How does this relate to mathematics?

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In elementary, students must understand the difference between shapes. A tipi has many different shapes in it. The base is a circle, the sides are made up of triangles, the canvas when laid out is a semicircle and the overall finished outcome of the tipi is a cone. Also, while raising the tipi, they start with a tetrahedron.

In higher elementary and middle years grades, students look at angles, volume, surface area of 3-D objects and categorizing shapes. In ninth grade when they are required to compute the surface area of a 3-D object, they could compute the size of canvas needed to cover a tipi with a certain amount of poles. Basic knowledge of a tipi-raising is all that is needed.

Proportional reasoning is a skill that can be developed through tipi raising. The size of the tipi is based on the number of poles and the length of the poles. In lower grades it can start out as whether it will be a larger or smaller based tipi. Students are using a conjecture and have the ability to explain why a tipi is larger or smaller based on some parameters. In higher grades, students can look at if it is bigger and if so, how much bigger/smaller? The students can use their skills of proportional reasoning with the actual calculations of proportions. Percentages and fractions can also be incorporated into these questions by asking the student to increase it by a certain percentage and then they have to calculate what the length of poles are or how many poles are needed.

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