HOW TO MAKE AN ORIGAMI OCTAHEDRON BALL

INTRODUCTION:
These instructions will teach you how to make an origami octahedron. The ball is constructed by assembling 12 folded units together.

This is called a Sonobe unit, named after the person who invented them. The process of using identical units and assembling them in a pattern to create large, complex, beautiful structures is considered modular origami. This type of origami requires multiple sheets of paper to make a model. By varying the number of units, you can make several other shapes. A cube requires 6 units and an icosahedron requires 30.

TIME FRAME: 30 minutes

MATERIALS:
- 2 - 8.5"x11" sheets of paper (Multi-colored ball: use 3 different colored sheets of paper)
- Scissors
- Ruler (measures inches)
- Pencil

Preparation:
➢ Make sure you have enough space and a flat surface to fold the origami.

PROCEDURE:

Step 1. Cut 12 – 3”x3” square pieces of paper

Note: The size of the squares depends on your preference of how large you want the ball to be. These instructions create a ball that fits in your hand. To save time, origami squares (4”x4”) can be used and step 1 skipped.
1.1. Draw 6 squares that are 3”x3” on a sheet of paper with the pencil and ruler.  
   **Note:** For a multi-color effect, as depicted in these instructions, use 3 different colors of paper and cut 4 squares from each.

1.2. Stack the second sheet of paper behind the first.

1.3. Cut out 12 squares of paper with the scissors.

   **Result:** 1 square 3”x3”

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**Step 2. Start the unit**

   **Note:** The more accurate the folds are, the more identical the units will be which will make each unit fit together better in the assembly process.

2.1. Take 1 square and fold it in half.

2.2. Fold the square into quarters.

2.3. Fold one triangle on the bottom right corner to the first quarter fold, rotate 180 degrees and repeat.  
   **Caution:** Triangles can be made on the bottom right or the bottom left as long as each unit is consistently folded in the same manner or else the units will not fit together.
2.4. Fold the bottom right triangle again so it meets at the first quarter fold producing a needlenose triangle, rotate 180 degrees and repeat.

Step 3. Make a parallelogram
3.1. Fold the end quarters to meet at the middle fold.

3.2. Take the bottom left corner and fold the left edge of the paper to the top, producing a triangle, rotate the paper 180 degrees and make another triangle.
3.3. Tuck the triangle into the paper, rotate 180 degrees and tuck the other triangle in.

Result: A Parallelogram

Step 4. Complete the unit
4.1. Flip over the parallelogram and rotate so it looks like this:

4.2. Fold the bottom point straight up to meet the left vertex of the parallelogram, rotate 180 degrees and repeat

4.3. Fold the paper in the middle along the diagonal and flip over for a finished unit!
Step 5. Create 12 units
5.1. Repeat steps 2 – 4 until 12 units are made.

Result: 12 units (A multicolored ball has 4 units for each color.)

Step 6. Assemble units together
   Note: Re-creasing the folds of each unit before assembly will make the edges of the finished ball sharper.

6.1. Tuck one end of a unit into the middle section of the first unit.
6.2. Tuck a third unit into the middle of the second unit.

![Image of a folded paper with a peak]

6.3. Tuck the end of the first unit into the third unit to form a peak.

Result: A Peak

![Image showing a peak formed]

6.4. Make more peaks by tucking the end of a fourth unit into the middle of another unit and so on.

Fourth unit added

Two peaks

6.5. Repeat this process until all units are added.

Note: As more units are added, the ball will curve in on itself until it is almost complete.

![Final image of a completed paper ball]
6.6. Finish the origami ball by tucking in the last ends of a peak.

Congratulations! It is beautiful.

**OTHER ORIGAMI SHAPES:**

**Cube**

To make a cube use 6 units, assembling them together in the same pattern by creating peaks.

**Icosahedron**

To make an Icosahedron use 30 units, assembling them together in the same pattern by creating peaks.
There are many different types of models you can make from sonobe units and other units. For more information on modular origami and additional structures go to:

End of Instructions