NCCA

# Primary Mathematics Toolkit – Support material

## Measures: Measuring – Suggestions for children's learning

### The child has opportunities to...

#### Understand and connect

- explore the conservation of length, weight, capacity and area and challenge possible misconceptions through practical activities, e.g., *if you break a 100g piece of playdough into two pieces, the combined weight of the two halves is still 100g.*
- identify how to measure using base units for length (metre), weight (kilogram), capacity (litre) and area (square metre) using a variety of measuring instruments.
- make links between base ten to move flexibly between units of measurement, e.g., *1000m = 1km, 1000g = 1kg, 1000ml = 1l.*
- apply and connect prior knowledge of 2-D and 3-D shapes to estimate and measure, e.g., *the perimeter and area of regular and irregular 2-D shapes, the surface area and volume of 3-D shapes.*
- use knowledge of number to compare and order metric units of measurement in fractional and decimal form, e.g., *compare and order ½ l, 0.75l, 350ml.*

#### Communicate

- describe the process of measuring and justify the selection of units for measurement, e.g., *it is difficult to measure the length of a room in cubes, it is impractical to measure the length of the school yard using centimetres.*
- listen to, compare and discuss other children's estimations and measurements using base units and symbols.
- use concrete, pictorial and abstract recording when estimating and measuring.
- explore how the use of digital technology can represent measurements, e.g., *annual rainfall, how inputting measurements can generate simulations and models such as the volume of a 3-D shape.*
- develop systematic approach to recording measures over time to communicate changes/developments, e.g., *height of a plant.*

#### Reason

- analyse the need for units in measuring through engaging in hands-on measuring with non-standard and standard units.
- create and justify conjectures based on personal benchmarks, e.g., *if I am 140cm, then the door must be at least 180cm.*
- identify and validate the appropriate measurement instruments and units for a given situation, e.g., *10ml spoon or 1 litre jug.*
- engage in practical activities that require smaller units of measurement for a more accurate measurement.
- use estimation to calculate sums, differences, products and quotients of measurements (e.g., *we have a two litre bottle of orange juice to share among the class, approximaly how much juice will each child get?*) and when required or useful use formulae generalised from experience.

#### Apply and problem-solve

- explore and compare measurable attributes of objects, surfaces and containers in contexts that are meaningful for the children, e.g., *baking activities, measuring the distance from the school to buildings of interest in the locality.*
- investigate how to read a variety of common measuring instruments using increasing accuracy.
- use repetitions of the same size unit to make approximate measurements.
- apply knowledge of measurement to real world situations, e.g., *which is better value for money?*
- conduct investigations to solve problems and practical tasks involving more than one attribute, e.g., *designing floor plans to suit criteria involving length and area, planning how to pack for a trip abroad with restrictions on size and weight of luggage.*

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