Reasoning and Problem Solving
Compare Lengths

National Curriculum Objectives:

Mathematics Year 3: (3M1a) Compare lengths (m/cm/mm)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Find three possibilities to complete the comparison statement. Statement includes measurements in cm and m, with all units in multiples of 5.
Expected Find three possibilities to complete the comparison statement. Statement includes measurements in cm and m.
Greater Depth Find three possibilities to complete the comparison statement. Statement includes measurements in cm and m. Includes the use of halves, quarters and three quarters and some unconventional partitioning.

Questions 2, 5 and 8 (Reasoning)
Developing Explain who is correct when comparing lengths of objects. Measurements include mm, cm and m, with all units in multiples of 5.
Expected Explain who is correct when comparing lengths of objects. Measurements include mm, cm and m.
Greater Depth Explain who is correct when comparing lengths of objects. Measurements include mm, cm and m. Includes the use of halves, quarters and three quarters and some unconventional partitioning.

Questions 3, 6 and 9 (Reasoning)
Developing Identify and explain whether a comparison statement is correct. Measurements include mm and cm, with all units in multiples of 5.
Expected Identify and explain whether a comparison statement is correct. Measurements include mm, cm and m.
Greater Depth Identify and explain whether a comparison statement is correct. Measurements include mm, cm and m. Includes the use of halves, quarters and three quarters and some unconventional partitioning.

Compare Lengths

1a. Find three possibilities for the statement below.

2m 5cm	<	2m 80cm	<	300cm

D PS

1b. Find three possibilities for the statement below.

130cm	<	2m 0cm	>	2m 15cm

D PS

2a. Alice and Luke are comparing the lengths of their ribbon.

Alice: My ribbon is longer because it measures 50mm.

Luke: My ribbon is longer because it measures 45cm.

Who is correct? Explain your answer.

D R

2b. Alfie and Emme are comparing the lengths of their ribbon.

Alfie: My ribbon is longer because it measures 80mm.

Emme: My ribbon is longer because it measures 60cm.

Who is correct? Explain your answer.

D R

3a. Rupert has written the statement below.

500mm	>	60cm

Is the statement correct? Convince me.

D R

3b. Elisa has written the statement below.

70cm	<	90mm

Is the statement correct? Convince me.

D R

Compare Lengths

4a. Find three possibilities for the statement below.

2m 38cm < ____ < 331cm

E PS

4b. Find three possibilities for the statement below.

254cm > ____ > 1m 67cm

E PS

5a. Kevin and Amy are comparing the lengths of their string.

Kevin: My string is longer because it measures 51cm 9mm.

Amy: My string is longer because it measures 528mm.

Who is correct? Explain your answer.

E R

5b. Daisy and Raheem are comparing the lengths of their string.

Daisy: My string is longer because it measures 1m 29cm.

Raheem: My string is longer because it measures 132cm.

Who is correct? Explain your answer.

E R

6a. Millie has written the statement below.

284cm < 2m > 199cm

Is the statement correct? Convince me.

E R

6b. Jeremy has written the statement below.

290mm > 30cm < 167mm

Is the statement correct? Convince me.

E R

Compare Lengths

7a. Find three possibilities for the statement below.

$5\frac{1}{2}$ m < $6\frac{3}{4}$ m > 

GD PS

7b. Find three possibilities for the statement below.

$6\frac{1}{4}$ m > 4m 182cm > 

GD PS

8a. Theresa and Elliot are comparing the lengths of their leads.

My dog's lead is longer because it measures $1\frac{3}{4}$ m.

Theresa

My dog's lead is longer because it measures 1m 128cm.

Elliot

Who is correct? Explain your answer.

GD R

8b. Alan and Phoebe are comparing the lengths of their leads.

My dog's lead is longer because it measures $\frac{3}{4}$ m

Alan

My dog's lead is longer because it measures 68cm 80mm

Phoebe

Who is correct? Explain your answer.

GD R

9a. Andrea has written the statement below

$4\frac{3}{4}$ m > 482cm < 3m 154cm

Is the statement correct?
Convince me.

GD R

9b. Bilal has written the statement below.

$5\frac{1}{2}$ m < 4m 133cm > 547cm

Is the statement correct?
Convince me.

GD R

Compare Lengths

Developing

1a. Various answers, for example: 2m 55cm; 2m 15cm; 2m 65cm.

2a. Luke is correct because his ribbon is 45cm, whereas Alice's is 50mm = 5cm. 5cm < 45cm.

3a. The statement is incorrect because 500mm = 50cm. The correct statement is: 500mm < 60cm.

Developing

1b. Various answers, for example: 2m 20cm; 2m 40cm; 2m 70cm.

2b. Emme is correct because her ribbon is 60cm, whereas Alfie's is 80mm = 8cm. 8cm < 60cm.

3b. The statement is incorrect because 90mm = 9cm. The correct statement is: 70cm > 90mm.

Expected

4a. Various answers, for example: 245cm; 2m 69cm; 3m.

5a. Amy is correct because her string is 528mm = 52cm 8mm, whereas Kevin's is 51cm 9mm. 51cm 9mm < 528mm.

6a. The statement is incorrect because 284cm = 2m 84cm. The correct statement is: 284cm ≥ 2m > 199cm.

Expected

4b. Various answers, for example: 2m 50cm; 2m; 198cm.

5b. Raheem is correct because his string is 132cm, whereas Daisy's is 1m 29cm = 129cm. 132cm > 1m 29cm.

6b. The statement is incorrect because 290mm = 29cm and 167mm = 16cm 7mm The correct statement is: 290mm ≤ 30cm ≥ 167mm.

Greater Depth

7a. Various answers, for example: 575cm; 6m; 5m 132cm.

8a. Elliot is correct because his dog's lead is 1m 128cm = 2m 28cm, whereas Theresa's is $1\frac{3}{4}$ m = 175cm. $1\frac{3}{4}$ m < 1m 128cm.

9a. The statement is incorrect because $4\frac{3}{4}$ m = 475cm and 3m 154cm = 4m 54cm. The correct statement is: $4\frac{3}{4}$ m ≤ 482cm ≥ 3m 154cm.

Greater Depth

7b. Various answers for example: 375cm; 5m; 4m 112cm.

8b. Phoebe is correct because her dog's lead is 68cm 80mm = 76cm, whereas Alan's is $\frac{3}{4}$ m = 75cm. $\frac{3}{4}$ m < 68cm 80mm.

9b. The statement is incorrect because $5\frac{1}{2}$ m = 550cm and 4m 133cm = 533cm. The correct statement is: $5\frac{1}{2}$ m ≥ 4m 133cm ≤ 547cm.