Reasoning and Problem Solving – Length and Perimeter answers

1.

Ring of light	Spear	Shrinking potion	Sword	Growing potion	Eric the snail
Millimetres	Metres	Centimetres	Metres	Centimetres	Millimetres

2. Any reasonable estimates using correct units should be considered correct. Exact answers given below for reference.

Ring of light	Spear	Shrinking potion	Sword	Growing potion	Eric the snail
100mm	2.95m	41.7cm	1.5m	62.5cm	83mm

3.

Part A (mm)	Part B (mm)	Part C (mm)	Part D (mm)	Total (mm)	Total (cm and mm)
45mm	90mm	25mm	105mm	265mm	26cm and 5mm

4. Case 1: Wand 1 and Wand 2.
Case 2: Wand 4, Staff 2 and Staff 3.
Case 3: Wand 3, Staff 1 and Staff 4.

5. The footprints could belong to the Snot-gargling Manitog, the Great and Terrible Flunge, the Five-toed Farnwalla or the Sobbling Podgefoot.

6. No, Vulf has not got the order right. 3560mm is taller than 3m and 52cm, and 6m and 125mm is taller than 606cm. It should read: 3m and 52cm, 3560mm, 606cm, 6m and 125mm.

7a. 407m
7b. 125.5m
7c. 335.5m

8. Yes, they will be able to reach the claw. Children will need to show they have converted the different heights to one unit of measurement.
Millimetres: 1680mm + 1070mm + 2000mm + 1350mm = 6100mm. The claw is at 6090mm.
Centimetres: 168cm + 107cm + 200cm + 135cm = 610cm. The claw is at 609cm.
Metres: 1.68m + 1.07mm + 2m + 1.35m = 6.1m. The claw is at 6.09m.

9a. 115m and 97cm.
9b. 27m and 72cm.

10.

Longest perimeter	Middle-length perimeter	Shortest perimeter	Cannot measure perimeter
A Its top and bottom are the same length as the other boxes, but its sides are the longest.	**D** Its top and bottom are the same length as the other boxes, and its side lengths are between the side lengths of A and B.	**B** Its top and bottom are the same length as the other boxes, but its sides are the shortest.	**C** Its sides do not join up, so it has an incomplete perimeter.

11.

Field	Side lengths	Perimeter	Could Vulf use it?
A	30m, 6m, 30m, 6m	72m	No. Two of the sides are 10m or shorter.
B	15m, 17m, 11m, 18m	61m	Yes.
C	19m, 10m, 19m, 10m	58m	No. Two of the sides are 10m or shorter.
D	13m, 11m, 13m, 11m	48m	No. The perimeter is shorter than 55m.
E	21m, 14m, 24m, 12m	71m	Yes