Geometry Through Origami: A Mini-Project

Essential Questions

- How has paper folding evolved into much more than an art form?
- What is the relationship between surface area and volume?

Project Description

In the Origami Math project you will learn about the role of paper folding in mathematics through constructing a piece of modular origami. You will explore the relationship between surface area and volume. Is one always bigger than the other? Can you make cubes with the same surface area but different volumes?

Project Components

For each of the following options you will work in a team of two. Equal responsibility will be shared by both teammates for calculations and research. You will both need to research how to make the origami piece AND how to calculate the surface area and volume of each shape. Are you up for the challenge?

Modular Origami Piece: Within modular origami there exist many options in the different modules used and the different polyhedra constructed. The following are the two origami pieces that you are to create. Keep in mind that there are multiple designs for each platonic solid.

- Cube: Regular platonic solid with six squares (calculations will include **surface area** and **volume**). Each student must make his/her own.

- Tetrahedron: Regular platonic solid with four triangles (calculations will include **surface area** and **volume**). Each student must make his/her own.

Extra Credit Option: Look for attached Tic-Tac-Toe Guide that will give you an array of topics to explore.