BROAD HORIZON
TUITION

11+ Tuition

Year 4

Easter Revision

ANSWERS

Starter Task - Quick Revision

1) 4 x 5 = 20	**2)** 7 x 8 = 56	**3)** 6 x 3 = 18
4) 12 x 7 =84	**5)** 6 x 7 = 42	**6)** 4 x 8 =32
7) 3 x 9 = 27	**8)** 5 x 12 = 60	**9)** 9 x 12 = 108
10) 9 x 7 = 63	**11)** 8 x 9 = 72	**12)** 2 x 3 =6
13) 7 x 3 = 21	**14)** 6 x 8 =48	**15)** 5 x 6 =30
16) 9 x 5 = 45	**17)** 6 x 6 =36	**18)** 3 x 8 =24
19) 11 x 12 = 132	**20)** 5 x 7 = 35	**21)** 8 x 8 =64
22) 7 x 7 = 49	**23)** 12 x 8 = 96	**24)** 6 x 4 =24
25) 8 x 5 = 40	**26)** 12 x 9 = 108	**27)** 4 x 12 =48
28) 6 x 9 = 54	**29)** 9 x 4 = 36	**30)** 7 x 4 = 28

You should already know your times tables up to 12 x 12, here's a short test to see how you do! You have 90 seconds!

30

Mixed Maths questions

Pages 4-5

Look at the two possible answers that you would round up or down to. Find the value that is halfway between them. If the number you're rounding is less than the halfway value, round down. If it is equal to or more than the halfway value, round up.

1. 70

75 is halfway between 70 and 80. 71 is less than 75, so 71 rounds down to 70.

2. 350

345 is halfway between 340 and 350. 349 is more than 345, so 349 rounds up to 350.

3. 410

405 is halfway between 400 and 410. 407 is more than 405, so 407 rounds up to 410.

4. 1540

1535 is halfway between 1530 and 1540. 1536 is more than 1535, so 1536 rounds up to 1540.

5. 3090

3095 is halfway between 3090 and 3100. 3092 is less than 3095, so 3092 rounds down to 3090.

6. 1300

1250 is halfway between 1200 and 1300. 1295.61 is more than 1250, so 1295.61 rounds up to 1300.

7. 1295.6

1295.65 is halfway between 1295.6 and 1295.7. 1295.61 is less than 1295.65, so 1295.61 rounds down to 1295.6.

8. 1300

1295 is halfway between 1290 and 1300. 1295.61 is more than 1295, so 1295.61 rounds up to 1300.

9. 1296

1295.5 is halfway between 1295 and 1296. 1295.61 is more than 1295.5, so 1295.61 rounds up to 1296.

In questions 10-14 first try rounding to the nearest 10. If this doesn't give the required answer then try rounding to the nearest 100. If this doesn't give the required answer then round to the nearest 1000.

10. A

25 rounded to the nearest 10 is 30.

11. B

381 rounded to the nearest 10 is 380. 381 rounded to the nearest 100 is 400.

12. A

615 rounded to the nearest 10 is 620.

13. C

Rounding 1247 to the nearest 10 gives 1250.
Rounding 1247 to the nearest 100 gives 1200.
Rounding 1247 to the nearest 1000 gives 1000.

14. B

Rounding 517.4 to the nearest 10 gives 520.
Rounding 517.4 to the nearest 100 gives 500.

15. £6.00

£6.50 is halfway between £6.00 and £7.00. £6.27 is less than £6.50, so £6.27 rounds down to £6.00.

16. 210

215 is halfway between 210 and 220. 212 is less than 215, so 212 rounds down to 210.

17. 1270 cm

1265 is halfway between 1260 and 1270. 1265 is equal to 1265, so 1265 cm rounds up to 1270 cm.

Page 20

Make sure you know common fractions as decimals: $\frac{1}{4} = 0.25$, $\frac{1}{2} = 0.5$, $\frac{3}{4} = 0.75$. If the fraction is out of 10, then you need to put the numerator in the tenths column to make the decimal. For example, $\frac{2}{10}$ is 0.2.

1. 0.5
2. 0.25
3. 0.1
4. 0.75
5. 0.8
6. 1

For questions 7-9, convert the fractions to decimals and find the largest value in each ro

7. A

$\frac{1}{2} = 0.5$ and $\frac{1}{4} = 0.25$. The values are 0.8, 0.5, 0.2, 0.75 and 0.25, so 0.8 is largest.

8. B

$\frac{6}{10} = 0.6$, $\frac{3}{4} = 0.75$ and $\frac{1}{2} = 0.5$.
The values are 0.6, 0.75, 0.5, 0.4 and 0.5, so 0.75 ($\frac{3}{4}$) is the largest.

9. A

$\frac{1}{4} = 0.25$. $\frac{1}{10} = 0.1$ and $\frac{2}{10} = 0.2$.
The values are 0.25, 0.2, 0.1, 0.1 and 0.2, so 0.25 ($\frac{1}{4}$) is the largest.

10. 0.7

$\frac{7}{10}$ means 7 tenths.
Put 7 in the tenths column to make 0.7.

11. $\frac{1}{2}$

Elizabeth got £0.50, which is $\frac{1}{2}$ of £1.00, £0.50 × 2 = £1.00.

12. E

The total amount of pizza eaten by Micah an Rose is $\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$. This means that there is $\frac{1}{4}$ of the pizza left over.
$\frac{1}{4}$ is 0.25 as a decimal.

13. C

$\frac{3}{10}$ means 3 tenths. Put 3 in the tenths column to make 0.3.
Susan ate this amount of the cake.

14. 3

$\frac{1}{4} = 0.25$. $\frac{3}{4} = 0.75$. $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$ so there are three quarters in 0.75.

Page 31

1. 12 cm

3 + 3 + 3 + 3 = 12 cm

2. B

3 + 2 + 3 + 2 = 10 cm

3. 12 cm^2

There are twelve 1 cm^2 squares inside shape D.

4. 9 cm^2

There are nine 1 cm^2 squares inside shape C.

5. 14 cm

4 + 3 + 4 + 3 = 14 cm

6. 24 cm

Add up the length of the six sides to find the perimeter of the hexagon.

4 + 4 + 4 + 4 + 4 + 4 (or 6 × 4) = 24 cm.

7. 18 cm^2

Count the number of squares within the triangle to find its area. There are 15 full squares and 6 half squares. 2 half squares added together make 1 whole square, so the 6 half squares make up 3 full squares in total. So the area of the triangle is 15 + 3 = 18 cm^2.

8. 32 cm

Add up the length of every side of the shape to find its perimeter.

3 + 5 + 6 + 2 + 9 + 7 = 32 cm.

9. E

Find the area of both rectangles, then add them together. The area of any rectangle is its length times its width.

Rectangle A: 5 × 3 = 15 cm^2

Rectangle B: 9 × 2 = 18 cm^2

15 cm^2 + 18 cm^2 = 33 cm^2

10. E

The perimeter of the vegetable patch is found by adding up the four sides. The two longest sides are both 10 m, so the total length of the two shortest sides is 28 – 10 – 10 = 8 m. The two short sides add up to 8 m, so the length of each side is 8 ÷ 2 = 4 m. So the width of the vegetable patch is 4 m.

11. 40 m^2

The length is 10 m and the width (from question 10) is 4 m.

So the area is 4 × 10 = 40 m^2.

Long Multiplication Questions

1.

		1	6	1
x			2	3
		4	**8**	**3**
	3	**2**	**2**	**0**
	3	**7**	**0**	**3**

2.

		2	3	2
x			2	6
	1	**3**	**9**	**2**
	4	**6**	**4**	**0**
	6	**0**	**3**	**2**

3.

		6	1	4
x			1	8
	4	**9**	**1**	**2**
	6	**1**	**4**	**0**
1	**1**	**0**	**5**	**2**

4.

		9	6	9
x			9	5
	4	**8**	**4**	**5**
8	**7**	**2**	**1**	**0**
9	**2**	**0**	**5**	**5**

5.

		7	4	0
x			9	6
	4	**4**	**4**	**0**
6	**6**	**6**	**0**	**0**
7	**1**	**0**	**4**	**0**

6.

		3	6	2
x			5	8
	2	**8**	**9**	**6**
1	**8**	**1**	**0**	**0**
2	**0**	**9**	**9**	**6**

7.

		3	0	5
x			7	1
		3	**0**	**5**
2	**1**	**3**	**5**	**0**
2	**1**	**6**	**5**	**5**

8.

		3	7	0
x			6	4
	1	**4**	**8**	**0**
2	**2**	**2**	**0**	**0**
2	**3**	**6**	**8**	**0**

9.

		5	8	4
x			1	5
	2	**9**	**2**	**0**
	5	**8**	**4**	**0**
	8	**7**	**6**	**0**

10.

		8	5	1
x			8	9
	7	**6**	**5**	**9**
6	**8**	**0**	**8**	**0**
7	**5**	**7**	**3**	**9**

11.

		7	4	9
x			9	8
	5	**9**	**9**	**2**
6	**7**	**4**	**1**	**0**
7	**3**	**4**	**0**	**2**

12.

		4	8	2
x			2	3
	1	**4**	**4**	**6**
	9	**6**	**4**	**0**
1	**1**	**0**	**8**	**6**

13.

		6	4	6
x			1	0
				0
	6	**4**	**6**	**0**
	6	**4**	**6**	**0**

14.

		7	0	9
x			1	7
	4	**9**	**6**	**3**
	7	**0**	**9**	**0**
1	**2**	**0**	**5**	**3**

15.

		9	1	4
x			5	7
	6	**3**	**9**	**8**
4	**5**	**7**	**0**	**0**
5	**2**	**0**	**9**	**8**

16.

		7	1	8
x			4	5
	3	**5**	**9**	**0**
2	**8**	**7**	**2**	**0**
3	**2**	**3**	**1**	**0**

Bidmas

1) $2 + 3 \times 2^3$
$2^3 = 8$
$3 \times 8 = 24$
$2 + 24 = 26$

2) $(6 + 2) \times 3^2$
$6 + 2 = 8$
$3^2 = 9$
$8 \times 9 = 72$

3) $30 \div (5 - 2) + 2^2$
$5 - 2 = 3$
$30 \div 3 = 10$
$2^2 = 4$
$10 + 4 = 14$

4) $4^2 - 3 \times 2$
$4^2 = 16$
$3 \times 2 = 6$
$16 - 6 = 10$

5) $3^3 - 5 + 4$
$3^3 = 27$
$27 - 5 = 22$
$22 + 4 = 26$

6) $2 \times (5 + 3^2)$
$3^2 = 9$
$5 + 9 = 14$
$2 \times 14 = 28$

7) $(12 - 4) \div 2 + 2^3$
$12 - 4 = 8$
$8 \div 2 = 4$
$2^3 = 8$
$4 + 8 = 12$

8) $50 - (6 \times 2) + 3^2$
$6 \times 2 = 12$
$50 - 12 = 38$
$3^2 = 9$
$38 + 9 = 47$

9) $(7 + 3) \times 2^2 - 5$
$7 + 3 = 10$
$2^2 = 4$
$10 \times 4 = 40$
$40 - 5 = 35$

10) $100 \div (5 \times 2) + 3^2$
$5 \times 2 = 10$
$100 \div 10 = 10$
$3^2 = 9$
$10 + 9 = 19$

11) $3 \times 2^3 + 4^2$
$2^3 = 8$
$3 \times 8 = 24$
$4^2 = 16$
$24 + 16 = 40$

12) $(9 - 3) \times 2^2 + 5$
$9 - 3 = 6$
$2^2 = 4$
$6 \times 4 = 24$
$24 + 5 = 29$

13) $60 \div (3 \times 2) + 2^3$
$3 \times 2 = 6$
$60 \div 6 = 10$
$2^3 = 8$
$10 + 8 = 18$

14) $5^2 - (4 \times 3) + 2$
$5^2 = 25$
$4 \times 3 = 12$
$25 - 12 = 13$
$13 + 2 = 15$

15) $2^3 + 3^2 \times 2$
$2^3 = 8$
$3^2 = 9$
$9 \times 2 = 18$
$8 + 18 = 26$

16) $(15 - 5) \div 5 + 3^2$
$15 - 5 = 10$
$10 \div 5 = 2$
$3^2 = 9$
$2 + 9 = 11$

17) $4 \times (2^3 - 3)$
$2^3 = 8$
$8 - 3 = 5$
$4 \times 5 = 20$

18) $3^3 + (8 \div 2) \times 2$
$3^3 = 27$
$8 \div 2 = 4$
$4 \times 2 = 8$
$27 + 8 = 35$

19) $(20 - 4) \div 4 + 2^3$
$20 - 4 = 16$
$16 \div 4 = 4$
$2^3 = 8$
$4 + 8 = 12$

20) $2^2 \times (6 + 3) - 5$
$2^2 = 4$
$6 + 3 = 9$
$4 \times 9 = 36$
$36 - 5 = 31$

Surface Area

Question 1:

(a) $24cm^2$ (b) $150cm^2$ (c) $294mm^2$

Question 2:

(a) $76cm^2$ (b) $86cm^2$ (c) $810cm^2$

(d) $64cm^2$ (e) $37cm^2$ (f) $868cm^2$

(g) $292.2cm^2$ (h) $484mm^2$ (i) $34500cm^2$

Adding Fractions (Different Denominators) – Answers

1. 2/3 + 1/4 = 8/12 + 3/12 = 11/12
2. 5/6 + 1/3 = 5/6 + 2/6 = 7/6 = 1 1/6

3. 3/5 + 2/7 = 21/35 + 10/35 = 31/35
4. 4/9 + 5/6 = 8/18 + 15/18 = 23/18 = 1 5/18

5. 7/8 + 3/10 = 35/40 + 12/40 = 47/40 = 1 7/40
6. 2/11 + 5/6 = 12/66 + 55/66 = 67/66 = 1 1/66

7. 9/10 + 4/15 = 27/30 + 8/30 = 35/30 = 7/6 = 1 1/6
8. 3/4 + 7/12 = 9/12 + 7/12 = 16/12 = 4/3 = 1 1/3

9. 5/12 + 2/9 = 15/36 + 8/36 = 23/36
10. 7/9 + 5/12 = 28/36 + 15/36 = 43/36 = 1 7/36

Subtracting Fractions (Different Denominators) – Answers

1. 5/6 – 1/4 = 10/12 – 3/12 = 7/12
2. 7/8 – 1/3 = 21/24 – 8/24 = 13/24

3. 4/5 – 2/7 = 28/35 – 10/35 = 18/35
4. 9/10 – 3/5 = 9/10 – 6/10 = 3/10

5. 11/12 – 1/6 = 11/12 – 2/12 = 9/12 = ¾
6. 7/9 – 5/12 = 28/36 – 15/36 = 13/36

7. 13/15 – 2/3 = 13/15 – 10/15 = 3/15 = 1/5
8. 5/6 – 4/9 = 15/18 – 8/18 = 7/18

9. 8/11 – 3/4 = 32/44 – 33/44 = -1/44

10. 10/12 – 5/8 = 20/24 – 15/24 = 5/24

Elapsed Time

Q.No	Start Time	End Time	Elapsed Time
1)	1:18 A.M.	**3:17 P.M.**	13 hours and 59 minutes
2)	5:36 P.M.	1:28 A.M.	**7 hours and 52 minutes**
3)	**11:56 A.M.**	3:20 P.M.	3 hours and 24 minutes
4)	7:51 P.M.	**6:03 A.M.**	10 hours and 12 minutes
5)	1:07 A.M.	1:51 P.M.	**12 hours and 44 minutes**
6)	**9:23 P.M.**	5:56 A.M.	8 hours and 33 minutes
7)	9:00 A.M.	**5:34 P.M.**	8 hours and 34 minutes
8)	3:34 P.M.	1:17 A.M.	**9 hours and 43 minutes**
9)	**8:49 A.M.**	4:06 P.M.	7 hours and 17 minutes
10)	7:43 A.M.	**10:09 P.M.**	14 hours and 26 minutes
11)	6:31 P.M.	3:22 A.M.	**8 hours and 51 minutes**
12)	**11:14 A.M.**	6:51 P.M.	7 hours and 37 minutes
13)	6:22 P.M.	**11:32 A.M.**	17 hours and 10 minutes
14)	Noon	9:23 A.M.	**21 hours and 23 minutes**
15)	**8:03 A.M.**	5:00 P.M.	8 hours and 57 minutes

Percentages

A) Multiples of 1%

1)	3% of 400 = **12**	2)	2% of 60 = **1.2**	3)	5% of 200 = **10**
4)	1% of 270 = **2.7**	5)	7% of 500 = **35**	6)	4% of 1200 = **48**
7)	2% of 330 = **6.6**	8)	8% of 300 = **24**	9)	6% of 2000 = **120**
10)	9% of 700 = **63**	11)	3% of 6000 = **180**	12)	1% of 70 = **0.7**

B) Multiples of 10%

1)	20% of 80 = **16**	2)	50% of 130 = **65**	3)	70% of 50 = **35**
4)	30% of 12 = **3.6**	5)	60% of 80 = **48**	6)	40% of 120 = **48**
7)	80% of 400 = **320**	8)	10% of 7 = **0.7**	9)	90% of 80 = **72**
10)	50% of 320 = **160**	11)	30% of 600 = **180**	12)	70% of 11 = **7.7**

C) Mixed

1)	40% of 200 = **80**	2)	3% of 50 = **1.5**	3)	20% of 140 = **28**
4)	60% of 3 = **1.8**	5)	30% of 80 = **24**	6)	7% of 800 = **56**
7)	4% of 150 = **6**	8)	90% of 20 = **18**	9)	50% of 36 = **18**
10)	30% of 800 = **240**	11)	6% of 20 = **1.2**	12)	3% of 220 = **6.6**
13)	70% of 60 = **42**	14)	40% of 210 = **84**	15)	5% of 500 = **25**

1) 35% of 60 = **21**

2) 12% of 15 = **1.8**

3) 60% of 35 = **21**

4) 8% of 62 = **4.96**

5) 15% of 80 = **12**

6) 23% of 32 = **7.36**

7) 35% of 56 = **19.6**

8) 18% of 140 = **25.2**

9) 55% of 400 = **220**

10) 41% of 80 = **32.8**

11) 26% of 34 = **8.84**

12) 82% of 70 = **57.4**

13) 63% of 200 = **126**

14) 82% of 120 = **98.4**

15) 75% of 60 = **45**

16) 29% of 500 = **145**

17) 47% of 90 = **42.3**

18) 37% of 300 = **111**

19) 19% of 46 = **8.74**

20) 23% of 78 = **17.94**

Word Problems

Test 1 — pages 2-4

1. A

B is ninety seven. C is nine point seven.
D is seven hundred and ninety.
E is nine hundred and seventy.

2. 1.5 km

1000 m = 1 km. So 1500 m = 1.5 km.

3. D

I = 1, V = 5, X = 10.
Small numerals to the right of big numerals are added on.
28 is written as XXVIII (10 + 10 + 5 + 1 + 1 + 1 = 28).
So D is the answer.

4. 15

5 + 9 − 12 = 2.
17 − 2 = 15. So the missing number is 15.

5. A

$^1/_2 = {}^2/_4$.
$^1/_4 + {}^2/_4 = {}^3/_4$ of the class have green or blue eyes.
So $1 - {}^3/_4 = {}^1/_4$ of the class have brown eyes.

6. 3

Reading off the graph, you can see that Mahiya has 7 cola jelly beans and 4 cherry jelly beans. So she has 7 − 4 = 3 more cola jelly beans than cherry jelly beans.

7. 1111

Reading off the graph, you can see that Mahiya has taken 4 + 7 + 11 + 4 = 26 jelly beans out of the jar.
So there are 1137 − 26 = 1111 jelly beans left.

8. 6 litres

The diagram shows that $^3/_4$ of the total amount of paint needed is blue. $^1/_4$ of 8 litres is 8 ÷ 4 = 2 litres.
So $^3/_4$ of 8 litres is 3 × 2 = 6 litres.

9. 4 litres

$^3/_4$ of the total paint is blue and $^1/_4$ is red.
So 3 times as much blue paint is used as red paint.
So 12 ÷ 3 = 4 litres of red paint are used.

10. E

Add up the coins worth the most (£2, £1 and 50p) for each person to estimate who has saved up the most.
50p = £0.50
Ben: £2 + £1 + £1 = £4.
Joanna: £1 + £1 + £1 + £0.50 = £3.50.
Parker: £2 + £2 + £0.50 + £0.50 + £0.50= £5.50.
Amelia: £0.50 + £0.50 + £0.50 = £1.50.
Haim: £2 + £2 + £1 + £1 + £0.50 = £6.50.
So Haim saved up the most money.

11. £3.49

100 p = £1, so 50p = £0.50.
Haim has saved up £6.50.
So he needs £9.99 − £6.50 = £3.49.

12. 24 cm

Each side of the triangle is 18 ÷ 3 = 6 cm.
The full shape has 4 sides which are all 6 cm long.
So the perimeter is 4 × 6 = 24 cm.

Test 2 — pages 5-7

1. 5

Each slice is equal to $^1/_{10}$ of the pie.
Farrah and Thomas eat $^3/_{10} + {}^2/_{10} = {}^5/_{10} = 5$ slices.
So there are 10 − 5 = 5 slices left.

2. 135 miles

Dominic will drive 45 miles each hour.
So in 3 hours he will drive 45 × 3 = 135 miles.

3. B

100 cm = 1 m. So 120 cm = 1.2 m.

4. 225 mm

The perimeter of the shape is the sum of all of its sides:
42 mm + 80 mm + 60 mm + 43 mm = 225 mm.

5. 4

Team B won 2 games, so they get 2 × 2 = 4 points.
They drew 1 game, so they get another 1 × 1 = 1 point.
They also lost 1 game, so they lose 1 point.
So in total they get 4 + 1 − 1 = 4 points.

6. D

Team C drew 1 game so they get 1 point.
They lost 3 games so they lose 3 × 1 = 3 points.
So in total they get 1 − 3 = −2 points.
Team B gets 4 points in total.
The difference between −2 and 4 is 6 points.

7. 6

There are 6 workers in the 16-25 age range.
There are no workers younger than 16.

8. B

There are 7 workers aged 46-55.
There are 4 workers aged 56-65.
So there are 7 + 4 = 11 workers that are at least 46 years old.

9. 90 mins

X = 10 and I = 1, so XII = 12 and III = 3.
When the minute hand points to 3 it is quarter past the hour. So they left home at 12:15.
They arrived at 13:45.
It is 1 hour from 12:15 to 13:15.
It is then 30 minutes from 13:15 to 13:45.
1 hour = 60 minutes. So it took 60 + 30 = 90 minutes to get to the museum.

10. £21.90

Add up the cost of the tickets using the column method:

$$\begin{array}{r} 11.50 \\ 5.20 \\ +\ 5.20 \\ \hline £21.90 \\ {\scriptstyle 1\ \ \ \ \ \ } \end{array}$$

11. 6

There are 18 squares of chocolate in the bar.
$^1/_3$ of 18 is 18 ÷ 3 = 6 squares of chocolate.

12. 80 g

$^1/_3$ of 12 is 12 ÷ 3 = 4.
So $^1/_3$ of 120 g is 120 ÷ 3 = 40 g.
So there are 120 − 40 = 80 g of chocolate remaining.

24. 7

Gina plants 3 more seeds in each pot than she planted in the pot before. From question 23, she planted 13 seeds in the 5th pot. This means she'll plant 13 + 3 = 16 seeds in the 6th pot and 16 + 3 = 19 seeds in the 7th pot.

25. 16 minutes

Count back in 8s from 40 for each of the 4 coats of paint. The second coat will take 40 – 8 = 32 minutes, the third coat will take 32 – 8 = 24 minutes and the fourth coat will take 24 – 8 = 16 minutes.

Pages 23-24

1. £1.00

Subtract the cost of the banana milkshake from the total cost to find the cost of the 2 mugs of hot chocolate: £2.50 – 50p = £2. The cost of each mug of hot chocolate is £2 ÷ 2 = £1.

2. 1280

Multiply the number of boxes by the number of sweets in each box to find the total number of sweets: 10 × 128 = 1280 fizzy sweets.

3. 44p

The cost of 4 chews is 4 × 8p = 32p. The cost of 1 chocolate mouse is 12p. So the total cost is 32p + 12p = 44p.

4. £3.00

Waleed was given £2 change, so the total cost of the 6 tickets is £20 – £2 = £18. Divide the total cost by the number of tickets to find the cost of each ticket: £18 ÷ 6 = £3.

5. A

Jodie has £20 and she needs to save another £20 (£40 – £20 = £20) to buy the jacket. She saves £4 each week, so the number of weeks that it will take her to save £20 is 20 ÷ 4 = 5 weeks.

6. A

To find the number Callum started with you need to work backwards from 6. He divided his number by 4, so do the opposite and multiply his answer by 4 to find the starting number: 6 × 4 = 24.

7. C

The cost of 2 scarves is 2 × £1.50 = £3. The cost of 1 bottle of perfume is £7. So the total cost is £3 + £7 = £10.

8. B

The number of matches Nicola's dad has seen is a multiple of 6. The only option that's a multiple of 6 is B — 6 × 6 = 36.

9. £9.00

Mr Bracken paid £15 for 10 litres of fuel so the cost of 1 litre is £15 ÷ 10 = £1.50. He used 6 litres to get to his aunt's house, so the cost of the journey is £1.50 × 6 = £9.

10. A

You could test each of the options until you find one that gives the same answer as Robin's calculation. Robin's calculation starting with 3: 3 × 8 = 24, 24 ÷ 6 = 4. Option A: 3 × 4 = 12, 12 ÷ 3 = 4.

11. 500 g

To make pasta carbonara for 4 people you use 400 g of pasta, so the amount of pasta for each person is 400 g ÷ 4 = 100 g. So, to make pasta carbonara for 5 people you need 5 × 100 g = 500 g.

12. 15 m

9 rabbit costumes is three times as many as 3 rabbit costumes, and 6 squirrel costumes is three times as many as 2 squirrel costumes. So, if Mrs Price can make 3 rabbit costumes and 2 squirrel costumes with 5 m of fabric, she needs 5 m × 3 = 15 m of fabric to make 9 rabbit costumes and 6 squirrel costumes.

13. D

Divide the height of the stack by the height of each pack of butter to find the number of packs of butter in the stack: 12 ÷ 4 = 3 packs of butter. Each pack of butter has a mass of 200 g, so 3 packs would have a mass of 3 × 200 g = 600 g.

14. 6

The cost of 6 hair clips is £1.50 × 6 = £9. This means that Martha has £10 – £9 = £1 left over, which is not enough to buy another hair clip.

15. 8

2 hair clips would cost 2 × £1.50 – £0.50 = £3.00 – £0.50 = £2.50. Count up in lots of £2.50 until you reach £10: £2.50, £5, £7.50, £10. You can buy 4 × 2 = 8 hair clips.

Section Four — Data Handling

Pages 25-26

For questions 1-5 you need to carefully read the data from the table.

1. 3

Look in the 'Number Ordered' column and read across from the 'Shirt' row. 3 shirts have been ordered.

2. £12.99

Look in the 'Price' column and read across from the 'Jumper' row. The cost of a jumper is £12.99.

3. D

Look in the 'Number Ordered' column. The shorts have a 2 in this column, which means they have been ordered twice.

4. E

Look in the 'Price' column. The blazer is the most expensive item at £19.99.

5. £5

Trousers cost £10.99 and shorts cost £5.99. The difference in price is £10.99 – £5.99 = £5.

6. 18

Add up the number of children who own 2 or more pets. So that's the number of children for columns 2, 3, 4 and 5. 8 + 3 + 4 + 3 = 18 people.

Maths Assessment Paper 1

8. 15

2.5 kg = 2500 g. It takes 500 g of flour to make 3 bases, so Jenny would be able to make 2500 ÷ 500 = 5 times the number of pizza bases (5 × 5 = 25, so 500 × 5 = 2500). 5 × 3 = 15 pizza bases.

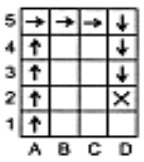
9. C

Work out the value of each option:
A: 20 (the number of tenths is 5 or more so you need to round the number up).
B: 40 ÷ 2 = 20.
C: 70 − 40 = 30
30 − 6 = 24
D: 200 ÷ 10 = 20.
E: The sequence is adding 4 each time, so the next number will be 19 + 4 = 23.
So the biggest number is given by option C.

10. £0.20

Pierre is buying 3 packs for each of his 4 friends, so he is buying 3 × 4 = 12 packs in total. Each pack costs 40p; 12 × 40 can be split up: 10 × 40 = 400p, 2 × 40 = 80p, so 400 + 80 = 480p = £4.80.
He pays with £5.00 so he will get £5.00 − £4.80 = £0.20 change.

11. $11\frac{1}{20}$



The grid shows the path that Paddy has walked on: 4 north, 3 east and 3 south. He walked on 11 of the 20 squares which is $11\frac{1}{20}$ as a fraction.

12. 12

First you need to add up her four weekly scores. Add up the units first:
3 + 5 + 9 + 1 = 18
Then add up the tens:
10 + 10 + 10 = 30
18 + 30 = 48
Now divide 48 by 4. 48 ÷ 4 = 12.

13. 12 cm

The number of sides increases by 1 each time. The 3rd shape has 5 sides so the 4th shape will have 6 sides. Each one of the 6 sides will have a length of 2 cm, so the perimeter of the shape will be 6 × 2 = 12 cm.

Assessment Test 1

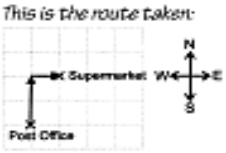
Section A
Pages 41-43

1. C

You could add up the pounds and then add up the pence: £2 + £1 = £3. 5p + 2p + 2p = 9p. Then add them together: £3 + 9p = £3.09

2. C

This is the route taken:



3. E

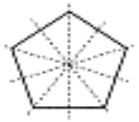
295 kg is half way between 300 kg and 290 kg, so it rounds up to 300 kg when rounded to the nearest 10.

4. B

The key tells you that each symbol represents 2 plants, so half a symbol represents 1 plant. There are 2½ symbols on the pictogram for beans. 2 + 2 + 1 = 5 bean plants.

5. D

A line of symmetry passes through each of the 5 corners:



6. B

A 90° angle is a right angle. The only angle bigger than a right angle is B.

7. 6

Divide the total number of treats by the number of treats in each bag to get the number of bags. 48 ÷ 8 = 6 bags.

8. 48

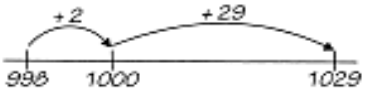
The rule of the sequence is add 5.
So the next number is 43 + 5 = 48.

9. D

80 is ten times bigger than 8. So the answer will be 10 times bigger than 56.
56 × 10 = 560.

10. B

You can find the difference between £998 and £1029 by counting up:



Add £2 to get to £1000, and then add £29 to get to £1029. £2 + £29 = £31

11. B

A regular shape has sides that are all the same length. Only the square has all sides the same length.

12. 328

You can multiply 41 by 8 using partitioning. 41 splits into 40 + 1. Now multiply both parts by 8: 4 × 8 = 32.
40 is 10 times bigger than 4, so the answer will be 10 times bigger: 32 × 10 = 320.
1 × 8 = 8.
Add them together: 320 + 8 = 328

13. C

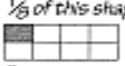
There are 10 gaps between 68 and 69.
So each gap represents 1 tenth or 0.1.
The arrow points to 5 gaps after 68, which is 68 + 0.5 = 68.5.

14. 36p

10 stamps cost £3.60, so 1 stamp will cost £3.60 ÷ 10. Divide by 10 by moving the digits one place to the right.
So £3.60 ÷ 10 = £0.36 = 36p.

15. C

Think of a shape divided into 8 equal parts.
$\frac{1}{8}$ of this shape is 1 of these parts:



$\frac{3}{8}$ of this shape is 3 of the 8 parts, so $\frac{3}{8}$ is bigger than $\frac{1}{8}$.
$\frac{1}{4}$ of this shape is 2 of the 8 parts, so $\frac{1}{4}$ is bigger than $\frac{1}{8}$.
$\frac{3}{4}$ is bigger than $\frac{1}{4}$, so $\frac{3}{4}$ is bigger than $\frac{1}{8}$.
$\frac{1}{2}$ of this shape is 4 of the 8 parts, so $\frac{1}{2}$ is bigger than $\frac{1}{8}$.
So $\frac{1}{8}$ is the smallest fraction.

16. 100 m

The playground is a rectangle, so it has two sides of 20 m and two sides of 30 m.
Adding the lengths of all the sides together gives you the perimeter:
20 m + 20 m + 30 m + 30 m = 100 m

17. 3

He gets £2.40 a week, so after 2 weeks he will have £2.40 + £2.40. Partition one lot of £2.40 into £2 + 40p and then add the parts one at a time: £2.40 + £2 = £4.40, £4.40 + 40p = £4.80.
After 3 weeks he will have:
£4.80 + £2.40. £4.80 + £2 = £6.80, £6.80 + 40p = £7.20, so after 3 weeks he will have saved £7.20.

18. B

Shape B has 5 faces: two triangular faces at the ends, and three rectangular faces in the middle. It also has 9 edges.

19. B

7 + 7 + 7 + 7 = 28. So 28 = □ × 2.
28 ÷ 2 = 14

20. 75

Read across from the brown hair and black hair rows on the table to find the number of children with each hair colour. There are 140 children with brown hair and 65 children with black hair. Subtract 65 from 140 by partitioning 65 into 60 + 5. 140 − 60 = 80
80 − 5 = 75

Section B
Pages 43-45

1. E

Convert the measurements into the same units: 1 m = 100 cm,
so 2 m = 2 × 100 cm = 200 cm.
Total length of ribbon cut from the roll
= 75 cm × 2 = 150 cm.
Length of ribbon left = 200 − 150 = 50 cm.
There are 100 cm in 1 m, so
50 cm = 50 ÷ 100 = 0.5 m.

2. 150 cm²

In question 1, you calculated that there was 0.5 m of ribbon left on the roll. 1 m = 100 cm, so 0.5 m = 0.5 × 100 = 50 cm.
Area = width × length, so the area of ribbon left on the roll = 50 × 3 = 150 cm².

3. 2

Read the numbers of children off the vertical scale. 9 children go to choir and 7 children go to dance club. 9 − 7 = 2.

4. D

Work backwards from 50. The last thing she does is add 1 to a number to get 50.
So subtract 1 from 50 to find this number: 50 − 1 = 49. She multiplied her start number by 7 to get 49. So divide 49 by 7 to find her start number: 49 ÷ 7 = 7.
So she started with 7.

Comprehension

Answers

Comprehension Test 1

Q1 ***B***
Everyone would promise to keep the rules
Q2 ***E***
Rule one
Q3 ***A***
It is the most important rule of all
Q4 ***D***
Mixture
Q5 ***C***
Being creative is important and you must make something every day
Q6 ***E***
Noun
Q7 ***C***
Snore
Q8 ***A***
Essential
Q9 ***B***
Judged
Q10 ***E***
Smiles

Comprehension Test 2

Q1 ***E***
He had been arrested
Q2 ***A***
She didn't want to worry them
Q3 ***C***
He wanted to help his Mother as they were now poor
Q4 ***C***
When he heard their story, he forgave them
Q5 ***D***
Problems
Q6 ***C***
Red represents danger and is easily seen
Q7 ***E***
There was a landslide on the line
Q8 ***B***
With gold pocket watches
Q9 ***E***
The truth had been established and Father was innocent
Q10 ***D***
He returned to his family

Comprehension Test 3

Q1 ***D***
A thrilling and exciting experience
Q2 ***B***
A remote and desolate land
Q3 ***E***
The effect of not preparing properly could be very serious
Q4 ***A***
It is a very remote place with rapidly changing weather
Q5 ***D***
The person will get help if you don't come back at the right time
Q6 ***C***
Marshy
Q7 ***D***
Stones and wooden planks are laid down
Q8 ***A***
Lots of different types of hills and drops
Q9 ***C***
Manage
Q10 ***C***
Noun

Comprehension Test 4

Q1 ***E***
She gutted fish
Q2 ***B***
Grandmother sometimes finds it hard to understand things
Q3 ***B***
Adjective
Q4 ***E***
She cut open the fish while it was still wriggling
Q5 ***D***
Knitting needles
Q6 ***A***
Grandmother's waist was very small
Q7 ***C***
They have enough cardigans and scarves
Q8 ***B***
Grandmother seemed to have very thin wrists because her hands were so swollen

Q9 ***C***
Beat
Q10 ***C***
How to stop

Comprehension Test 5

Q1 ***D***
Easily set on fire
Q2 ***D***
The strong easterly wind
Q3 ***E***
Dig
Q4 ***C***
They climbed onto the roof
Q5 ***B***
A city with closely built buildings and surrounded by countryside
Q6 ***A***
They ran to the river and jumped on a boat
Q7 ***E***
Tents
Q8 ***A***
The flames were too fierce and the wind swept the flames along
Q9 ***D***
A large space was made by blowing up some houses
Q10 ***B***
The wind lessened

Comprehension Test 6

Q1 ***B***
They say tackling can cause serious injuries
Q2 ***D***
Most
Q3 ***C***
A list of signatures
Q4 ***B***
Required
Q5 ***A***
That their children will be looked after at school
Q6 ***D***
Tag rugby
Q7 ***D***
Noun
Q8 ***B***
Toughness
Q9 ***D***
Collisions
Q10 ***B***
They are very careful about player safety

Comprehension Test 7

Q1 ***A***
An odd-looking little girl of seven who looked much older
Q2 ***C***
Streets
Q3 ***E***
Bombay
Q4 ***D***
Grown-ups
Q5 ***B***
Simile
Q6 ***E***
She found them puzzling
Q7 ***C***
She was rather anxious
Q8 ***D***
He was trying to reassure her
Q9 ***B***
She had died
Q10 ***B***
She was very fond of him

Comprehension Test 8

Q1 ***C***
Adverb
Q2 ***B***
A snout and sleepy eyes
Q3 ***A***
Hoarse
Q4 ***B***
He had probably been on his way to bed
Q5 ***D***
They were worn down on the heels
Q6 ***C***
He was pleased to see them
Q7 ***E***
It was warm and lit by the fire
Q8 ***D***
Bundles of dried herbs, hams, onions and eggs
Q9 ***C***
Settles, benches and an arm-chair
Q10 ***B***
Lines

Paper 1

1 Europe
2 butterflies
3 timber
4 It shields the forest against soil erosion from heavy rain.
5 (1) emergent layer (2) canopy (3) understory (4) shrub layer (5) forest floor
6 *easily broken, delicate*
7 *moved on*
8–9 Two of the following: *the soil becomes barren/goes back to desert; species become extinct; tribal people are displaced; it helps to cause global warming.*

10	book	**11**	desk
12	Wednesday	**13**	legs
14	house	**15**	Hannah
16	paper	**17**	young
18	country	**19**	trouble
20	touch	**21**	double
22	First	**23**	Then
24	While	**25**	After

26–31 bellow, arrow, puppet, sparrow, wobble, pillow
32–40 **M**r **S**cott visited **E**dinburgh and **G**lasgow each **F**riday. **T**hen he travelled on the overnight train to **L**ondon.

Verbal Reasoning

Test 1 — Pages 2-3

1. F
F is at position 6 in the alphabet.

2. W
W would be at position 4.

3. 3
C is at position 3 in the alphabet.

4. V
V would be at position 19.

5. A
16 ÷ 8 = 2, A = 2

6. D
2 × 5 = 10, D = 10

7. D
6 + 11 = 17, D = 17

8. D
5 × 4 − 11 = 9, D = 9

9. comment
Both words mean 'to mention'.

10. crash
Both words mean 'when two objects hit each other'.

11. maybe
Both words mean 'possibly'.

12. crooked
Both words mean 'not straight'.

13. HOT
S is the letter that is removed.

14. BEAK
R is the letter that is removed.

15. GATE
R is the letter that is removed.

16. RIGHT
B is the letter that is removed.

Test 2 — Pages 4-5

1. r
The new words are 'bear' and 'roar'.

2. l
The new words are 'well' and 'land'.

3. r
The new words are 'near' and 'robe'.

4. g
The new words are 'smug' and 'glue'.

5. h
The new words are 'high' and 'huge'.

6. 654
T = 6, O = 5, Y = 4

7. 321
P = 3, A = 2, D = 1

8. TAP
T = 6, A = 2, P = 3

9. DY
Each letter in the pair moves forward 1 letter.

10. HT
Each letter in the pair moves back 5 letters.

11. FI
Each letter in the pair moves back 3 letters.

12. NX
The first letter in the pair moves back 3 letters.
The second letter in the pair moves forward 3 letters.

13. directions someone
The sentence is — 'I asked someone for directions'.

14. its fox
The sentence is — 'The fox hid in its burrow'.

15. chattered teeth
The sentence is — 'His teeth chattered in the cold'.

16. pets make
The sentence is — 'Tigers don't make good pets'.

Puzzles 1 — Page 6

Crazy Race

The names of the racers in alphabetical order are: Bumbling Bus, Dashing Devil, Hasty Horse, Rotten Roller, Skater Steve and Wild Wheels.
Wild Wheels — W is the letter that comes nearest the end of the alphabet, so Wild Wheels finished last.
Skater Steve — If the racers are placed in alphabetical order, Rotten Roller comes fourth. However, as Rotten Roller is disqualified for cheating, Skater Steve takes 4th place.
2 — B and D both appear before H in the alphabet, so 2 racers finished before Hasty Horse.
Bumbling Bus — B is the letter that comes nearest the start of the alphabet, so the winner was Bumbling Bus.

Mystery Message

The secret task is '**draw some cake here**'.
The word draw is hidden in the phrase 'read raw'.
The word some is hidden in the phrase 'so mean'.
The word cake is hidden in the phrase 'Erica keeps'.
The word here is hidden in the phrase 'her every'.

Test 3 — Pages 7-9

1. BJ
Each letter in the pair moves back 1 letter each time.

2. NI
The first letter in the pair moves back 1 letter then back 2 letters alternately. The second letter in the pair moves back 3 letters each time.

3. UT
The first letter in the pair moves back 3 letters each time. The second letter in the pair moves forward 2 letters each time.

4. ZA
The first letter in the pair moves forward 3 letters each time. The second letter in the pair moves back 3 letters each time.

5. awful
'brilliant' means 'really good', whereas 'awful' means 'really bad'.

6. scowling
'beaming' means 'smiling', whereas 'scowling' means 'frowning'.

7. slow
'hasty' means 'in a hurry', whereas 'slow' means 'unhurried'.

8. departure
'arrival' means 'the process of arriving', whereas 'departure' means 'the process of leaving'.

9. READ
A is the letter that is added.

10. STOOL
S is the letter that is added.

11. RING
N is the letter that is added.

12. SPARK
K is the letter that is added.

13. A
Micah has 6 autographs. Aminah has half as many as Micah, so she must have 3. Rudy has 1 more autograph than Aminah so he must have 4. Therefore, he cannot have 9 autographs.

14. E
Amber has won 2 games. Connor has won 1 game fewer than Amber, so he must have won 1 game.

Test 4 — Pages 10-11

1. nap
'nap' can't be made because there is no 'a' in 'pencil'.

2. inn
'inn' can't be made because there is only one 'n' in 'indigo'.

3. tact
'tact' can't be made because there is only one 't' in 'practice'.

4. stars
'stars' can't be made because there is only one 's' in 'restaurant'.

5. cart
'cartwheel' is the only correctly spelled word that can be made.

6. sand
'sandpit' is the only correctly spelled word that can be made.

7. fit
'fittest' is the only correctly spelled word that can be made.

8. tight
'tightrope' is the only correctly spelled word that can be made.

9. FRUIT
FRUIT is the only correctly spelled word that fits the clue.

10. SHEEP
SHEEP is the only correctly spelled word that fits the clue.

11. FLOUR
FLOUR is the only correctly spelled word that fits the clue.

12. CIRCLE
CIRCLE is the only correctly spelled word that fits the clue.

13. runner
It is an example of an athlete who uses a track for their sport.

14. grater
It is a kitchen utensil used for cheese.

15. wall
It is the part of a room that is often covered by paint.

16. children
They are sometimes cared for by nannies.

Test 5 — Pages 12-13

1. black
'Black' is a 'colour'.

2. whale
A 'whale' is a type of 'sea animal'.

3. tea
'Tea' is a type of 'hot drink'.

4. dive
To 'dive' means to 'jump into'.

5. N
N is the only letter that occurs twice in DINNER.

6. S
S is the letter that occurs most often in ASSURE.

7. B
B is the letter that occurs most often in BUBBLING.

8. S
S is the only letter that occurs three times in SUCCESS.

9. 8
Subtract 4 each time.

10. 18
Subtract 1 each time.

11. 35
The numbers follow the sequence −5, +2, −5, +2.

12. 33
The numbers follow the sequence +2, +3, +2, +3.

13. mug
The word is hidden in the phrase 'emu got'.

Page 2 — Alphabet Positions

1) E
E is at position 5 in the alphabet.
2) J
J is at position 10 in the alphabet.
3) Y
Y would be at position 2.
4) 2
B is at position 2 in the alphabet.
5) 4
D is at position 4 in the alphabet.
6) 16
P is at position 16 in the alphabet.
7) 8
H is at position 8 in the alphabet.
8) 12
L is at position 12 in the alphabet.
9) 20
T is at position 20 in the alphabet.
10) C
C would be at position 1.
11) G
G would be at position 5.
12) 7
J would be at position 7.

Page 3 — Identify A Letter From A Clue

1) I
I is the only letter that occurs twice in RIGID.
2) E
E is the only letter that occurs twice in NEPHEW.
3) O
O is the only letter that occurs twice in POODLE.
4) A
A is the letter that occurs most often in FLAPJACK.
5) G
G is the letter that occurs most often in GIGGLING.
6) B
B is the only letter that occurs three times in BLUBBER.
7) C
C is the letter that occurs most often in MECHANICS.
8) T
T is the only letter that occurs twice in POTENTIAL.
9) E
E is the letter that occurs most often in EXCHANGED.
10) A
A is the letter that occurs most often in PANORAMA.
11) T
T is the only letter that occurs twice in COGITATE.
12) D
D is the only letter that occurs three times in SKEDADDLE.
13) E
E is the only letter that occurs four times in WEEKENDER.
14) A
A is the letter that occurs most often in HAPHAZARD.
15) S
S is the only letter that occurs twice in SONOROUSLY.

Page 4 — Alphabetical Order

1) dark
The words go in the order — 'dark', 'dirt', 'dream', 'drink'.
2) wane
The words go in the order — 'wane', 'will', 'wing', 'wren'.
3) step
The words go in the order — 'scent', 'spell', 'spool', 'step'.
4) hope
The words go in the order — 'harp', 'hero', 'hood', 'hope'.
5) C
C is the letter that comes nearest the start of the alphabet.
6) T
T is the letter that comes nearest the end of the alphabet.
7) farm
The words go in the order — 'fade', 'farm', 'foil', 'food'.
8) combs
The words go in the order — 'cargo', 'combs', 'crane', 'croak'.
9) broth
The words go in the order — 'birds', 'brawn', 'broth', 'brute'.
10) moped
The words go in the order — 'moan', 'moody', 'moped', 'morsel'.

Page 5 — Missing Letters

1) e
The new words are 'tape' and 'ever'.
2) d
The new words are 'road' and 'dial'.
3) t
The new words are 'knit' and 'tame'.
4) e
The new words are 'fine' and 'easy'.
5) l
The new words are 'earl' and 'limp'.
6) k
The new words are 'soak' and 'kiwi'.
7) m
The new words are 'palm' and 'mule'.
8) l
The new words are 'will' and 'liar'.
9) r
The new words are 'star' and 'ripe'.
10) e
The new words are 'ride' and 'ease'.
11) n
The new words are 'burn' and 'noun'.
12) d
The new words are 'cord' and 'duck'.
13) s
The new words are 'this' and 'sack'.
14) m
The new words are 'calm' and 'meal'.
15) t
The new words are 'pint' and 'time'.

Page 6 — Remove A Letter

1) NEW
T is the letter that is removed.
2) ART
C is the letter that is removed.
3) HAT
C is the letter that is removed.
4) INK
L is the letter that is removed.
5) SPIN
E is the letter that is removed.
6) OFTEN
S is the letter that is removed.
7) POT
S is the letter that is removed.
8) SORT
P is the letter that is removed.
9) BAND
R is the letter that is removed.
10) HARD
O is the letter that is removed.
11) FIGHT
R is the letter that is removed.

3. Antonyms

1. correct, 2. ignore, 3. worst, 4. conclude, 5. deny, 6. merge,
7. vertical, 8. filthy, 9. repair, 10. object

5. Synonyms

1. messy, 2. award, 3. interval, 4. level, 5. intelligent,
6. enthusiastic, 7. swallow, 8. consider, 9. tint, 10. desire

6. Antonyms

1. soft, 2. freeze, 3. innocent, 4. perpendicular, 5. final, 6. reward,
7. wavy, 8. gentle, 9. dull, 10. slack

8. Synonyms

1. take, 2. surround, 3. improve, 4. lady, 5. assured, 6. channel,
7. warp, 8. discuss, 9. soiled, 10. Misplace

15. Antonyms

1. mature, 2. caught, 3. doubt, 4. follow, 5. accept, 6. chaos, 7. guilty,
8. sweet, 9. empty, 10. tangle

17. Synonyms

1. drowsy, 2. abandon, 3. battle, 4. concise, 5. persuade, 5. giant,
7. frugal, 8. chemist, 9. victory, 10. exhaust

36) come to
The hidden word is 'met'.
37) feel awesome
The hidden word is 'law'.
38) Mum and
The hidden word is 'man'.
39) can talk
The hidden word is 'ant'.
40) are deadly
The hidden word is 'red'.

Pages 47-50 — Assessment Test 3

1) vegetable
Is the food group that carrots belong to.
2) sad
It is the emotion associated with crying.
3) read
It is what you do with a book.
4) road
It is the surface that a car travels on.
5) murmur
It is a synonym of 'whisper'.
6) wrong
It is the meaning of a cross on a piece of work.
7) D
D is at position 4 in the alphabet.
8) G
G is at position 7 in the alphabet.
9) Z
Z would be at position 1 in the alphabet.
10) 25
Y is at position 25 in the alphabet.
11) 4
D is at position 4 in the alphabet.
12) F
F would be at position 4 in the alphabet.
13) CAPE
E is the letter that is added.
14) NICE
N is the letter that is added.
15) MADE
E is the letter that is added.
16) CHILL
C is the letter that is added.
17) POINT
O is the letter that is added.
18) WITCH
C is the letter that is added.
19) narrow
'Wide' means 'a large distance across', whereas 'narrow' means 'a small distance across'.
20) bright
'Dark' means 'little light', whereas 'bright' means 'lots of light'.
21) whisper
'Shout' means 'to talk loudly', whereas 'whisper' means 'to talk quietly'.
22) unhurried
'Rapid' means 'quick', whereas 'unhurried' means 'slow'.
23) rude
'Polite' means 'having good manners', whereas 'rude' means 'having bad manners'.
24) curved
'Straight' means 'in one direction with no bends', whereas 'curved' means 'changing direction'.
25) B
Calvin and Alesha walked 10 km, and Dre walked 1 km less than Alesha, so Calvin must have walked further than Dre.
26) C
Grace read half as many books as Amit, and Thirza read 3 less than him. Since Amit read 6 books, both girls must have read 3 books each.
27) 253
B = 2, O = 5, Y = 3
28) 231
B = 2, Y = 3, E = 1
29) OWE
O = 5, W = 4, E = 1
30) inch
Take letters 3 and 4 from the first word, then letters 3 and 4 from the second word.
31) test
Take letters 3 and 4 from the first word, then letters 1 and 2 from the second word.
32) step
Take letters 1 and 2 from the first word, then letters 3 and 4 from the second word.
33) sun
Take letter 1 from the first word, then letters 2 and 1 from the second word.
34) peak
Take letters 1 and 2 from the first word, then letters 2 and 3 from the second word.
35) past
Take letters 1 and 2 from the first word, then letters 1 and 4 from the second word.
36) QN
The first letter in the pair moves back 5 letters each time. The second letter moves forward 4 letters each time.
37) WS
The first letter in the pair moves forward 3 letters each time. The second letter moves back 2 letters each time.
38) QI
The first letter in the pair moves forward 4 letters each time. The second letter moves forward 2 letters each time.
39) NS
The first letter in the pair repeats once, then moves forward 4 letters. The second letter moves forward 4 letters each time.
40) SA
The first letter in the pair repeats once, then moves forward 5 letters. The second letter moves forward 2 letters each time.

Pages 51-54 — Assessment Test 4

1) RAT
The word 'rat' is hidden in 'ration'.
2) ONE
The word 'one' is hidden in 'crone'.
3) AIM
The word 'aim' is hidden in 'claim'.
4) ANT
The word 'ant' is hidden in 'antidote'.
5) PAD
The word 'pad' is hidden in 'spade'.
6) LIT
The word 'lit' is hidden in 'glitter'.
7) HUM
To get from the code to the word move each letter back 2.
8) MFQ
To get from the word to the code move each letter back 3.
9) NUT
To get from the code to the word move each letter back 4.
10) BOAT
To get from the code to the word move each letter back 5.
11) IKL
To get from the word to the code move each letter back 4.
12) TKFG
To get from the word to the code move each letter forward 2.
13) STAR
T is the letter that is removed.
14) RAM
C is the letter that is removed.
15) OLD
F is the letter that is removed.
16) LIMB
C is the letter that is removed.

17) SOIL
P is the letter that is removed.
18) FLAT
O is the letter that is removed.
19) O
O is the only letter that occurs twice in SPONSORS.
20) E
E is the only letter that occurs three times in EVACUEE.
21) C
C is the only letter that occurs twice in CONSPIRACY.
22) E
E is the letter that occurs most often in ELEGANCE.
23) A
A is the only letter that occurs twice in NAVIGATE.
24) T
T is the letter that occurs most often in REPUTATION.
25)

C	L	A	W
L	■	R	■
I	N	C	H
P	■	S	■

This is the only way all the words fit together in the grid.
26)

S	T	A	R
■	A	■	E
P	L	E	A
■	K	■	D

This is the only way all the words fit together in the grid.
27) Craig
Craig only likes one flavour of crisps — ready salted.
28) Pete
Pete wants to see three sorts of animals — penguins, zebras and giraffes.
29) bat
A 'bat' is a flying animal.
30) path
'Path' is a synonym of 'track'.
31) start
'Start' is a synonym of 'begin'.
32) glue
'Glue' is a sticky liquid.
33) red
'Red' is a colour.
34) crime
A 'crime' is against the law.
35) cut
It is what you do with scissors.
36) tree
It is the thing that bark covers.
37) cow
It is the animal that beef comes from.
38) lemon
It is a food that has a sour flavour.
39) April
It is the month that comes after March.
40) opposite
It is the type of word that an antonym is.

Non Verbal Reasoning

Test 1 — pages 8-11

1. D
In all other figures, the flag points to the right.

2. D
In all other figures, the square is in front of the circle.

3. B
In all other figures, the arrow points in an anticlockwise direction.

4. C
In all other figures, the cat's feet are the same colour as its ears.

5. D
The figure is rotated 90 degrees clockwise. In option A, the black circles are in the wrong places. In option B, one of the black circles has been moved in front of the square. In option C, a black circle is missing.

6. D
The figure is rotated 90 degrees clockwise. Option A is a reflection. Option B has the wrong shading. In option C, there are too many circles.

7. B
The figure is rotated 180 degrees. Option A has the wrong shading. In option C, the star and the circle have swapped places. In option D, the black shape is the wrong shape.

8. A
The figure is rotated 270 degrees clockwise (or 90 degrees anticlockwise). Option B is a rotated reflection. In option C, the stars and crescent have swapped places. In option D, there is a star missing.

9. B
Working from left to right, the figure is reflected across. The black shape becomes hatched.

10. A
Working from left to right, the bee's wings move behind the bee and the bee gains another stripe.

11. B
Working from left to right, the figures in the first and second grid squares are added together to make the figure in the third grid square. The figure from the second grid square is rotated 180 degrees.

12. D
Working from left to right, the figure is rotated 90 degrees anticlockwise. The shapes in each column all have the same shading.

13. D
There are four blocks visible from above, which rules out options A and B. There is only one block visible at the front, which rules out option C.

14. C
There are five blocks visible from above, which rules out options B and D. There are two blocks visible at the back, which rules out option A.

15. D
There are five blocks visible from above, which rules out options A and C. There are two blocks visible on the right-hand side, which rules out option B.

16. B
There are four blocks visible from above, which rules out options A and D. There are two blocks visible on the right-hand side, which rules out option C.

Test 2 — pages 12-15

1. C
Option A has been rotated 90 degrees clockwise. Option B has the wrong shading. In option D, the shading has been rotated.

2. A
Option B has the wrong shape at the front. Option C has been rotated 180 degrees. Option D has the wrong shading.

3. B
In option A, the house has an extra window. In option C, the chimney is in the wrong place. In option D, the roof is the wrong shape.

4. B
Option A has been rotated 180 degrees. Option C has the wrong shading. Option D is the wrong shape.

5. A
All figures must have four sides.

6. C
All figures must contain two pairs of ellipses with different shadings.

Test 3 — pages 16-19

1. C
In all figures, the stars have different shadings.

2. A
In all figures, the drop in the middle is black.

3. E
In all figures, the white circle is split by solid lines into parts of equal size. There is a black circle in the middle of the figure.

4. B
All figures must have a shape inside a square at the top, and a reflection of the same shape inside a circle on the bottom.

5. B
In option A, the black circle is in the wrong place. Option C is a 90 degree anticlockwise rotation. In option D, the figure is the wrong shape.

6. D
Option A has one black square missing. Option B has black circles. In option C, the black squares have moved in front of the arrow.

7. D
In option A, the line with the black circle is in the wrong place. In option B, the grey shading inside the large white shape is in the wrong place. Option C is a reflection and a 45 degree clockwise rotation.

8. C
Option A is a 90 degree rotation. In option B, the lines inside the white shape are in the wrong place. Option D has not been reflected.

9. A
Working from left to right, the small black circle becomes a black square.

10. D
Working from left to right, the figure rotates 90 degrees clockwise and the shading changes from white to grey.

11. C
Working from left to right, one more circle is added in a clockwise direction around the corners of the grid square.

12. B
Working from left to right, the figures in the first and second grid squares are added together to make the figure in the third grid square.

13. C
The smaller circle segment moves out from the larger circle segment and turns grey.

14. A
A smaller version of the large white shape appears inside it with a dashed outline. The outline of the large shape becomes thick.

15. B
The two shapes swap shadings and the shape at the front moves to the back.

16. C
The shape on the end of the line swaps position with the shapes on the bottom. Each shape on the bottom goes on the end of a line.

Puzzles 1 — page 20

Feathery Friends
C. The owl that best shares Penelope and Doris's style must have a white bag, a white hat and grey feet.

Prank Problems
A — Tom's PE teacher.
B — Tom's maths teacher.
C — Tom's scout leader.
D — Tom's dad.

Test 4 — pages 21-24

1. D
All figures must contain a grey circle inside a white shape and a white circle outside the shape.

2. B
All figures are identical apart from rotation.

3. C
In all figures, the robot's eyes must be the same shape as its head. Its mouth must be the same shape as the shapes on its body.

4. E
All figures must contain four circles and the arrow must point to a black circle.

5. C
There are five blocks visible from above, which rules out options A and D. There are three blocks visible at the front, which rules out option B.

6. C
There are five blocks visible from above, which rules out options B and D. There is one block visible at the front, which rules out option A.

7. A
There are four blocks visible from above, which rules out options B and D. There are two blocks visible at the front, which rules out option C.

8. B
There are four blocks visible from above, which rules out options A and C. There are three blocks visible at the front, which rules out option D.

9. C
The figure is rotated 90 degrees clockwise. Option A has the wrong shading. In option B, the star has not been rotated. In option D, the star is the wrong shape.

10. C
The figure is rotated 180 degrees. In options A and D, the circles have the wrong shading. In option B, the triangle has the wrong shading.

11. A
Option A is rotated 270 degrees clockwise (or 90 degrees anticlockwise). In option B, the small circles have the wrong shading. In option C, two small lines are missing. Option D is a rotated reflection.

12. C
Option C is rotated 90 degrees clockwise. Option A has the wrong shading. Options B and D are the wrong shape.

13. D
In each series square, the pear is rotated 90 degrees anticlockwise. The shading of the large shape alternates between grey and white.

14. D
In each series square, one shape is added. Each shape gains a side.

15. C
In each series square, one leaf and one black heart disappear.