Triangular Box

Instructor Guide

Math concepts/skills:

- Properties of geometric shapes
- Congruent
- Angles
- Geometric notation

Objective:

- Students will fold a triangular box.
- Students will identify the geometric shapes created by the folds.

Vocabulary:

- **Acute angle:** An angle with a measure less than 90°.
- **Angles:** Two rays that share an endpoint.
- **Congruent:** Having exactly the same size and shape.
- **Equilateral triangle:** A triangle whose sides are all the same length.
- **Irregular polygon:** A polygon whose sides are not all the same length.
- **Isosceles triangle:** A triangle that has at least two congruent sides.
- **Obtuse angle:** An angle with a measure greater than 90° and less than 180°.
- **Parallel Lines:** Lines that are always the same distance apart.
- **Perpendicular Lines:** Lines that intersect at right angles to each other.
- **Right triangle:** A triangle that has one 90°.
- **Scalene triangle:** A triangle that has no congruent sides.

Supplies:

- 7 x 7 paper for model, 3 sheets per student, each a different color
- 6 x 6 paper for investigation
- Origami tool
- Student handout
- Protractors
- Origami notebook
- Pompoms (optional-for lids)

Video:

https://www.youtube.com/watch?v=kQOf6AXtOVo

Triangular Box

Instructor Guide

Procedure:

Have students select three different colors of 7 x 7 origami paper.

Guide students through the folding process step by step.

When each student has successfully assembled their triangular box, hand out the student handout.

Student should work together in small groups to answer the questions. Have students construct a model of their folded unit using the 6 x 6 inch square paper.

When groups have finished, close with a class discussion.

Extensions:

1. Repeat the process with three more sheets of paper to make a lid for their triangular box. The lid should be made just slightly smaller than the original. This makes the box a geometric solid, allowing students to count faces, edges, and vertices.
2. Have students determine the surface area and volume of their boxes.