

**CLASS: Math B30**  
**UNIT: Data Analysis**

**THEME: Human Face of Mathematics - Mathematics in Aboriginal Culture**

**EQUIPMENT**

- atlatl and dart
- pylon (or other easily seen target that cannot damage or be damaged by the dart)
- measuring tape
- coloured tape
- 2 Coordinate planes

**PREREQUISITE LEARNING**

- A1. To describe and illustrate normal and skewed distributions using real-world examples.
- A2. To calculate the standard deviation of a set of data.

**LEARNING OUTCOMES:**

- A3. To utilize the standard deviation to interpret data represented by a normal distribution.

**Teacher Set Up**

1. Create an x & y axis from coloured tape, each measuring 10 m.
2. Starting from the origin, in each direction, mark the tape in increments of 25 cm.
3. Create a circle of radius 3m, centred at the origin.
4. Place the pylon at the origin.
5. Divide the class into groups of no less than 3. For each group you will need one student to throw the dart, one student to measure the distance from the origin, and another to plot the data. Give each student a distance, time and accuracy chart. One student from each group will throw the dart for the sake of consistency.

**Cumulating Activity**

1. Starting from -10m on the y axis, throw the dart without the atlatl, aiming at the pylon a minimum of 20 times.
2. Plot where the atlatl lands compared to an origin, x & y axis for each length of atlatl (ignoring any that fall outside the axes).
3. Repeat steps 1 & 2 by throwing the dart with the atlatl.
4. From each set of plotted data, determine the average distance from the origin and then find standard deviation.

**Closure**

1. As a class discuss factors that may have distorted the results of the data collection.
2. Consider how the nature of the sample, method of collection and sample size could be refined to find more precise results.
3. From each group's mean and standard deviation, determine which thrower was most accurate with and without the atlatl.