Year 2 Unit 4: Measuring Length (2 weeks)
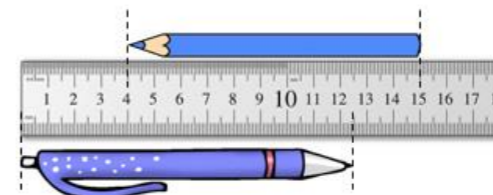
Measure for Measure

This article from NRICH provides interesting information for pupils about the history of measures.

Proactively supporting accurate measuring

Pupils may misalign the ruler when drawing and measuring length. It is important to model clearly and heighten awareness by:
- *Aligning the zero mark on the ruler to the beginning of the line or object being measured.*
- *Aligning the ruler close and parallel to the line or object being measured.*
- *Using the correct unit of measure.*

Before you start…
- *What previous experience have pupils had of using non-standard and standard units for measuring length?*
- *How confident are they in using mental strategies and bar models for addition and subtraction within 100?*

The Big Picture for this unit is Mr. Malik and his tailor's shop which provides a relevant context for measuring length and the importance of accuracy.

Comparing, estimating and measuring length

L1 Compare non-standard units and standard units
L2 Estimate and measure lengths in metres

Pupils need opportunities to use a variety of non-standard units to measure classroom objects to develop accuracy and the language for measuring. By promoting comparison and discussion on the differences in pupil answers, they begin to recognise the need for standard units. The metre stick is established as a standard unit by modelling correct use and alignment for measuring from zero. Exaggerating the possible errors will promote the importance of accuracy. By comparing lengths to a metre they develop the image and understanding of the length of 1 metre as a reference point.

? *What opportunities for exploration will be provided for pupils to measure, compare and receive feedback on their chosen strategies?*

Measuring and estimating length in centimetres

L3 Measure length in centimetres
L4 Estimate and measure length in centimetres

Pupils will gain conceptual understanding of length through hands-on experience of measuring in centimetres with Dienes ones blocks and a ruler. Teacher modelling and pupils comparing their answers will establish the importance of aligning the ruler close and parallel to the line and starting from zero. Through measuring, comparing and ordering objects measured in centimetres, pupils will explore the principle of transitivity that if A>B and B>C then A>C and develop a sense of estimation of length.

? *What ideas for depth could you use to promote further mathematical thinking in these lessons?*
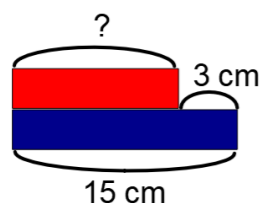
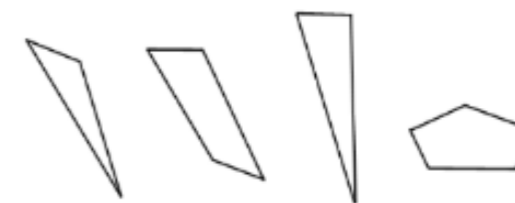*There are eight planned lessons in this unit and two consolidation lessons. Pupils may benefit from consolidation lessons after L4 and L7 to further practice measuring in centimetres, drawing specified lengths with a ruler and using bar models to compare lengths.*

Is your height and arm span roughly the same?
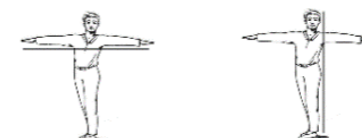
Measure the **longest** side of each

Solving word problems

L8 Apply knowledge of length when problem solving

Pupils develop conceptual understanding by using bar models to solve part-whole and comparison word problems in the context of length. They draw upon their use of estimation, mental strategies and checking of answers using the inverse to solve one-step and two-step problems.

? *What are the key features, misconceptions and difficulty points of the concept?*
? *What questions and prompts will draw their attention to those features?*

Drawing specified lengths

L7 Draw lines with specified lengths

Through clear modelling, pupils develop their coordination skills to use a ruler to draw lines starting at zero and finishing at the end point. Good habits of checking for accuracy are established by realigning the ruler to check. Pupils also develop mathematical thinking and the vocabulary to compare lengths to solve word problems through use of bar models and bead strings.

? *What are the main mathematical ideas in the lesson? How will pupils see the connections?*

Exploring and measuring length in different contexts

L5 Measure curved and straight lines

L6 Investigate the length of certain body parts

In these two lessons pupils use relevant contexts for measuring straight and curved lines in 2D shapes and exploring the relationship between lengths of different body parts. Through first-hand experience they practice and improve their coordination and measuring skills using centimetres, rulers, string and measuring tapes. It is crucial to build in habits of estimation, comparison and checking for accuracy through teacher modelling and paired talk. Develop language and communication through encouragement and scaffolding to reflect and talk so that they make connections and comparisons between different measures and representations.

? *What opportunities will they need so that all pupils have the chance to communicate their mathematical ideas?*
? *How can language itself be used to help pupils see connections between representations?*

? / 3 cm / 15 cm