Reasoning and Problem Solving
Step 5: Add Lengths

National Curriculum Objectives:

Mathematics Year 3: (3M9b) Add and subtract lengths (m/ cm/ mm)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Find two lengths which total an amount between given parameters. No exchanging.
Expected Find three lengths which total an amount between given parameters. Length given in mixed units with only one conversion and some exchanging
Greater Depth Find four lengths which total an amount between given parameters. Length given in mixed units and requiring multiple conversions and exchanging.

Questions 2, 5 and 8 (Problem Solving)
Developing Find which items will fit in a given length at once. Given length measured in m. Length given in cm an mm. No exchange.
Expected Find which items will fit in a given length at once. Given length measured in m and cm. Length given in mixed units with only one conversion and some exchanging
Greater Depth Find which items will fit in a given length at once. Given length measured in m and cm. Length given in mixed units and requiring multiple conversions and exchanging.

Questions 3, 6 and 9 (Reasoning)
Developing Find the odd one out between 3 calculations. Addition calculations of lengths given in mixed units No exchanging.
Expected Find the odd one out between 3 calculations. Addition calculations of lengths given in mixed units with only one conversion and some exchanging
Greater Depth Find the odd one out between 3 calculations. Addition calculations of lengths given in mixed units requiring multiple conversions and exchanging.

More Year 3 Length and Perimeter resources.

Did you like this resource? Don't forget to review it on our website.

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Add Lengths

Add Lengths

1a. Which two ribbons can add together to give a length between 2m 20cm and 2m 40cm?

Ribbon	Length
Pink	115cm
White	110cm
Orange	1m 25cm
Green	1m 30cm

D

PS

1b. Which two ribbons can add together to give a length between 7m 25cm and 7m 50cm?

Ribbon	Length
Yellow	5m 15cm
Purple	2m 40cm
Black	430cm
Silver	3m 15cm

D

PS

2a. A toy bridge is 20cm long.

Which two vehicles will fit on the bridge at once?

Lorry 15cm

Bus 130mm

Scooter 65mm

Car 10cm

D

Not drawn to scale

PS

2b. A toy parking space is 20cm long.

Parking

Which three vehicles will fit in the parking space at once?
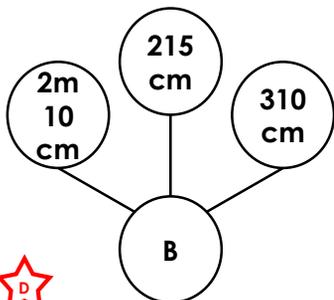
Lorry 120mm

Bus 10cm

Scooter 40mm

Car 35mm

D

Not drawn to scale

PS

3a. Which is the odd one out? Convince me.
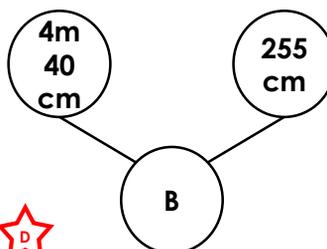
A	
6m 15cm	130cm

2m 10 cm

215 cm

310 cm

B

C is the total length of 6m and 135cm.

D

R

3b. Which is the odd one out? Convince me.

A		
115cm	3m 70cm	2m 10cm

4m 40 cm

255 cm

B

C is the total length of 25cm and 6m 10cm.

D

R

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Reasoning and Problem Solving – Add Lengths – Year 3 Developing

Add Lengths

4a. Which three ribbons can add together to give a length between 1m 15cm and 1m 30cm?

Ribbon	Length
Blue	74cm
Yellow	10cm
Green	39cm
Orange	18cm
Silver	1m 16cm

4b. Which three ribbons can add together to give a length between 25cm 9mm and 26cm 8mm?

Ribbon	Length
White	38mm
Red	4cm 3mm
Purple	7mm
Black	18cm
Gold	2cm 6mm

PS

5a. A tunnel is 1m 80cm long.

Which three toy trains will fit in the tunnel at once?

Train A 1m 12cm

Train B 95cm

Train C 70cm 3mm

Train D 38cm

Train E 46cm

Not drawn to scale

PS

5b. A shelf is 130cm long.

Which three boxes will fit on the shelf at once?

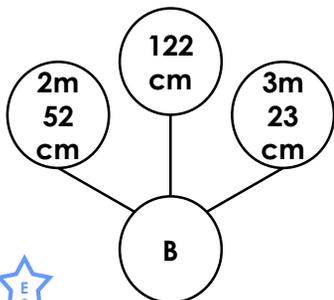Box A 900mm

Box B 78cm

Box C 48cm

Box D 15cm

Box E 230mm

Not drawn to scale

PS

6a. Which is the odd one out? Convince me.
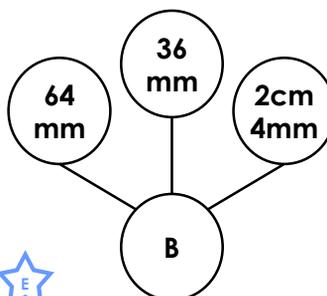
A		
3m 48cm	64cm	93cm

- 2m 52cm
- 122 cm
- 3m 23 cm
- B

C is the total length of 164cm, 3m 10cm and 223cm.

R

6b. Which is the odd one out? Convince me.

A		
59mm	2cm 8mm	3cm 7mm

- 64 mm
- 36 mm
- 2cm 4mm
- B

C is the total length of 56mm, 4cm 3mm and 1cm.

R

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Reasoning and Problem Solving – Add Lengths – Year 3 Expected

Add Lengths

7a. Which four ribbons can add together to give a length between 353cm and 354cm?

Ribbon	Length
Orange	3m 09cm
Lilac	83mm
Pink	$\frac{1}{4}$ m
Silver	20mm
White	174mm

PS

Add Lengths

7b. Which four ribbons can add together to give a length between 2m 96cm and 2m 97cm?

Ribbon	Length
Blue	76cm 3mm
Green	532mm
Black	98cm 5mm
Gold	$1\frac{1}{2}$ m 13cm
Purple	37mm

PS

8a. A bookshelf is 1m 50cm long.

Which three sets of books will fit on the shelf at once?

Book Set A
970mm

Book Set B
87cm 4mm

Book Set C
$\frac{1}{2}$ m

Book Set D
394mm

Book Set E
59cm 7mm

Not drawn to scale

PS

8b. The toybox is 1m 95cm long.

TOYBOX

Which three toy cars will fit in the box at once?

Car A 121cm

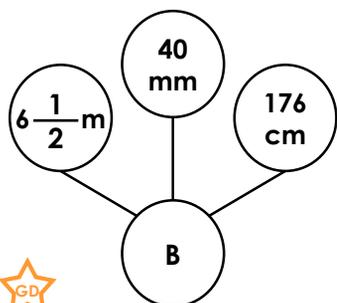Car B 104cm

Car C 88cm 5mm

Car D $\frac{1}{4}$ m

Car E 630mm

Not drawn to scale

PS

9a. Which is the odd one out? Convince me.
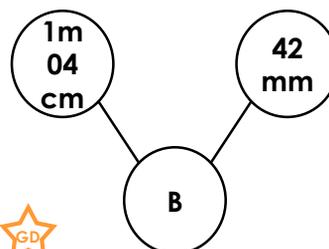
A		
621cm	1m 11cm	98cm

6$\frac{1}{2}$ m

40 mm

176 cm

B

C is the total length of 56mm, 1$\frac{1}{2}$ cm, 4cm 3mm and 48mm.

R

9b. Which is the odd one out? Convince me.

A		
243mm	30cm 3mm	56cm

1m 04 cm

42 mm

B

C is the total length of $\frac{3}{4}$ m, 145mm, 11cm 2mm and 75mm.

R

Reasoning and Problem Solving – Add Lengths – Year 3 Greater Depth

Reasoning and Problem Solving
Add Lengths

Developing

1a. White and pink: 110cm + 115cm = 225cm (2m 25cm).

2a. Scooter and bus: 65mm + 130mm = 185mm or 18cm 5mm; car and scooter: 10cm + 65mm = 165mm or 16cm 5mm.

3a. A is the odd one out because it is 745cm whereas B and C are 735cm.

Expected

4a. Blue, yellow and green: 74cm + 10cm + 39cm = 1m 23cm

5a. Train D, Train C and Train E = 174cm 3mm; Train D, Train E and Train B = 179cm

6a. A because it is 5m 05cm whereas B and C are 6m 97cm.

Greater Depth

7a. Orange, pink, silver and white: 3m 09cm + $\frac{1}{4}$ m + 20mm + 174mm = 353cm 4mm

8a. Book set C, D and E = 149cm 1mm

9a. C is the odd one out because it is 16cm 2mm whereas A and B are 830cm.

Reasoning and Problem Solving
Add Lengths

Developing

1b. Black and silver: 430cm + 3m 15cm = 7m 45cm

2b. Bus, scooter and car: = 175mm or 17cm 5mm; lorry, scooter and car: = 195mm or 19cm 5mm.

3b. C is the odd one because it is 6m 35cm whereas A and B are 6m 95cm.

Expected

4b. White, red and black: 38mm + 4cm 3mm + 18cm = 26cm 1mm

5b. Box A, Box D and Box E = 128cm; Box C, Box E and Box D = 86cm; Box B, Box D and Box E = 116cm.

6b. C because it is 109mm whereas A and B are 124mm.

Greater Depth

7b. Blue, green, gold and purple: 76cm 3mm + 532mm + 1$\frac{1}{2}$ m 13cm + 37mm = 2m 96cm 2mm

8b. Car B, D and E = 192cm; C, D and E = 176cm 5mm

9b. A is the odd one out because it is 1m 10cm 6mm whereas B and C are 1m 08cm 2mm.