

Mathematics Strands and the Outdoor Learning Environment

Measurement

pp 10-13 PYP Mathematics Scope and Sequence

To measure is to attach a number to a quantity using a chosen unit. Since the attributes being measured are continuous, ways must be found to deal with quantities that fall between numbers. It is important to know how accurate a measurement needs to be or can ever be.

Phase 1

Learners will develop an understanding of how measurement involves the comparison of objects and the ordering and sequencing of events. They will be able to identify, compare and describe attributes of real objects as well as describe and sequence familiar events in their daily routine.

Conceptual understandings

Measurement involves comparing objects and events. Objects have attributes that can be measured using non-standard units. Events can be ordered and sequenced.

Constructing meaning

- Describe and sequence (before, after, today and tomorrow) events: daily schedule (indoor play, snack, outdoor play, lunch, rest time, indoor & outdoor play, home time); the life cycles of animals they experience (ladybugs, frogs and butterflies); and the process for putting on and taking off their outdoor suits.

Transferring meaning into symbols

- Compare and describe attributes (longer, shorter, heavier, empty, full, hotter and colder) of real objects such as the vegetables they have grown (carrots, potatoes, radishes, beetroot), rocks, sticks, logs, buckets of sand or dirt, ice, water, daily temperature, etc.
- Compare the length, mass and capacity of objects using non-standard units (mud kitchen baking play; our DIY scales; use sticks, rocks, leaves to measure length).

Applying with understanding

- Describe observations about events and objects in real-life situations: This happens continuously in all areas of the outdoor learning environment: at the pond, in the mud kitchen, at the water table, in the sandbox – everywhere.
- Use non-standard units of measurement to solve problems in real-life situations involving length, mass and capacity: This happens continuously in all areas of the outdoor learning environment such as when the children are discovering how many buckets of water does it take to fill the water table; how heavy is a watering can when it is $\frac{1}{4}$ full, $\frac{1}{2}$ full or full; how tall has the sunflower grown; can I play with this stick (is it longer than my arm?), etc.

Pg 13 *“Learners need many opportunities to experience and quantify measurement in a direct kinesthetic manner. They will develop understanding of measurement by using manipulatives and materials from their immediate environment, for example, containers of different sizes, sand, water, beads, corks and beans.”*

The outdoor learning environment is the PERFECT place for real-life exploration of measurement in a direct kinesthetic manner.