



## Significant Episode: Learning Through Hands On Activities

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*Finding 3.7: Kinaesthetic*

*Use kinaesthetic pedagogical practices as a point of entry to abstract mathematics knowledge.*

### Background

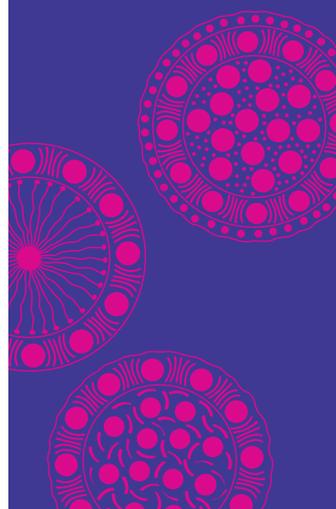
Through the professional development and collaborative sessions I was involved in, it became clear that our Indigenous students seemed to learn mathematical ideas better when a 'hands-on' approach was used. I decided to incorporate as many 'hands-on' activities as possible to help the students grasp the mathematical concepts.

### What happened?

There were many examples, but the following activities are two I used to help the students learn about circles.

1. We looked at relationships between circumference and diameter and radius lines by:
  - Cutting out a piece of wool of any size between 2 and 10 cm
  - Using our piece of wool to draw a circle one end (by holding one end down on the centre of our page and the other end onto our pencil)
  - To record the group's measurements of the wool
  - Estimating how many times our piece of wool would be needed to go around our circle and checking with our piece of wool
  - Recording all our estimates and measurements in a table
  - Analysing our table to see if there were any similarities
  - Writing what we found in a mathematical way – we discovered that if we doubled every one's piece of wool then multiply it by approx. 3, we could work out the circumference)
  - Introducing pi and its value
  - Checking pi could be part of the relationship and how
  - Extending it by working backwards (knowing the circumference, their working out the diameter or radius).
2. We looked at area of a circle by:
  - Using our same piece of wool to draw a circle on 1 cm graph paper estimating the number of square inside the circle
  - Repeating the process of collecting data in a table
  - Looking for relationships
  - Coming up with a mathematical way of writing it
  - Checking that it worked for everyone
  - Extending this by working backwards (knowing the area, and then working out the radius).

**“I believe that the hands-on approach has seen Indigenous students (and other students) engage with mathematics in a more positive way.”**



I believe that the hands-on approach has seen the Indigenous students (and other students) engage with mathematics in a more positive way...I think the increased engagement and improved attitude will eventually lead to improved results.

**Some questions to prompt discussion:**

- 1. Can you think of other mathematical concepts that students might understand better when they see, feel and can play with a concrete example of the concept?*
- 2. How could their teacher make links to abstract or symbolic representations of the mathematics?*
- 3. What other interesting or important aspects are in this Significant Episode?*

