Activity Booklet 3 **Answers**

Activity 1.1 Talk Maths	The Roman numerals written in figures are: XXV = **25**, XIX = **19**, XLVII = **47**, LXI = **61**, XCIV = **94**, CCLXXVIII = **278**
Activity 1.2 Key Skills	While playing the game, encourage the children to talk about how we use addition when a smaller symbol is after a larger symbol, and we use subtraction when a smaller symbol is before a larger symbol. For example, VI = 6 because we read the symbols as 5 + 1. IX = 9 because we read the symbols as 10 - 1.

Activity 1.3 Using and Applying	1. The Roman numerals written in figures are **60**, **45**, **102** and **99**.
	
	   a) The greatest number is **102** (CII).
	
	   b) The smallest number is **45** (XLV).
	
	2. The possible Roman numerals which are greater than 124 and less than 130 are: **CXXV** (125), **CXXVI** (126), **CXXVII** (127), **CXXVIII** (128) or **CXXIX** (129).
	
	3. MMI = **2001**

Assess and Review 1.4	Encourage the children to notice that the child answering the question has written the digit 9 in Roman numerals using VIIII, which is incorrect as there should not be more than three of the same symbols together. The correct answer is CLXXIX.

Activity 2.1 Talk Maths	1. Three night-vision cameras = £61 × 3 = **£183** 2. Four pairs of x-ray specs = £15 × 4 = **£60** 3. Five pairs of super-speed boots = £49 × 5 = **£245**

Activity 2.2 Key Skills	There are 8 gadgets in a box. Andy has 23 boxes. How many gadgets does he have altogether? **23 × 8 = 184**	Every day during target practice, Ugo uses 36 fireballs. After one week, how many fireballs will he have used? **36 × 7 = 252**
	The superheroes rescue 324 bags of stolen gems. They put the bags into six equal groups. How many bags are in one group? **324 ÷ 6 = 54**	Every day during flying practice, Alex flies for 78 minutes. After nine days, how many minutes of flying has she completed? **78 × 9 = 702**
	On a rescue mission, Ellie uses her spy-copter to transport people to safety. The spy-copter can carry five people at a time. If there are 345 people to rescue, how many journeys will Ellie need to make to rescue everyone? **345 ÷ 5 = 69**	Chloe jumps over 234 cars and then another 36 more cars. Andy jumps twice as many cars. How many cars did Andy jump over? **(234 + 36) × 2 = 540**
	Chloe has 244 fireballs. She uses 24. She shares the remaining fireballs into ten equal groups. How many fireballs are in each group? **(244 - 24) ÷ 10 = 22**	Over 9 days, the superheroes rescue 252 people. How many people did they rescue on average each day? **252 ÷ 9 = 28**
Activity 2.3 **Using and Applying**	1. (265 - 35) ÷ 10 = **23 fireballs** 2. (38 + 29) × 7 = **469 fireballs** 3. (270 - 42) ÷ 6 = **38 bags of gems**	
Assess and Review 2.4	Encourage the children to notice that the child answering the question hasn't chosen the correct operation for the second calculation in the problem; they have done 48 - 9 = 39 instead of 48 ÷ 9 = 5 r3. The correct answer is 5 complete pages.	

Activity 3.1 Talk Maths	The matching equivalents are: 0.25 and $\frac{1}{4}$ 20% and 0.2 $\frac{3}{4}$ and 75% 0.53 and 53% The missing equivalents for each pair are: 25% $\frac{1}{5}$ 0.75 $\frac{53}{100}$ The equivalents in order from smallest to greatest are: 0.2, 0.25, 0.53, 0.75
Activity 3.2 Key Skills	The matching equivalent cards are: 0.5 and $\frac{1}{2}$ $\frac{23}{100}$ and 0.23 70% and 0.7 $\frac{3}{4}$ and 0.75 25% and $\frac{1}{4}$ 0.4 and $\frac{2}{5}$

Activity 3.3 Using and Applying

1. The fraction, decimal and percentages sorted into the correct place on the sorting diagram are:

Less than $\frac{1}{2}$			Greater than $\frac{1}{2}$		
0.06	**32%**	**0.21**	**0.9**	$\frac{11}{20}$	**75%**

2. The greatest number in each row is:

$\left(1\frac{2}{5}\right)$ **1.35**	(1.4 and 1.35)	
$\left(1\frac{3}{4}\right)$ **1.7**	(1.75 and 1.7)	
$1\frac{7}{100}$ $\left(\textbf{1.7}\right)$	(1.07 and 1.7)	
$\left(1\frac{8}{10}\right)$ **1.08**	(1.8 and 1.08)	

Assess and Review 3.4

Discuss that the first step in answering this question is to calculate the answers to the decimal additions, which are 0.6, 0.9 and 0.25. Encourage the children to notice that the child answering the question has correctly matched 0.9 and $\frac{9}{10}$ but has incorrectly matched the two other calculations. 0.6 should match to 60% and 0.25 should match to $\frac{1}{4}$.
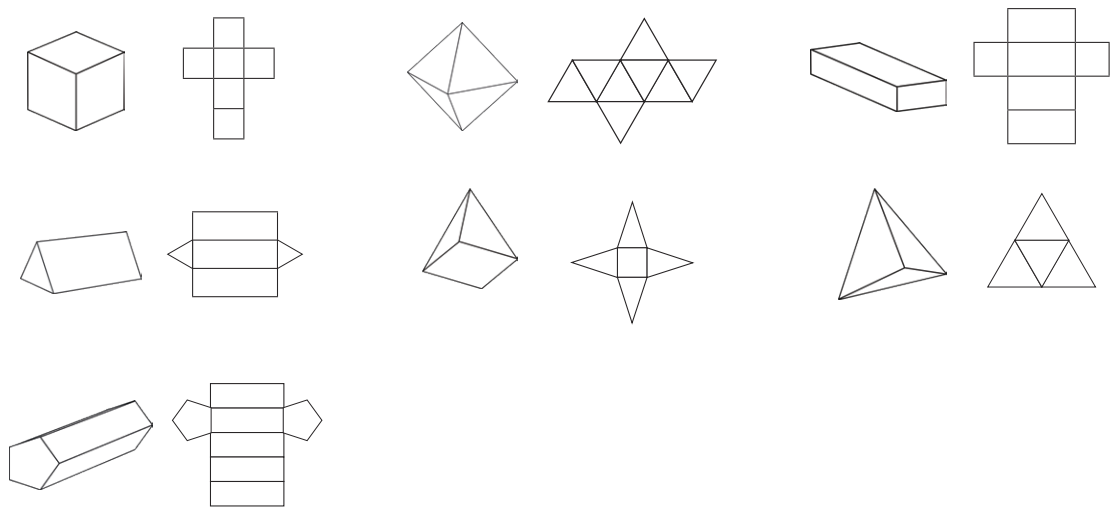
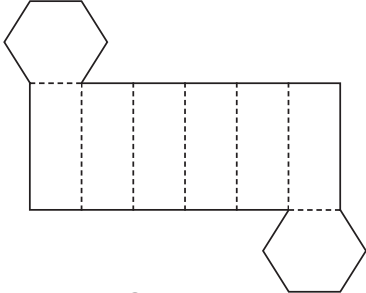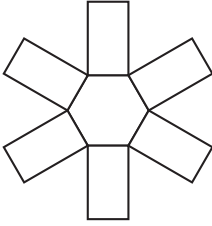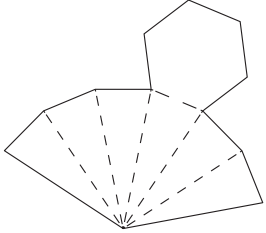|	During this task, encourage the children to talk about the 3D shape using the following properties:
Activity 4.1 Talk Maths	

3D Shape	Faces	Number of Edges	Number of Vertices
Sphere	0 (1 curved surface)	0	0
Cone	1 circular face and 1 curved surface	1 curved edge	0 (1 apex)
Cube (polyhedron and platonic solid)	6 square faces	12	8
Cylinder (not a prism because it has a curved surface)	2 circular faces and 1 curved surface	2 curved edges	0
Square-based pyramid (polyhedron)	1 square face and 4 triangular faces	8	5
Cuboid (polyhedron)	6 rectangular faces	12	8
Tetrahedron (polyhedron and platonic solid)	4 triangular faces	6	4
Triangular prism (polyhedron)	2 triangular faces and 3 rectangular faces	9	6
Octahedron (polyhedron and platonic solid)	8 triangular faces	12	6

Activity 4.2 Key Skills

The 3D shapes match to the following shape nets:

Activity 4.3 Using and Applying	1. The truncated square-based pyramid has 6 faces, 12 edges and 8 vertices. 2. The correct 2D shape net for creating a hexagonal prism is: **Correct.** Incorrect – needs one more hexagonal face. Incorrect – makes a hexagonal pyramid.
Assess and Review 4.4	Encourage the children to notice that the child answering the question incorrectly counted 8 vertices for an octahedron; an octahedron has 6 vertices. Therefore, an octahedron has 10 fewer vertices than an octagonal prism.

Activity 5.1 Talk Maths	While playing the game, encourage the children to explain how they can calculate the time durations. Address any misconceptions as they arise.

Activity 5.2 Key Skills	**True** The number 24 bus is at the supermarket at 12:40.	**True** The next stop after the police station is the cinema.
	True It takes eight minutes for the buses to travel from the DIY store to the supermarket.	**True** It takes twenty-two minutes for the buses to travel from the car park to Hilltop Road.
	True The stop before the DIY store is a pizza restaurant.	**True** The number 33 bus is at the cinema at twelve minutes to two o'clock in the afternoon?
	True The number 38 bus is at Greengate Lane 75 minutes after the number 24 bus.	**True** The stop for the police station comes after the pizza restaurant.
	False The number 29 bus is at the supermarket at 12:57.	**False** The next stop after the police station is the car park.
	False It takes five minutes for the buses to travel from the pizza restaurant to the DIY store.	**False** It takes twenty minutes for the buses to travel from the police station to the cinema.
	False The stop before the car park is the police station.	**False** The number 33 bus is at the car park at ten minutes to two o'clock in the afternoon?
	False The number 38 bus is at the pizza restaurant 30 minutes after the number 33 bus.	**False** The buses stop at the police station after the cinema.

Activity 5.3 Using and Applying	1. 17:23 2. 2 hours 0 minutes
Assess and Review 5.4	Encourage the children to notice that the child answering the question has incorrectly calculated the time duration from 16:29 until 17:00 as 29 minutes. The correct answer is 31 minutes.