Reasoning and Problem Solving
Step 4: Draw Accurately

National Curriculum Objectives:

Mathematics Year 3: (3G3a) Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Decide if a statement is true or false by measuring a horizontal line to the nearest centimetre.
Expected Decide if a statement is true or false by measuring a slight diagonal line to the nearest millimetre. Answers written in expanded form i.e. 10cm 8mm.
Greater Depth Decide if a statement is true or false by measuring two lines that meet at a point to the nearest millimetre. Answers written in expanded form i.e. 10cm 8mm.

Questions 2, 5 and 8 (Problem Solving)
Developing Explore and draw combinations of lines to total a given horizontal line. Find two possibilities using lines drawn accurately and written to the cm.
Expected Explore and draw combinations of lines to total a given vertical line. Find two possibilities using lines drawn accurately to the nearest millimetre and written in expanded form i.e. 10cm 8mm.
Greater Depth Explore and draw combinations of different lines to total a given diagonal line. Find three possibilities using lines drawn accurately to the nearest millimetre and written in expanded form i.e. 10cm 8mm.

Questions 3, 6 and 9 (Reasoning)
Developing Given two statements about measuring using a ruler, decide which is correct and why (simple rounding mistakes).
Expected Given two statements about measuring using a ruler, decide which is correct and why (ruler position mistakes).
Greater Depth Given two statements about measuring using a ruler, decide which is correct and why (various mistakes).

More Year 3 Properties of Shapes resources.

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

classroomsecrets.co.uk

Draw Accurately

1a. Peter has been measuring lines to the nearest centimetre.

My line is 7 cm.

Is he correct?
Explain how you know.

1b. Caitlin has been measuring lines to the nearest centimetre.

My line is 6 cm.

Is she correct?
Explain how you know.

2a. Elle has drawn some lines.

7cm ——————————

5cm ——————————

My 2 lines make a total of 12cm.

Draw and label 2 more possible sets of lines in cm that Elle could have drawn.

2b. Sam has drawn some lines.

6cm ——————————

4cm ——————————

My 2 lines make a total of 10cm.

Draw and label 2 more possible sets of lines in cm that Sam could have drawn.

3a. Lara and Brett are using a ruler to measure lines to the nearest cm.

My line is 5cm 6mm long. The closest cm is 6cm.

My line is 5cm 6mm long. The closest cm is 5cm.

Lara

Brett

Who is correct? Why?

3b. Eve and Baylee are using a ruler to measure lines to the nearest cm.

My line is 6cm 8mm. It is closer to 7cm than 6cm.

My line is 7cm 2mm. It is closer to 8cm than 7cm.
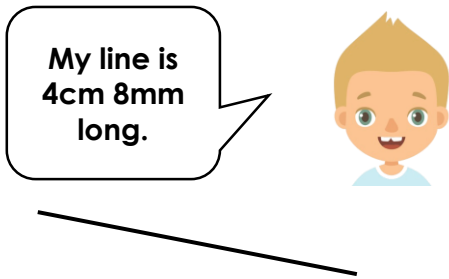
Eve

Baylee

Who is correct? Why?

classroomsecrets.co.uk

Reasoning and Problem Solving – Draw Accurately – Year 3 Developing

Draw Accurately

Draw Accurately

4a. John has been measuring lines accurately.

My line is 4cm 8mm long.

Is he correct? Explain how you know.

R

4b. Sally has been measuring lines accurately.

My line is 5cm 7mm long.
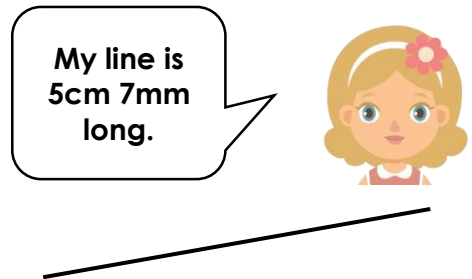
Is she correct? Explain how you know.

R

5a. Luisa has drawn some lines.

My 3 lines make a total of 10cm.

2cm 3mm   3cm 3mm   4 cm 4mm
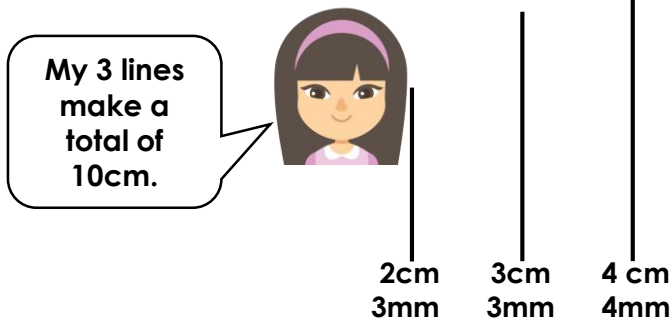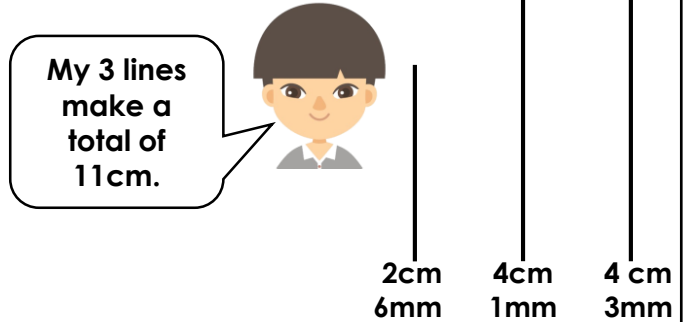
Draw and label 2 more possible sets of lines in cm and mm that Luisa could have drawn.

PS

5b. Sam has drawn some lines.

My 3 lines make a total of 11cm.
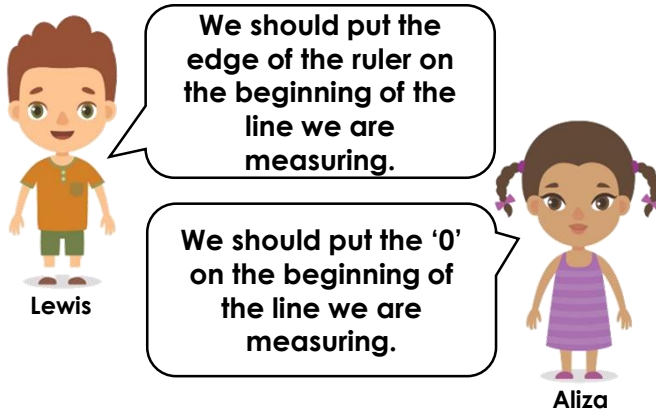
2cm 6mm   4cm 1mm   4 cm 3mm

Draw and label 2 more possible sets of lines in cm and mm that Sam could have drawn.

PS

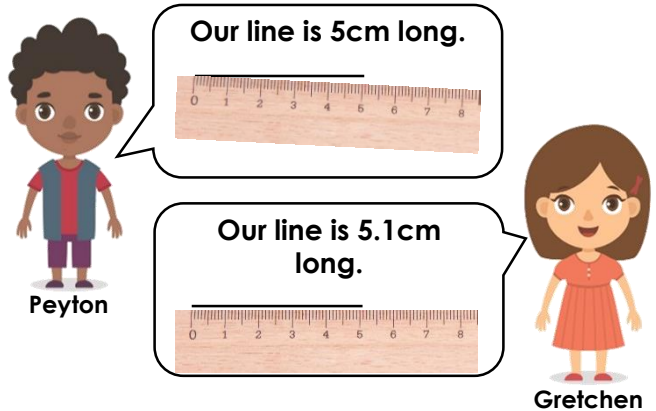**6a.** Lewis and Aliza are using a ruler to measure lines accurately.

We should put the edge of the ruler on the beginning of the line we are measuring.

We should put the '0' on the beginning of the line we are measuring.

Lewis

Aliza

Who is correct? Why?

R

6b. Peyton and Gretchen are using a ruler to measure lines accurately.

Our line is 5cm long.

Our line is 5.1cm long.

Peyton

Gretchen

Who is correct? Why?

R

classroomsecrets.co.uk

Reasoning and Problem Solving – Draw Accurately – Year 3 Expected

Draw Accurately

Draw Accurately

7a. Sue has been measuring lines accurately.

My lines are 3cm 9mm long in total.

Is she correct? Explain how you know.

GD

R

7b. Sam has been measuring lines accurately.

My lines are 4cm 8mm long in total.

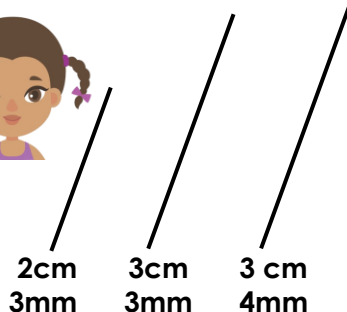Is he correct? Explain how you know.

GD

R

8a. Eva has drawn some lines.

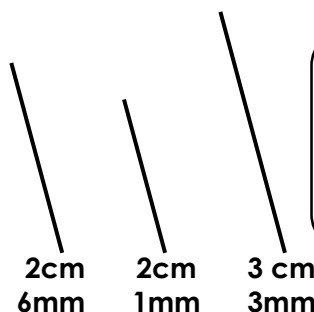My 3 lines make a total of 9cm. They are all different.

2cm 3mm   3cm 3mm   3 cm 4mm

Draw and label 3 more possible sets of lines in cm and mm that Eva could have drawn.

GD

PS

8b. Tom has drawn some lines.

My 3 lines make a total of 8cm. They are all different.

2cm 6mm   2cm 1mm   3 cm 3mm

Draw and label 3 more possible sets of lines in cm and mm that Tom could have drawn.

GD

PS

9a. Farrah and Blake are using a ruler to measure lines accurately.

Our line is longer than a 30cm ruler. If we put two rulers together, we can measure accurately.

We can use the ruler to measure 30cm and then move the ruler to measure the rest of the line and add the measurements together.

Farrah

Blake

Who is correct? Why?

GD

R

9b. Jude and Alma are using a ruler to measure lines accurately.

Our line is closest to 3cm.

Our line is closest to 4cm.

Jude

Alma

Who is correct? Why?

GD

R

classroomsecrets.co.uk

Reasoning and Problem Solving – Draw Accurately – Year 3 Greater Depth

Reasoning and Problem Solving
Draw Accurately

Due to printer variations, children's measurements may vary slightly from answers given.

Developing
1a. No, Peter is not correct as the line is nearest to 6cm long.
2a. Various possible answers that total 12cm, for example: 8cm and 4cm, 9cm and 3cm.
3a. Lara is correct because 6mm is closer to the next cm.

Expected
4a. No, John is not correct as the line is 4cm 3mm long.
5a. Various possible answers that total 10cm, for example: 5cm 3mm, 2cm 5mm and 2cm 2mm. All three lines must be different lengths.
6a. Aliza is correct. Measuring needs to begin on the '0' for an accurate measurement.

Greater Depth
7a. No, Sue is not correct as the total of the lines is 5cm 2mm long.
8a. Various possible answers that total 9cm, for example: 4cm 3mm, 2cm 5mm and 2cm 2mm.
9a. Farrah is incorrect as there is a gap between the edge of the ruler and the '0'. Blake could be correct if he moves his ruler to the exactly 30cm on the line. If he just moves the ruler along and starts measuring again, he will be incorrect.

Reasoning and Problem Solving
Draw Accurately

Due to printer variations, children's measurements may vary slightly from answers given.

Developing
1b. No, Caitlin is not correct as the line is nearest to 5cm long.
2b. Various possible answers that total 10cm, for example: 8cm and 2cm, 7cm and 3cm.
3b. Eve is correct because 8mm is closer to the next cm.

Expected
4b. No, Sally is not correct as the line is 5cm 2mm long.
5b. Various possible answers that total 11cm, for example: 5cm 1mm, 2cm 5mm and 3cm 4mm. All three lines must be different lengths.
6b. Gretchen is correct. She has used the ruler parallel to the line. Peyton has not lined up his ruler and line correctly.

Greater Depth
7b. No, Sam is not correct as the total of the lines is 6cm long.
8b. Various possible answers that total 8cm, for example: 2cm 3mm, 2cm 5mm and 3cm 2mm.
9b. Jude is correct. He has started measuring on the '0' line. Alma has started measuring from 3mm.