

GRADE 8

UNIT: Math - Ratio and Proportion

THEME: Human Face of Mathematics - Mathematics in Aboriginal Culture

EQUIPMENT

- Internet
- atlatl and dart of various lengths (For example 0.5m, 1 m, 1.5 m, 2 m)
- measuring tape
- coloured tape
- stop watch
- distance chart
- 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.
2. Divide the class into groups of no less than 4. For each group you will need one student to throw the dart, one student to measure the distance thrown, one student to time the flight of the dart and another to record the data. One student from each group will throw the dart for the sake of consistency.
3. Give each student a distance and time chart.

Culminating Activity

Student Instructions

Hypotheses

1. After your teacher demonstrates how to use the atlatl, create a hypotheses on which length of dart they think will travel the fastest.

Speed of the Dart

2. Record the distance and time traveled for each length.
3. Time the dart from the time it leaves the atlatl until it lands on the ground.

4. Throw the shortest dart about 5 times each as far as possible, not crossing the line.
5. Measure each throw from the line to see how far the dart traveled.
6. Repeat for each length of dart.

Data Analysis

1. Calculate the speed for each throw
2. Determine which length of dart traveled the fastest.
3. Compare your results to your hypotheses.
4. Represent data graphically from a spreadsheet by choosing the appropriate graph type. Justify the type of graph you used.
5. Determine which dart length had traveled the fastest.
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

1. Each group presents their findings from the experiment.
2. As a class, form conjectures as why different groups may have had different results and how the experiment could be changed to have more accurate results.