Sonobe Variations
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1 Introduction

This origami activity is a variation on the Sonobe unit activity. The students loved the original origami activity and they like how these variations are just as easy to build but look more complicated. The same kinds of questions can be asked about these Sonobe units. There is a worksheet included in the Paper Folding and Polyhedra paper. The polyhedra are built in the same fashion. So the stellated octahedron and stellated icosahedron can also be made using these variations. Additionally, the original Sonobe unit and the variations can be mixed and matched.

There are two variations presented below the “bar” Sonobe and the “zig zag” Sonobe. There is a video with instructions [1] however it can be hard to follow. Instructions with pictures are given below.

2 Materials Required

1. Origami paper (two sided)

2. Diagram on how to make a Sonobe unit or variations on the Sonobe unit

3. Example of a constructed cube

3 Lesson Plan

This activity can be done in a class period or less. If the students are familiar with the Sonobe unit it may take less time as the polyhedra are constructed in the same way. Students seem to like the variations slightly better than the original Sonobe as the variations look more complicated.

The same counting questions can be asked and discussed with the students. Two sided origami paper is recommended as the color of backside of the paper is what makes the “bars” or “zig zag” pattern.
4 Instructions for Bar Variation

(a) Step 1 Fold paper down the middle and unfold

(b) Step 2 Fold edges to center line and unfold

(c) Step 3 Fold edges outward

(d) Step 4 Fold top left corner down to right edge, then fold top right corner down to left edge

(e) Step 5 Tuck upper left corner under flap on opposite side and repeat for lower right corner

(f) Step 6 Turn over and fold bottom point straight up

(g) Finished
5 References

Sonobe Origami Units

Crease paper down the middle and unfold

Fold edges to center line and unfold

Fold top right and bottom left corners up to let the triangles cross crease lines

Fold top right corner up to left edge

Fold bottom right corner down to left edge

Fold top left corner down to right edge

Fold along vertical crease lines

Fold triangles down to make sharper triangles — do not cross the crease lines

Fold along vertical crease lines

Fold upper left corner under flap on opposite side and repeat for lower right corner

Turn the paper over, crease along dashed lines as shown to complete the module

Corners of one module fit into pockets of another

A cube requires six modules

Sonobe modules also make many other polyhedra

Figure 1: http://riverbendmath.org/modules/Origami/Sonobe_Polyhedra/Activity_Directions/