Waka Widths

You need ☑ chalk   ☑ a group of classmates of similar height

Activity

In the past, one of the ways that Māori measured the size of a tree was by the number of people who could hold hands around its trunk.

When they wanted to make a waka, their first task was to find a tōtara tree that was a suitable size.

After a prayer (karakia) was offered to Tāne, the god of the forest, they felled the tree and removed the bark and the branches.

The tree was rolled to a swamp or pond and dropped into the water to age the wood.
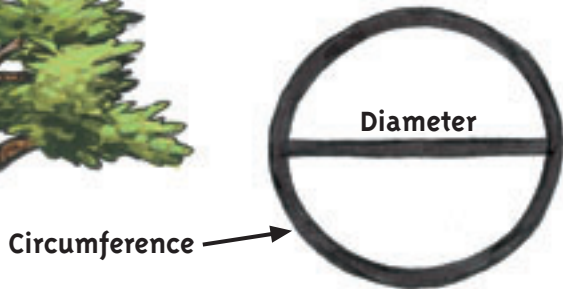
After several months, it was pulled out and left to dry.

The tree was then hollowed out to form the shell of a waka. The width of the waka was at least the arm span of one person.

1. For this exercise, it is important to use people of about the same height. Using chalk on a concrete area, mark tree circles that are:

   a. three people around (circumference of 3)

   b. six people around (circumference of 6)

   c. nine people around (circumference of 9)

   d. 12 people around (circumference of 12).

2. For each circle, find its width across (diameter) in person arm spans.

Two people at a stretch

Record the results in a table like this:

Circumference (arm spans)	Diameter (arm spans)
3	
6	
9	
12	

3. Predict the diameter of tree circles with these circumferences:

   a. 15 people around

   b. 18 people around

   c. 30 people around

   d. 10 people around.

4. Find a rule for the relationship between the circumference and the diameter.

Investigation

What circumference (in arm spans) would a tōtara tree need to be to have a waka built out of it?