Measurement: Early Learning Progression

Key Concept	Importance	Teaching and Learning Points
Identifying the attribute The key focus of this step is helping children to become aware of the physical attributes of objects in order to clearly identify what is to be measured.	This is important because children need to have an understanding of length, volume and weight as attributes of objects before they can meaningfully compare and measure these attributes.	To develop these understandings children need lots of opportunities to explore objects and their attributes and to discuss these experiences with others. They also need to be introduced to appropriate descriptive language; terms such as big, heavy, tall and empty will be useful.
Direct comparison The key focus of this step is to directly compare the attributes of two or more objects to establish, for example, which is longer, heavier or holds more. When comparing three or more objects they can be ordered.	This is important because comparison is needed to meaningfully describe length, weight and volume. For example, to say “my pencil is long" does not have a lot of meaning, but to say "my pencil is longer than yours” is meaningful.	Considerable time may have to be spent on these experiences for children to become aware of what can be done to an object without changing the quantity of the attribute that is being investigated. This is often described as *conservation* of measure. For example, does the length of the pencil change when it is moved? Does the volume of water change when it is poured into a different container? It is important to encourage children to have one end of the objects aligned when comparing length.
Indirect comparison The key focus of this step is to indirectly compare objects when it is not possible to place them together directly. For example, children can measure around the bottom of a sand volcano using string and then compare the length of the string with the distance around the base of another volcano to find out which is longer.	This is important because indirect comparison provides a useful way to measure, even as adults. For example, we can use a piece of string to measure the width of the door and then hold the piece of string against a table to see if it will fit through the door.	This method of measuring is useful only when the objects that need to be measured cannot be compared directly. Look for situations like this in children’s play and use these to introduce and explore indirect comparison.
Using something to measure The key focus of this step is to use ordinary objects to measure. Suitable objects are usually known to children and readily available. For example steps or hands can be used to measure length, and	Units of measure are important because without them questions such as “How much more does this jug hold?” cannot be answered. Using an object to measure also introduces many of the principles associated with successful measurement. These include:	Encourage children to place units end to end as gaps or overlaps between the units will result in inaccurate measurements. Estimation is a useful skill to introduce alongside measuring with objects. This can be

cups measure volume. Anything used to measure in this way can be described as a unit.	• Measures are expressed by counting the total number of units used. • Units of measure need to be chosen appropriately. For example, the length of the room could be measured by hand spans but a pace is more appropriate. • During a measurement activity the unit must not change. Measurement provides opportunities to strengthen both children's number and measurement understandings at the same time.	developed, for example, by asking children to guess how many cups of water will fit into the jug before they carry out their measurement. Using a unit requires that children are able to count and understand that the last unit counted gives the measure of the object. It is useful to measure the same object with different units. This helps children understand that you need a smaller quantity of larger units to measure an object or vice versa.