together

1. a) **Richard** has more pears.
b) There are **28** pears in total.

2. a) 3 × 5 **<** 18
b) 4 × 5 **>** 5 × 3
c) 5 × 3 **=** 3 × 5
d) 8 × 2 **>** 3 × 5

3. a) 3 × 40 **>** 2 × 20
b) i) 7 × 30 **=** 30 × 7
ii) 6 × 20 **=** 3 × 40
iii) 4 × 30 **>** 5 × 20

4 Multiply 2-digits by 1-digit – no exchange

➜ pages 20–23

Discover

1 a) Each person bought **23** flowers.
Children should show 23 on base 10 equipment:
2 tens and 3 ones.
b) The 3 people bought **69** flowers altogether.

Think together

1. a) 48
b) 84

2. a) 3 × 13 = 39
b) 3 × 22 = 66

3. 11 × 3 = **33 m**
21 × 3 = **63 m**
31 × 3 = **93 m**

5 Multiply 2-digits by 1-digit – exchange

➜ pages 24–27

Discover

1. a) Max is working out the calculation 3 × 12.
3 × 12 = 36, so Max is not correct.
b) Jamilla is working out 3 × 24.
3 × 24 = **72**

Think together

1. 4 × 3 = **12**
4 × 20 = **80**
4 × 23 = **92**

2. **10** × **2** = **20**
7 × **2** = **14**
17 × 2 = **34**

3. Children should predict the greatest and smallest products.
14 × 5 = 70
15 × 4 = 60 smallest product
24 × 5 = 120 greatest product
25 × 4 = 100
45 × 2 = 90

6 Expanded written method

➜ pages 28–31

Discover

1. a) Mrs Dean travels **92 km** in total.

b) The total distance is **32 km**.

Think together

1. 15 × 6 = 90 km

2. 15 × 5 = 75

3. 54 × 3 = 162
53 × 4 = 212
45 × 3 = 135
43 × 5 = 215 greatest product
34 × 5 = 170
35 × 4 = 140

7 Link multiplication and division

➜ pages 32–35

Discover

1. a) Each dog will get **2** bones.
b) Each dog will get **20** treats.

Think together

1. **5** × 3 = 15 15 ÷ 3 = **5**
2 × 4 = 8 8 ÷ 4 = **2**

2. **4** × 5 = 20 **3** × 10 = 30 **50** × 2 = 100
20 ÷ 5 = **4** 30 ÷ 10 = **3** 100 ÷ 2 = **50**

3. a) 5 × 6 = 30
6 × 5 = 30
30 ÷ 6 = 5
30 ÷ 5 = 6

b) 12 × 3 = 36
3 × 12 = 36
36 ÷ 12 = 3
36 ÷ 3 = 12

8 Divide 2-digits by 1-digit – no exchange

➜ pages 36–39

Discover

1. a) There are 48 sheep.
48 ÷ 2 = 24
Each farmer has **24** sheep.

b) 48 ÷ 4 = 12
12 sheep go in each pen.

Think together

1. 39 ÷ 3 = **13**

2. 68 ÷ 2 = **34**

3. 84 ÷ 4 = 21

Alex's method is more efficient for such a large number.

9 Divide 2-digits by 1-digit – flexible partitioning

➜ pages 40–43

Discover

1. a) 42 lanterns were released.
Children should use base 10 equipment to show 42: 4 tens and 2 ones.

b) 42 ÷ 3 = 14
Each boat released **14** lanterns.

Think together

1. a) 36 ÷ 2 = **18**
b) 48 ÷ 3 = **16**

2. 56 ÷ 2 = **28** 75 ÷ 3 = **25**

3. a) 65 ÷ 5 = **13**
b) 75 ÷ 5 = **15**
c) 85 ÷ 5 = **17**

10 Divide 2-digits by 1-digit with remainders

➜ pages 44–47

Discover

1. a) 6 ÷ 2 = 3
There are 2 equal teams with **3** players on each team.

b) 7 cannot be shared equally by 2. There is one left out.
We say 7 ÷ 2 = 3 remainder 1.

Think together

1. 9 ÷ 3 = **3** 10 ÷ 3 = **3 remainder 1**
11 ÷ 3 = **3 remainder 2**

2. 21 ÷ 3 = **7** 21 ÷ 4 = **5 remainder 1**
21 ÷ 5 = **4 remainder 1**

3. 38 ÷ 3 = 12 remainder 2
a) **12** children stand in each line.
b) **2** children are left over.

I1 How many ways?

→ pages 48–51

Discover

1. a)

Hat	Scarf
Hat A	Scarf 1
Hat A	Scarf 2
Hat B	Scarf 1
Hat B	Scarf 2
Hat C	Scarf 1
Hat C	Scarf 2
Hat D	Scarf 1
Hat D	Scarf 2

There are **8** different ways.
b) The total number of ways to dress the snowman is **4** × **2** = **8** ways.

Think together

1. a) **5** × **2** = **10** ways
b)

Coat	Shoes
A	1
A	2
B	1
B	2
C	1
C	2
D	1
D	2
E	1
E	2

2. a) There are 2 × 3 = **6** possible pairs.
b) The possible pairs are:
book / crayon rucksack / crayon
book / ruler rucksack / ruler
book / sharpener rucksack / sharpener

3. a) There are **6** different ways to buy different items:

b) There are **4** more ways if they can choose the same item.
There are **10** ways altogether.

I2 Problem solving – mixed problems (1)

→ pages 52–55

Discover

1. a) Amal makes **56** wooden horses in 4 days.
b) Sofia makes **23** wooden giraffes each day.

Think together

1. There are **72** wheels in total on 6 trains.

2. **16** helicopters can be made in 48 hours.

3. Sofia makes **130** toy people in 5 hours.

I3 Problem solving – mixed problems (2)

→ pages 56–59

Discover

1. a) Kate has 72 marbles.
72 – 10 = 62
Zac has **62** marbles.
b) There are **35** marbles in one bag and **27** marbles in the other.

Think together

1. The total weight of the marbles is **83 grams**.

2. 12 shooter marbles weigh **36 grams** more than 12 tiger marbles.

3. A tiger marble costs **15p**.

End of unit check

→ pages 60–61

1. C
2. C
3. D
4. D
5. C
6. 280 kg
7. 36 counters

Unit 7 – Length and perimeter

1 Measure in m and cm

➜ pages 64–67

1. a) Zac's paper aeroplane has travelled **2 m 50 cm**.
b) Bella's paper aeroplane has travelled **4 m 30 cm**.

Think together

1. a) The first ball has rolled **1 m 30 cm**.
The second ball has rolled **2 m**.
The third ball has rolled **2 m 75 cm**.
b) Max is **1** m **35** cm tall.

2. Children should measure their own table and write the length, width and height in cm.

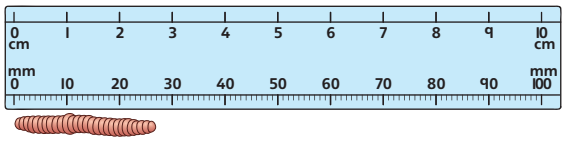
3. Children should explain using a metre stick to measure three lengths of 1 m and one length of 7 cm. They should describe lining the metre stick up at 0 cm each time and marking the string to show 1 m each time.

2 Measure in cm and mm

➜ pages 68–71

Discover

1. a) The centipede is **5 cm** long. The ant is **7 mm** long.
b) The worm is **27 mm** long.



Think together

1. a) The snail is **13 mm** long.
b) The grasshopper is **30 mm** long.
The ladybird is **6 mm** long.
c) The children should draw lines that are 13 mm, 30 mm and 4 mm long.

2. No. Max has not aligned his line with the 0 mm mark. He started at 2 mm.

To work out the actual length of the line, subtract 2 mm from the measured length.
27 – 2 = 25 mm.
Max's line is 25 mm long.

3 a) 26 mm
b) 40 mm
c) 45 mm

3 Reasoning about multiplication

➜ pages 72–75

Discover

1. a) Ebo measured the playground in **metres**.
b) There are **100 cm** in 1 m.
There are **10 mm** in 1 cm.

Think together

1. Book: 25 **cm**
Coin: 20 **mm**
Speed boat: 12 **m**

2. a) i) 1m = **100 cm** ii) 2m = **200 cm**
iii) 3m = **300 cm**
b) i) 1 cm = **10 mm** ii) 2 cm = **20 mm**
iii) 3 cm = **30 mm** iv) 4 cm = **40mm**

3. There are 100 mm in 10 cm, so there will be **1,000 mm** in 100 cm or 1 m.

4 Equivalent lengths (m and cm)

➜ pages 76–79

Discover

1. a) The **213 cm** window will fit.
b) 1 m 21 cm is **121 cm**.

Think together

1. a) The window is **107** cm high.
b) The window is **3** m and **14** cm wide.

2.

2 m 34 cm	234 cm
3 m 17 cm	**317** cm
4 m **63** cm	463 cm
0 m **93** cm	93 cm

3. a) 4 m 4 cm = **404 cm**
b) 4 m 44 cm = **444 cm**
c) 4 m 40 cm = **440 cm**
d) 4 m = **400 cm**

5 Equivalent lengths (mm and cm)

➜ pages 80–83

Discover

1. a) Luis could use **either ruler** to measure his thread.
b) The thread is **24 mm** or **2 cm 4 mm**.

Think together

1. a) The shorter piece of string is **37** mm long.
b) The longer piece of string is **6 cm 6 mm** long.
c)

2 cm 9 mm	29 mm
8 cm 4 mm	84 mm
6 cm 5 mm	65 mm
0 cm 9 mm	9 mm

2. Children should draw lines of the correct lengths:
a) 5 cm 8 mm
b) 102 mm
c) 10 cm 3 mm
d) 13 mm

3. Children should place string along the curves of the lines. Then they should straighten the string and hold it against a ruler to measure the lengths.

6 Compare lengths

➜ pages 84–87

Discover

1. a) **Lee** and **Olivia** are tall enough to go on the ride.
b) **Lee's height** is closest to 1 m 30 cm.

Think together

1. Lexi is in first place (363 cm = 3 m 63 cm), Mo is in second place (3 m 59 cm) and Danny is in third place (2 m 99 cm).

2. Box **B** contains the shortest ribbons.

3. The longer measurement in each pair is:
a) 30 cm (30 cm is 300 mm, so is longer than 294 mm)
b) 490 cm (4 m 9 cm is 409 cm, so 490 cm is longer)
c) 3 m 1 cm (3 m 1 cm is 301 cm, so is longer than 199 cm).

7 Add lengths

➜ pages 88–91

Discover

1. a) The new piece of bunting is **7 m 75 cm** or **775 cm**.
b) They would have **7 m 50 cm** or **750 cm** of bunting.

Think together

1. a) The bunting is **3 m 75 cm** or **375 cm**.
Flo's method:
125 cm = 1 m 25 cm
0 m + 1 m + 2 m = 3 m
35 cm + 25 cm + 15 cm = 75 cm
3 m + 75 cm = 3 m 75 cm or 375 cm
Dexter's method:
2 m 15 cm = 215 cm
35 + 125 + 215 = 375 cm or 3 m 75 cm
b) The total height of the model is **3 cm 8 mm** or **38 mm**.
Flo 's method:
12 mm = 1 cm 2 mm
0 cm + 1 cm + 2 cm = 3 cm
5 mm + 2 mm + 1 mm = 8 mm
3 cm + 8 mm = 3 cm 8 mm or 38 mm
Dexter's method:
2 cm 1 mm = 21 mm
5 + 12 + 21 = 38 mm or 3 cm 8 mm

2. a) 50 cm + 50 cm = **1** m
b) 4 cm + 60 mm = **10** cm
c) 12 mm + **8** mm = 2 cm
d) 1 m 40 cm + **160** cm = 3 m

3. Flo's method:
1 m 85 cm + 50 cm = 2 m + 35 cm = **2 m 35 cm**
1 m 85 cm + 60 cm = 2 m + 45 cm = **2 m 45 cm**
50 cm + 60 cm + 1 m + 10 cm = **1m 10 cm**
1 m 85 cm + 50 cm + 60 cm = 2 m + 35 cm + 60 cm = **295 cm**
Dexter's method:
1 m 85 cm = **185 cm**
185 + 50 = **235 cm**
185 + 60 = **245 cm**
50 + 60 = **110 cm**
185 + 50 + 60 = **295 cm**

8 Subtract lengths

➜ pages 92–95

Discover

1. a) There will be **1 m 50 cm** or **150 cm** left.
b) **Yes**. There is 1 m 50 cm left, so another 1 m can be cut from this and still leave 50 cm.

Think together

1. a) 300 cm – 50 cm = **250** cm
There is 250 cm left.
b) The picture is now **75 cm**.

2. Lee has cut off **2 cm** or **20 mm**.

3. Children should suggest converting to centimetres:
1,000 cm – 150 cm – 77 cm = 773 cm or 7 m 73 cm or
1,000 cm – (150 cm + 77 cm) = 773 cm or 7 m 73 cm.
They could also suggest subtracting the metres first and then the centimetres: 150 cm + 77 cm = 227 cm, 10 m – 2 m = 8m, 8 m – 27 cm = 7 m 73 cm.

9 Measure perimeter

➜ pages 96–99

Discover

1. a) Alex has used **12 cm** of wool to make the red triangle.
b) Alex used 10 cm of wool to make the blue polygon. She used **more wool to make the red triangle**.

Think together

1. The blue rectangle would need **10** cm of wool. The orange polygon would need **8** cm of wool.

2. The hexagon is 3 cm × 6 = 18 cm or 180 mm.
The square is 25 mm × 4 = 100 mm or 10 cm.
The rectangle is 15 mm × 2 + 50 mm × 2 = 30 mm + 100 mm = 130 mm or 13 cm.

3. Children should draw a shape with a perimeter of 14 cm. For example, a rectangle with 2 sides of 2 cm each and 2 sides of 5 cm each.

10 Calculate perimeter

➜ pages 100–103

Discover

1. a) The school will need to buy **24 metres** of fence.
b) Amelia runs **48 metres**.

Think together

1. a) 2 m + 2 m + 2 m + 2 m = **8** m
The perimeter of the adventure play area is **8** metres.
b) The perimeter of the playing field is **110** metres.
The children run **330** metres.

2. The perimeter of the shape is **65 cm**.

3. 6 m + 4 m = 10 m. 18 m – 10 m = 8 m. The other two sides added together must be 8 m. They could be: 7 m and 1 m, 6 m and 2 m, 5 m and 3 m or 4 m and 4 m.

11 Problem solving – length

➜ pages 104–107

Discover

1. a) Yes, **Andy is correct**. The snake could grow to 210 cm or 2 m 10 cm.
b) The snake could grow another **65 cm**.

Think together

1. The snake could grow to **6** m long.

2. Max's snail is **4** cm and **1** mm long.

3. The budgie is **7** cm and **5** mm tall.

End of unit check

➜ pages 108–109

1. B

2. D

3. B

4. A

5. C

6. The stack is now **35 cm**.

Unit 8 – Fractions (I)

I Understand the denominator of unit fractions

➜ pages 112–115

Discover

1. a) $\frac{1}{2}$ of the shape is shaded.
$\frac{1}{5}$ of the shape is shaded.
$\frac{1}{4}$ of the shape is shaded.
$\frac{1}{3}$ of the shape is shaded.
b) The numerators are all equal to 1.
The denominators are all different.

Think together

1. a) $\frac{1}{4}$ of the shape is shaded.
$\frac{1}{8}$ of the shape is shaded.
$\frac{1}{3}$ of the shape is shaded.
b) If the numerator of a fraction is equal to 1, then it is called a unit fraction.

2. The shape has not been divided into three equal parts, so 1·3 is not shaded. The bottom section is equal to the two sections on top, so the correct answer would be $\frac{1}{4}$ of the shape is shaded.

3. a) Children should shade 1 square.
Any of the four squares could be shaded so the children's shapes may or may not look the same.
b) It is possible to shade in $\frac{1}{8}$ of the shape if you divide one of the squares into two equal parts and then shade in one part.

2 Compare and order unit fractions

➜ pages 116–119

Discover

1. a) Mo can cut his paper into 3 equal parts by measuring the length and dividing by 3.
Emma can cut her paper into 4 equal parts by halving the piece of paper and then halving it again.
b) $3\frac{1}{3}$ is greater than $\frac{1}{4}$.
Mo has the bigger parts.

Think together

1. a) $\mathbf{\frac{1}{5}}$ is smaller than $\frac{1}{3}$.
b) Smallest to greatest: $\frac{1}{6}$, $\frac{1}{3}$, $\frac{1}{2}$.

2. Reena is not correct. Children should show that $\frac{1}{4}$ is greater than $\frac{1}{5}$ by drawing two fraction strips of the same size and dividing one into $\frac{1}{4}$s and the other into $\frac{1}{5}$s.

3. Fractions greater than $\frac{1}{5}$: $\frac{1}{2}$ and $\frac{1}{4}$.
Fractions less than $\frac{1}{5}$: $\frac{1}{6}$, $\frac{1}{9}$, $\frac{1}{10}$, $\frac{1}{15}$.

3 Understand the numerator of non-unit fractions

➜ pages 120–123

Discover

1. a) **Max's** kite shows a unit fraction shaded.
b) $\mathbf{\frac{3}{4}}$ of Isla's kite is shaded.

Think together

1. a) $\mathbf{\frac{3}{5}}$ of the shape is shaded.
b) $\mathbf{\frac{5}{6}}$ of the shape is shaded.
c) $\mathbf{\frac{7}{10}}$ of the shape is shaded.

2. a) $\mathbf{\frac{2}{6}}$ of the shape is red stripes.
b) $\mathbf{\frac{1}{6}}$ of the shape is blue spots.
c) $\mathbf{\frac{3}{6}}$ of the shape is purple.

3. a) $\mathbf{\frac{4}{8}}$ of the fruit are oranges.
b) $\mathbf{\frac{2}{8}}$ of the fruit are red.
c) $\mathbf{\frac{7}{8}}$ of the fruit are round.

4 Understand the whole

➜ pages 124–127

Discover

1. a) $\mathbf{\frac{3}{10}}$ of Jamie's shape is shaded.
$\mathbf{\frac{7}{10}}$ of Max's shape is shaded.
b) $\frac{3}{10} + \frac{7}{10} = 1$ whole

Think together

1. a) $\frac{3}{5} + \mathbf{\frac{2}{5}} = 1$
b) $\frac{5}{9} + \mathbf{\frac{4}{9}} = 1$
c) $\frac{3}{7} + \mathbf{\frac{4}{7}} = 1$

2. Children should find: $\mathbf{\frac{1}{6}} + \mathbf{\frac{5}{6}} = 1$, $\mathbf{\frac{2}{6}} + \mathbf{\frac{4}{6}} = 1$ and $\mathbf{\frac{3}{6}} + \mathbf{\frac{3}{6}} = 1$.

3. $\mathbf{\frac{7}{8}}$ of the iceberg is under the water.

5 Compare and order non-unit fractions

➜ pages 128–131

Discover

1. a) $\frac{6}{8}$ of Richard's scarf is shaded.
$\frac{4}{8}$ of Alex's scarf is shaded.
b) $\frac{6}{8}$ is greater than $\frac{4}{8}$. Richard's scarf has a greater fraction of shaded parts.

Think together

1. $\frac{3}{7}$ is smaller than $\frac{5}{7}$.

2. a) $\frac{7}{10} > \frac{3}{10}$

b) $\frac{4}{5} > \frac{2}{5}$

c) $\frac{1}{6} < \frac{4}{6}$

3. a) The missing number could be 8 or 9: $\frac{7}{9} > \frac{8}{9}$ and $\frac{9}{9}$.

b) The missing number could be 3, 4, 5, 6 or 7: $\frac{2}{10} < \frac{3}{10}$, $\frac{4}{10}$, $\frac{5}{10}$, $\frac{6}{10}$, $\frac{7}{10} < \frac{8}{10}$.

6 Divisions on a number line

➜ pages 132–135

Discover

1. a) Aki's number line goes up in $\frac{1}{3}$s.

b) Jamie's number line **does not** go up in $\frac{1}{4}$s.

Think together

1. The number line goes up in $\frac{1}{5}$s.

2. B and **C** go up in $\frac{1}{6}$s.

3. a) Alex has put her first marker too near the start of the line.
Luis has put his mark half-way along the line or at $\frac{2}{4}$.

b) Luis has a better method for marking a line in quarters. Now he can split each half in half to make quarters.

7 Count in fractions on a number line

➜ pages 136–139

Discover

1. a) The number line goes up in $\frac{1}{7}$s.

b) The arrows are pointing to $\frac{1}{7}$, $\frac{2}{7}$, $\frac{4}{7}$, $\frac{5}{7}$ and $\frac{6}{7}$.

Think together

1. a) Children should count: $\frac{1}{5}$, $\frac{2}{5}$, $\frac{3}{5}$, $\frac{4}{5}$, $\frac{5}{5}$.

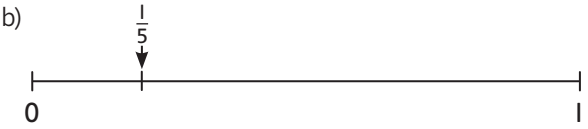
b) Children should count $\frac{1}{8}$, $\frac{2}{8}$, $\frac{3}{8}$, $\frac{4}{8}$, $\frac{5}{8}$, $\frac{6}{8}$, $\frac{7}{8}$, $\frac{8}{8}$ and $\frac{8}{8}$, $\frac{7}{8}$, $\frac{6}{8}$, $\frac{5}{8}$, $\frac{4}{8}$, $\frac{3}{8}$, $\frac{2}{8}$, $\frac{1}{8}$.

2. a) The arrows are pointing to $\frac{1}{6}$ and $\frac{5}{6}$.

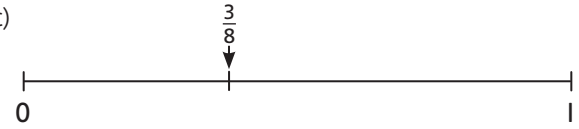
b) The arrows are pointing to $\frac{3}{10}$ and $\frac{9}{10}$.

3. a)

b)



c)



d)

8 Equivalent fractions as bar models

➜ pages 140–143

Discover

1. a) Both Lee and Mr Lopez are correct.

b) $\frac{1}{2} = \frac{2}{4} = \frac{4}{8} = \frac{8}{16}$

Think together

1. a) $\frac{2}{6}$ or $\frac{1}{3}$ of the strip is shaded.

b) $\frac{1}{3} = \frac{2}{6}$

2. a) $\frac{2}{10}$ or $\frac{1}{5}$ of the strip is shaded.

b) $\frac{2}{10} = \frac{1}{5}$

3. $\frac{1}{3}$
$\frac{1}{4}$
$\frac{1}{6}$
$\frac{1}{12}$

9 Equivalent fractions on a number line

➜ pages 144–147

Discover

1. a) $\frac{3}{4}$ is equivalent to $\frac{6}{8}$.

b) The other equivalent fractions on the fraction wall are: $\frac{1}{4} = \frac{2}{8}$ and $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$.

Think together

1. a) $\frac{1}{4} = \frac{2}{8}$

b) $\frac{1}{3} = \frac{2}{6}$

c) $\frac{2}{3} = \frac{4}{6}$

d) $\frac{3}{4} = \frac{6}{8}$

e) $\frac{2}{4} = \frac{4}{8}$ or $\frac{3}{6}$

2. $\frac{2}{3} = \frac{\mathbf{4}}{\mathbf{6}} = \frac{\mathbf{6}}{\mathbf{9}}$

3. a) Zac is wrong because $\frac{3}{4}$ is smaller than $\frac{7}{8}$ and $\frac{11}{12}$.

b) $\mathbf{\frac{3}{4} = \frac{6}{8} = \frac{9}{12}}$

I0 Equivalent fractions

➜ pages 148–151

Discover

1. a) Reena can complete her puzzle with: $\mathbf{\frac{1}{2} = \frac{3}{6}}$.

b) Danny could complete his puzzle with: $\mathbf{\frac{1}{2} = \frac{3}{6}}$, $\mathbf{\frac{2}{3} = \frac{4}{6}}$ or $\mathbf{\frac{1}{3} = \frac{2}{6}}$.

Think together

1. a) $\frac{1}{2} = \frac{5}{10}$

b) $\frac{1}{5} = \frac{2}{10}$

2. a) $\frac{2}{5} = \frac{\mathbf{4}}{10}$

b) $\frac{3}{10} = \frac{6}{\mathbf{20}}$

c) $\frac{8}{10} = \frac{\mathbf{4}}{5}$

d) $\frac{6}{8} = \frac{\mathbf{3}}{4}$

3. a) $\frac{1}{5} = \frac{4}{\mathbf{20}}$

b) $\frac{8}{20} = \frac{\mathbf{4}}{10}$

c) $\frac{\mathbf{8}}{16} = \frac{1}{2}$

d) $\frac{6}{\mathbf{9}} = \frac{2}{3}$

End of unit check

➜ pages 152–153

1. A

2. C

3. D

4. A

5. B

6. D could not be the missing numerator.

7. Smallest to greatest: $\frac{1}{12}$, $\frac{1}{9}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$.

Unit 9 – Mass

1 Use scales

➜ pages 156–159

Discover

1. a) Count up in 10s from 0 to 100 to check if the number line goes up in 10s.
b) The number line goes up in **25s**.

Think together

1. The number line goes up in **20s**.

2. a) The number line goes up in **100s**.
b) The number line goes up in **200s**.
c) The number line goes up in **250s**.

3. a) The scale goes up in **100 g** intervals.
b) The scale goes up in **50 g** intervals.

2 Measure mass

➜ pages 160–163

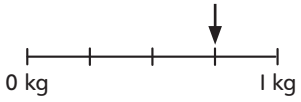
Discover

1. a) On scale A each interval is **5 g**.
On scale B each interval is **10 g**.
On scale C each interval is **50 g**.
b) A: 20 g B: 130 g C: 600 g

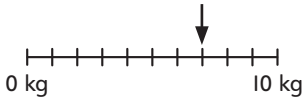
Think together

1. a) 225 g b) 375 g c) 450 g

2. a)



b)



3. a)

Grams	**Kilograms**
pen	table
t-shirt	bicycle
ring	suitcase
spoon	
mobile phone	

b)

Pen: 6 g	Table: 50 kg
T-shirt: 140 g	Bicycle: 10 kg
Ring: 6 g	Suitcase: 3 kg
Spoon: 25 g	
Mobile phone: 120 g	

3 Measure mass in kilograms and grams

➜ pages 164–167

Discover

1. a) The bag of carrots has a mass of **1 kg 300 g**.
b) The pumpkin has a mass of **6 kg 800 g**.

Think together

1. a) The onions have a mass of **3 kg 400 g**.
b) The peas have a mass of **400 g**.

2. a) Both bags of potatoes weigh 1 kg 500 g.
b) Children should notice that the scale intervals are different but the measure is the same on both.

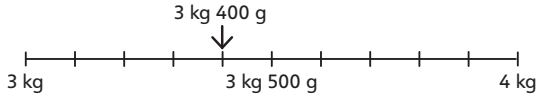
3. a) 4 kg 700 g c) 1 kg 950 g
b) 4 kg 500 g d) 10 kg 800 g

4 Equivalent masses

➜ pages 168–171

Discover

1. a) The bike has a mass of **3 kg 400 g**.
b)



Think together

1. a) parts: **2 kg** and **600 g**
b) whole: **3 kg 750 g**

2. a) $\frac{1}{2}$ kg = 500 g
b) $\frac{1}{4}$ kg = 250 g

3. a) For example: 1 kg or 2 × 500 g or
500 g + 200 g + 200 g + 100 g.
b) For example: 1 kg + 500 g + 200 g or
1 kg + 500 g + 100 g + 100 g or
500 g + 500 g + 200 g + 200 g + 200 g + 100 g.

5 Compare mass

➜ pages 172–175

Discover

1. a) The **pineapple** has the greater mass because 1,243 g is more than 1,230 g.
b) The melon has a mass between 1 kg 231 g and 1 kg 242 g.

Think together

1. 1 kg 456 g **<** 1 kg 500 g
1 kg 211 g **<** 1 kg 215 g
1 kg 90 g **>** 1 kg 9 g
2 kg 211 g **>** 2 kg 210 g

2. **B** and **C** are not working correctly. On scale B, 499 g should be lighter than (not heavier than) 1 kg 402 g. On scale C, 3 kg 200 g should be heavier than (not equal to) 3 kg 20 g.

3. Lightest to heaviest: 754 g, 1 kg 9 g, 1,090 g, 1,098 g, 1,432 g, 1 kg 900 g.

6 Add and subtract mass

➜ pages 176–179

Discover

1. a) Zac and Alex buy **3 kg 750 g** of flour altogether.
b) Alex buys **750 g** more flour than Zac.

Think together

1. a) 348 g + 295 g = **643 g**
b) 2 kg 423 g + 1 kg 221 g = **3 kg 644 g**
c) 2 kg 800 g + 200 g = **3 kg**
d) 1,950 g + 5 kg 100 g = **7 kg 50 g**

2. a) 750 g
b) 1 kg 300 g

3. a) 500 g
b) Part: 1 kg 150 g
c) 3 kg 800 g
d) Whole: 3 kg 500 g
Parts: 2 kg 600 g and 900 g

7 Problem solving – mass

➜ pages 180–183

Discover

1. a) Zac has **200 g** of flour left.
b) There is **75 g** of flour left.

Think together

1. The mass of the flour is **475 g**.

2. The arrow will be pointing to **150 g** (the third interval after 0 on the scales).

3. The mass of one empty wagon is **500 g**.

End of unit check

➜ pages 184–185

1. A

2. C

3. C

4. D

5. B

6. The total mass of the two bikes is **1 kg 700 g**.

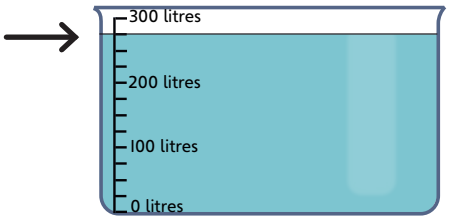
Unit 10 – Capacity

1 Measure capacity and volume in litres and millilitres

➜ pages 188–191

Discover

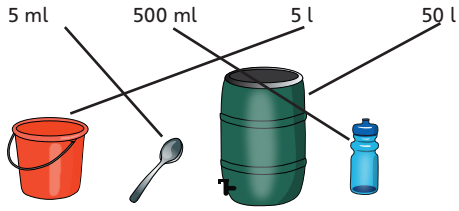
1. a) There are **150 l** of water left in the tank.
b)



Think together

1 a) There are **35 litres** of fuel left in the tank.
b) There are **140 ml** of water in the bottle

2.



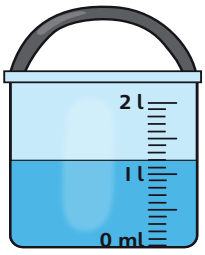
3. a) A = 80 ml B = 175 ml C = 125 ml
b) Smallest to greatest: A, C, B.

2 Measure in litres and millilitres

➜ pages 192–195

Discover

1. a) There are **3** l and **500** ml of water in bucket A.
b)

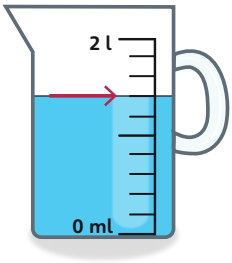


Think together

1. 1 l 500 ml 1 l 800 ml

2. a) **1** l **200** ml b) **3** l **400** ml c) **1** l **50** ml

3. Children should explain that each interval is 200 ml, so the seventh interval is 1,400 ml which equals 1 litre 400 ml.

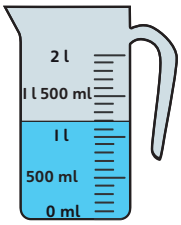


3 Equivalent capacities and volumes (litres and millilitres)

➜ pages 196–199

Discover

1. a)



b) ¾ litre = **750 ml**

Think together

1. a) **1,000 ml** of orange juice are needed.
b) **200 ml** of apple juice are needed.
c) **900 ml** of lemonade are needed.

2. a) 250 ml b) 500 ml c) 600 ml

3. The baker will have **1,050 ml** of liquid altogether.

4 Compare capacity and volume

➜ pages 200–203

Discover

1. a) 950 ml > 450 ml
There is more **orange juice**.
b) Greatest to smallest: water, orange juice, apple juice, lemon squash.

Think together

1. a) Car A has the greater fuel capacity.
b) 2 l 650 ml is less than 2 l 900 m because 2,650 < 2,900 or 650 < 900.

2. Smallest to greatest: C, A, D, B.

3. Reena and Max both buy 4 litres. They have the same amount of fizzy drinks.

5 Add and subtract capacity and volume

➜ pages 204–207

Discover

1. a) Professor Smith has **600 ml** in total.
b) There is **200 ml** more liquid in A than B.

Think together

1. a) 400 ml b) 800 ml c) 450 ml d) 650 ml

2 a) 1 l + 2 l = **3** l
400 ml + 250 ml = **650** ml
Total capacity = **3** l **650** ml
b) **750 ml** is left in the jug.

3. 400 ml + 800 ml = **1** l **200** ml
1 l + 1 l 200 ml = **2** l **200** ml
3 l = 2 l 200 ml + 800 ml
800 ml is needed to fill the jug.

6 Problem solving – capacity

➜ pages 208–211

Discover

1. a) Holly uses **three** 200 ml cartons of milk for the pancake recipe.
b) There will be **200 ml** of juice in each cup.

Think together

1. a) 180 ÷ 6 = 30 ml
Francesca uses **30 ml** of shower gel each day.
b) 180 ml + 30 ml = 210 ml
Francesca does not have enough left for another day.

2. Francesca drinks **3** l **500** ml altogether in the two days.

3. a) Leon can fill **8** cups from the bottle.
b) If Leon fill 6 cups, **500 ml** is left in the bottle.

End of unit check

➜ pages 212–213

1. D

2. A

3. B

4. A

5. A

6. 250 ml of lemonade is left in the bottle.