The following examples of student work illustrate achievement at the mathematics standards for years 2 and 3.

Body Garden

In this task, groups of 3–4 students made a flower garden and measured parts of their body to represent the flowers, stalks, leaves, and grass. The task relates to achievement objectives for Geometry and Measurement from the mathematics and statistics learning area in *The New Zealand Curriculum*.

Body Garden

Provide string, scissors, coloured paper, and other suitable material for the task. Encourage students to talk about movement when they are arranging their shapes (e.g., rotating, translating, and reflecting shapes). Ask them to record and compare the lengths and widths of petals, stalks, leaves, and so on.

Use string to measure a part of your body (e.g., elbow to wrist) to use as the length of the flower stalk.

On coloured paper, trace around other parts of your body (e.g., fingers) and cut out and paste these onto your picture as petals, leaves, and the flower's centre.

Some features of students' work used to make judgments in relation to the mathematics standards are described below.

ILLUSTRATING THE MATHEMATICS STANDARD

Body Garden

New Zealand Curriculum: Level 1	*Mathematics Standard: After two years at school*
In solving problems and modelling situations, students will:	
Geometry and Measurement • *compare objects … by length … by direct comparison and/or counting whole numbers of units (measurement)* • *communicate and record the results of translations, reflections, and rotations on plane shapes (transformation)*	*Geometry and Measurement* • *compare the lengths … of objects … using self-chosen units of measurement* • *represent reflections and translations by creating and describing patterns*

The teacher commented: "Clear instructions were needed to introduce the task, but once the three students started, they bounced ideas off each other."

Sarah estimated and compared lengths.

Let's use our arms for the stalks: this bit (pointing to elbow) to our hands. I'll hold the string to your arm. I think my arm's longer than yours. Yes, you see, it is.

The teacher observed that the students compared their string lengths.

Mere used a non-standard unit of measurement (multilink cubes) to find the length of stems and compare them. She laid out the cubes and counted them, naming each cube with its correct number.

The middle flower is the longest. This one is only 12 blocks. The middle one is 20, so it's the biggest!

I'll use my thumb for the petals and the sticky tape for the flower circle. I'll use my hands for the leaf shapes.

The teacher noted that Jayne created leaves on either side of the stalk and talked about how she was "flipping" her hand shape to do so.

Discussion

This task provides some of the evidence needed to show that Sarah and Mere are achieving at curriculum level 1 and the year 2 standard in Measurement. They have demonstrated that they are able to compare lengths using self-chosen units (a length of string and multilink cubes). Jayne's work suggests that she is achieving at the year 2 standard in Geometry because she has shown that she can work with and describe reflections.

ILLUSTRATING THE MATHEMATICS STANDARD

Body Garden

New Zealand Curriculum: Level 2	*Mathematics Standard: After three years at school*
In solving problems and modelling situations, students will:	
Geometry and Measurement • *create and use appropriate units and devices to measure length … (measurement)* • *predict and communicate the results of translations, reflections, and rotations on plane shapes (transformation)*	*Geometry and Measurement* • *measure the lengths … of objects … using linear whole-number scales and applying basic addition facts to standard units* • *represent reflections, translations, and rotations by creating and describing patterns*

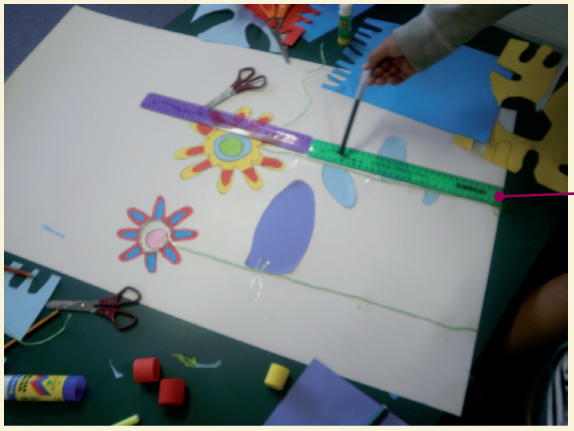
The teacher commented: "Three students worked together on this task, each creating their own flower. Here is one student's work."

I'll use my knee to foot for the length of the stalk. This is so long – I think it will be longer than your stalk. Let's see. Yes, it is!

I'll measure my wrist with string for the centre of the flower. I'm using my thumb for the petals and placing them around the flower centre.

The teacher noted that Wiremu rotated the petal shapes around the flower and explained how he did so.

Wiremu estimated and compared lengths.



In an extension to the task, Wiremu used a ruler to measure the length of a leaf in centimetres. He joined 2 rulers together and counted the centimetres accurately to find the length of the stalk.

Discussion

This task provides some of the evidence needed to show that Wiremu is achieving at early curriculum level 2 and the year 3 standard in Measurement. He has demonstrated that he is able to use a linear whole-number scale and to describe a transformation.