GRADE 8

UNIT: Math - Ratio and Proportion
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
- distance chart
- stop watch
- calculator
- computers with a spreadsheet program

PREREQUISITE KNOWLEDGE:
Math - Ratio and Proportion
R-3 use the concept of rate to compare different quantities
R-8 compare ratios and rates
-calculate velocity

LEARNING OUTCOMES:

Math - Data Management
R-4 construct ratios and rates from real-life examples

Teacher Set Up
1. Using the coloured tape, mark off a throw line. Make sure there is ample space for students to throw the dart.
2. About 10 metres from the throw line, place a pylon so the students have something to aim at. you may have to adjust target placement depending on your students.

Culminating Activity
Student Instructions
Part 1: Maximum Distance & Speed
1. Decide on 3 or 4 students from the class to throw. Record the distance and time traveled for each length.
2. From the line, each person throws the dart 5 times without using the atlatl, aiming at the pylon.
3. Measure each throw from the line to see how far the dart traveled.
4. Record the distance and time the dart traveled for each person.
5. Repeat steps 2-4 with the atlatl.

Part 2: Physical Characteristics of Thrower

6. Measure the height of each thrower and their arm length.

Data Analysis
1. Calculate the speed for each throw
2. Determine which the maximum distance with and without the atlatl for each thrower.
3. Determine the maximum speed (v=d/t) for each thrower
4. Compare the results with and without atlatl using a spreadsheet and choosing an appropriate graph type
5. Determine whether the dart went farther and faster with or without the use of the atlatl. Think of some ideas why.
6. As a group answer the following questions:
   a) How does the physical attributes of the person throwing the atlatl effect the experiment?
   b) What other factors would effect the experiment?
   c) How could the results differ for different people throwing the dart?

Closure
As a class, form conjectures as why different throwers may have had different results and how the experiment could be changed to have more accurate results.