

**Unit 4
Measures - Length**

Five daily lessons

North West Consultants

**Year 3
Autumn term**

**Unit Objectives
Year 3**

- Read and begin to write the vocabulary related to length.
- Measure and compare using standard units (km, m, cm).
- Begin to use decimal notation for m and cm.
- Use ruler to draw and measure lines to the nearest half cm.
- Know relationship m, cm; km, m.
- Suggest suitable units and equipment to estimate of measure lengths, including km.
- Read scales.
- Record to nearest whole/half unit, or as mixed units (e.g. 3m 20 cm)
- Choose an appropriate number operation and calculation method to solve word problems. Explain and record method informally.

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This Unit Plan is designed to guide your teaching.

You will need to adapt it to meet the needs of your class.

Resources needed to teach this unit:

- Activity Sheet 4.1
- Activity Sheet 4.2
- Resource Sheet 4.3
- Activity Sheet 4.4
- Activity Sheet 4.5
- Activity Sheet 4.6
- Activity Sheet 4.7
- Large piece of paper
- Rulers
- Tape measures
- Metre sticks
- Whiteboards
- Whiteboard pens
- Familiar objects to measure

Link Objectives

Year 2


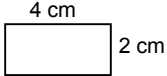
Year 4

- Use and begin to read the vocabulary related to length.
- **Estimate, measure and compare lengths, using standard units (m, cm); suggest suitable units and equipment for such measurements.**
- **Use a ruler to draw and measure lines to the nearest centimetre**, recording estimates and measurements as '3 and a bit metres long' or 'about 8 centimetres'.

- Suggest suitable units and measuring equipment to estimate or measure length.
- Use, read and write standard metric units (km, m, cm, mm) including their abbreviations, and imperial (mile).
- **Know and use the relationships between familiar units of length.**
- Know the equivalent of one half, one quarter, three quarters and one tenth of 1km and 1m in m or cm.
- Convert up to 1000cm to metres and vice versa.
- Choose and use appropriate number operations and appropriate ways of calculating to solve problems.

(Key objectives in bold)

Planning Sheet	Day 1	Unit 4 <i>Measures - Length</i>		Term: Autumn	Year Group: 3
Oral and Mental		Main Teaching			Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions	
		<p>Suggest suitable units and equipment to estimate and measure length including km.</p> <p>Read and begin to write the vocabulary related to length.</p> <p>Read scales.</p> <p>Measure lines to the nearest cm.</p> <p>VOCABULARY centimetre cm estimate length measure ruler approximately</p> <p>RESOURCES Large sheet of paper Rulers Whiteboards Whiteboard pens Familiar objects to measure (enough for 6 per group)</p>	<ul style="list-style-type: none"> Ask the children to discuss in pairs what they know about the topic of length. Take feedback and create a list or web of ideas, terms and concepts on a large piece of paper. (Need to keep for Friday). Pull out key terms, especially the standard units of measurements m, cm, km, mm. Ask children to use their fingers to show their estimates for 1 cm. Repeat this activity asking them to draw a line of 1 cm on the whiteboard. <p>Show children the actual measurement of 1 cm using a ruler. Ask them to decide how accurate their estimate was, and ask them to draw another line of 1 cm in length, based on their new knowledge from seeing the ruler.</p> <p>Q Why is estimating so important?</p> <p>Ask the children to discuss in pairs why we might need to estimate lengths. Take feedback.</p> <p>Agree with the children that estimation is an important skill. Sometimes, we are not able to measure lengths but need to know approximately how long something is. For example, if we were wrapping a present, we would not measure around the present and then measure the wrapping paper, we would make an estimate.</p> <ul style="list-style-type: none"> Give each group of children a set of 6 objects on their table. These objects can be the same or different for each group. <p>Ask children to work in groups to estimate the lengths of the objects in centimetres and record on one piece of paper.</p> <p>Take feedback from each group.</p> <p>Q What strategies did you use for estimating the length of the objects?</p> <p>Q Which object was the easiest to estimate the length of? Why?</p> <p>Explain to the children that they are going to measure the length of the objects that they have just estimated.</p> <p>Q What equipment do we need to measure the objects?</p> <p>Discuss children's responses. Demonstrate to the children the correct place to put the ruler when measuring the length of an object.</p> <p>Ask the children to work in pairs to measure each of the items with a ruler and record their findings.</p>	<p>Take feedback from the measuring activity. Ask each group of children for the measurement of one item from their table.</p> <p>Q Should our measurements for this object be the same or different?</p> <p>Agree with the children that if the measurements are accurate, then they should be the same.</p> <p>Q What do we do if the length of the object is not an exact centimetre?</p> <p>Ask children to feedback what they did?</p> <p>Explain that we round it to the nearest cm mark.</p> <p>Ask the children to compare the measurements to the estimates to see how accurate the estimates were.</p> <p>Explain to the children that tomorrow they will be looking at measuring lines to the nearest half cm.</p> <p>By the end of the lesson, children should be able to:</p> <ul style="list-style-type: none"> Make a reasonable estimate in cm. Measure accurately to the nearest cm. Have a clear understanding of a cm as a unit of measure. <p>(Refer to supplement of examples, section 5, pages 73 to 77)</p>	

Planning Sheet	Day 2	Unit 4 <i>Measures - Length</i>		Term: Autumn	Year Group: 3
Oral and Mental		Main Teaching			Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions	
		<p>Suggest suitable units and equipment to estimate and measure length including km.</p> <p>Read and begin to write the vocabulary related to length.</p> <p>Read scales.</p> <p>Measure lines to the nearest half cm.</p> <p>Being to use decimal notation for m and cm.</p> <p>Choose an appropriate number operation and calculation method to solve word problems. Explain and record method informally.</p> <p>VOCABULARY length width measure centimetre (cm) ruler</p> <p>RESOURCES Activity Sheet 4.1 Activity Sheet 4.2 Rulers</p>	<ul style="list-style-type: none"> Draw a rectangle on the board with dimensions of 22 cm and 16.5 cm. (<i>Do not write the dimensions on the board.</i>)  <p>Q How could you give instructions for somebody to create an identical rectangle?</p> <p>Take feedback. Children should identify that they need to know the lengths of the sides.</p> <p>Q How could we find out the length of the sides?</p> <p>Children should identify that they need to measure the sides to find the lengths.</p> <p>Q Do we need to measure all four sides?</p> <p>Children should be aware that as opposite sides of a rectangle are equal, they only need to measure one in each pair.</p> <p>Q What equipment do we need to measure each side?</p> <p>Ask a child to come and accurately measure the shorter side and annotate on the diagram.</p> <p>Explain that the line measures exactly halfway between 16 cm and 17cm so it is 16 and a half cm long. We can also write this as 16.5 cm as 0.5 means the same as one half. Show how to write 16.5</p> <p>Ask them to fill in the measurements for all of the sides they know from this one measurement.</p> <p>Repeat for other sides.</p> <ul style="list-style-type: none"> Ask children to work in pairs to discuss how they would describe this shape for somebody who could not see it to draw. <p>Take feedback.</p> <ul style="list-style-type: none"> Children to work in pairs with one child having Activity Sheet 4.1 and the other having Activity Sheet 4.2. Children sit back to back and take it in turns to measure the lengths of the sides of the shape and describe it for their partner to draw. <p>There is also a blank space on the bottom of each activity sheet for each child to draw and measure their own shape and describe to their partner.</p>	<p>Draw another rectangle on the board and label with the measurements.</p>  <p>Explain to the children that this diagram shows the length and height of a Lego brick.</p> <p>Ask children to work in pairs to discuss these questions and take feedback after each one. Children should explain how they worked out the answer, and show their working out where appropriate.</p> <p>Q If I built a row with 11 bricks in, how long would the row be?</p> <p>Q Lego baseboards are 22 cm long. How many bricks will fit along one edge?</p> <p>Q Lego baseboards are 2 cm tall. If I built 13 rows of bricks on top of this, how tall would my model be?</p> <p>Q If my model was 32 cm tall. How many rows of bricks would I have used on top of the baseboard?</p> <p>By the end of the lesson, children should be able to:</p> <ul style="list-style-type: none"> Draw and measure accurately to the nearest half cm. Being to use decimal notation for m and cm. <p>(Refer to supplement of examples, section 5, pages 73 to 77)</p>	

Planning Sheet	Day 3	Unit 4 <i>Measures - Length</i>		Term: Autumn	Year Group: 3
Oral and Mental		Main Teaching			Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions	
		<p>Use a ruler/tape measure to measure to the nearest half cm.</p> <p>Measure and compare using standard units.</p> <p>Read and begin to write the vocabulary related to length.</p> <p>Record to the nearest whole/half unit or as mixed units.</p> <p>VOCABULARY length measure centimetre (cm) ruler tape measure compare</p> <p>RESOURCES Tape measures</p>	<ul style="list-style-type: none"> Present the children with the statement: <i>'The total length of all someone's fingers is the same as the length of one of their arms.'</i> <p>Q Is this statement likely to be true? How can we find out?</p> <p>Clarify that the statement is referring to fingers and thumbs, so 10 digits altogether, and that length of arm is from shoulder to wrist.</p> <ul style="list-style-type: none"> Explain to the children that they are going to investigate the statement to see if it is correct. <p>Q What equipment will you need?</p> <p>Ask children to discuss in pairs what equipment will be needed for this experiment.</p> <p>Demonstrate use of tape measure as an alternative to a ruler as it is more accurate for measuring items that are not perfectly straight.</p> <p>Q What measurements will you need to take, and what will you need to do with the measurements.</p> <p>Children to discuss in pairs / groups. Take feedback.</p> <p>Q What will you do if the length is not an exact cm?</p> <p>Discuss issues of recording to the nearest whole or half cm.</p> <ul style="list-style-type: none"> Children to work in groups to take appropriate measurements from each other and record measurements in a method of their choice to decide whether the original statement is true or false. 	<ul style="list-style-type: none"> Ask children to measure teacher's fingers and arm and calculate the total length of fingers. <p>Q Is the original statement always true, sometimes true, or never true?</p> <p>Look at children's results.</p> <p>Q Whose total finger length was the closest to their arm length?</p> <p>Look at results.</p> <p>Q What are the important things we needed to do when taking these measurements?</p> <p>Take feedback on measuring issues, including:</p> <ul style="list-style-type: none"> - making sure the tape measure is tight - making sure that everybody measured from and to the same points. - making sure we read the correct side of the tape measure e.g. from the 0 end. <p>By the end of the lesson, children should be able to:</p> <ul style="list-style-type: none"> Measure accurately to the nearest half cm. Record to the nearest whole/half unit. Compare and order measurements. <p>(Refer to supplement of examples, section 5, pages 73 to 77)</p>	

Planning Sheet	Day 4	Unit 4 <i>Measures - Length</i>		Term: Autumn	Year Group: 3
Oral and Mental		Main Teaching			Plenary
Objectives and Vocabulary	Teaching Activities	Objectives and Vocabulary	Teaching Activities	Teaching Activities/Focus Questions	
		<p>Read and begin to write the vocabulary related to length.</p> <p>Suggest suitable units and equipment to estimate or measure lengths, including km.</p> <p>Know relationship between m, cm; km, m.</p> <p>Record to nearest whole/half unit, or as mixed units (e.g. 3m 20 cm)</p> <p>VOCABULARY kilometres (km) metres (m) centimetres (cm) millimetres (mm) length width height depth ruler metre stick</p> <p>RESOURCES Resource Sheet 4.3 Rulers Metre sticks Lengths of measured items for plenary</p>	<ul style="list-style-type: none"> Recap previous lessons. <p>Q What units have we been using to estimate and measure so far?</p> <p>Take feedback. Centimetres.</p> <p>Q What other units of measurement do you know?</p> <p>Take feedback. Children should be familiar with the other units of measurement, km, m and mm.</p> <p>Ask children to show with their fingers approximately 1 mm. Show children what 1 mm looks like on a ruler.</p> <p>Ask children to show with their fingers approximately 1 m. Show children what a metre stick looks like and explain that this measures 1 metre. Explain that there are 100 cm in 1 metre.</p> <p>Q Can you show me what 1 km looks like using your hands? Why not?</p> <p>Take feedback. Explain to children that 1 km is the same as 1000 metre sticks laid end to end.</p> <ul style="list-style-type: none"> Give each child/pair of children a set of cut up cards with km, m, cm and mm on from Resource Sheet 4.3. <p>Explain that you will give them different distances and that they should hold up the card that they think will be the most appropriate unit of measurement.</p> <p>length of classroom (m) width of £1 coin (mm) length of pencil (cm) height of chair (cm) length of car (m) length of school field (m) distance from school to nearest town (km) etc</p> <ul style="list-style-type: none"> Explain to children that sometimes, we cannot just use one measurement, and that we have to mix them. <p>Put a metre stick up alongside one of the children. Put another metre stick above it to show 2m.</p> <p>We can say that ... is taller than 1 m but shorter than 2m.</p> <p>Q If we want to be more accurate, what could we measure the bit above 1m in?</p> <p>Take feedback. Centimetres. Show child's measurement in mixed units, e.g. 1m 26 cm.</p> <p>Children should work in pairs to measure the length, height or width of objects around the classroom/school and record their measurements in mixed units.</p>	<p>Take feedback from activity to ensure that children are comfortable with recording using mixed units.</p> <p>Play Yes No game.</p> <p>Teacher gives a length of a familiar item. Children work in pairs to discuss whether they think that measurement is correct and show thumbs up for yes and thumbs down for no.</p> <p>Check results by asking a child to measure item.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>By the end of the lesson, children should be able to:</p> <ul style="list-style-type: none"> Measure accurately to the nearest half cm. Record using mixed units. Suggest suitable units to estimate and measure length. <p>(Refer to supplement of examples, section 5, pages 73 to 77)</p> </div>	

