# Jitterbug

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Use 12 squares
Finished model ratio 1.0

Buckminister Fuller gave the name Jitterbug to this transformation. I first came across the Jitterbug in Amy C. Edmondson's *A Fuller Explanation* (1987). As I didn't have dowels and four-way rubber connectors, I made several cuboctahedra that worked as Jitterbugs but were not very reversible. Some were from paper and others from drinking straws and elastic thread. My first unit, Triangle Unit, was partly successful as a Jitterbug. A better result came from using three units per triangular face (or one unit per vertex) which was published in 2000.

This improved version is slightly harder to assemble but has a stronger lock. The sequence is pleasingly rhythmical and all steps have location points. The pleats in step 18 form the spring that make the model return to its cuboctahedral shape.
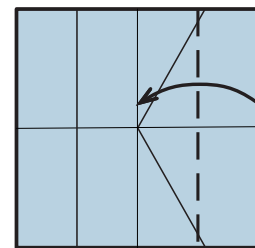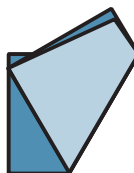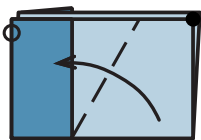
Module ★★★
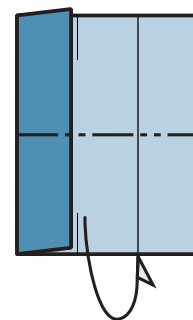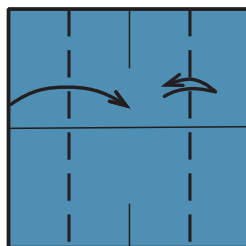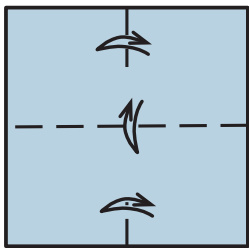
1 Make two folds in half. Do not crease the middle for the vertical fold.

2 Fold the sides to the centre. Unfold the right flap.
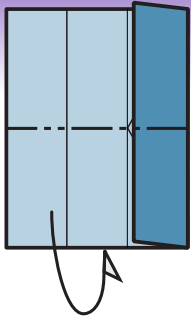
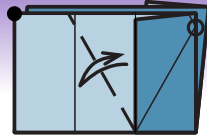**3** Fold the bottom half behind.

4 Fold the top right corner to lie on the left edge whilst the fold starts from the original centre of the square.
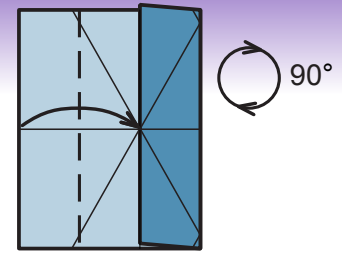
5 This creates a 60 degree angle. Unfold.

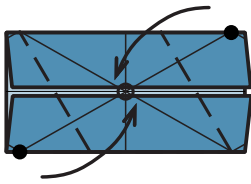**6** Fold the right edge to the centre.
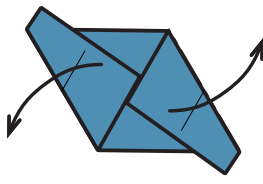
7 Fold the bottom half behind.

8 Repeat step 4 and unfold, leaving the right flap folded.

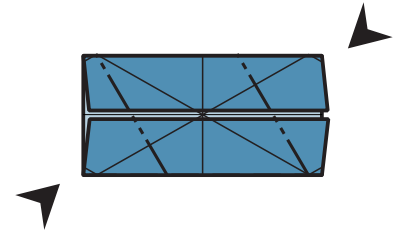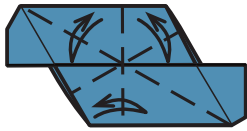**9** Fold the left edge to the centre and then rotate the model 90°.

90°

10 Bisect the 60° angles. Note that the filled circles are the ends of the crease, not the corners.
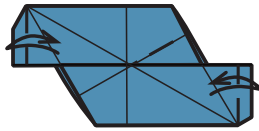
11 Unfold.

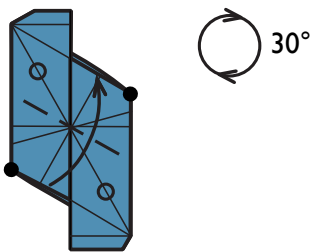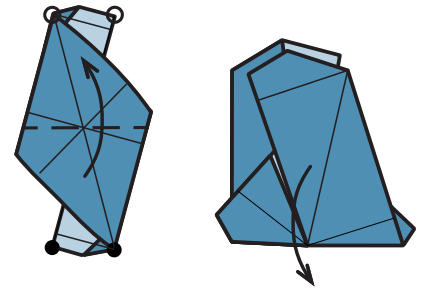**12** Reverse fold. You will need to extend the existing creases slightly.
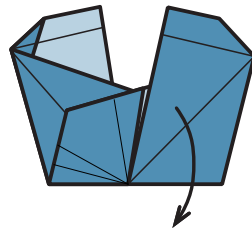
13 Reinforce three creases.

14 Precrease the ends. These creases make the third sides of partial equilateral triangles.
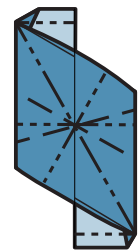
105°

15 Fold in half using the given location points. Unfold.

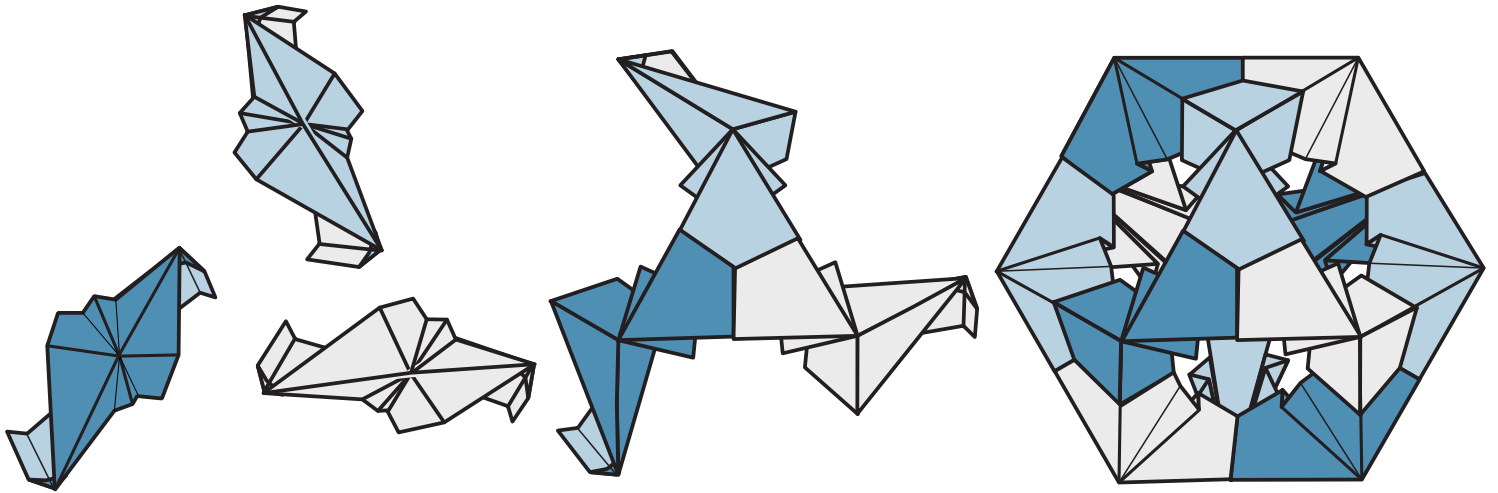**16** Fold in half using the given location points.

30°

17 Unfold.

18 Reinforce the creases and make a total of 12 units: three colours works well.
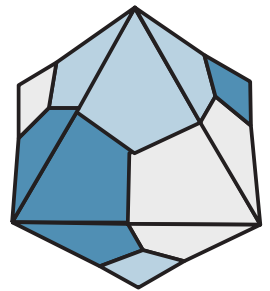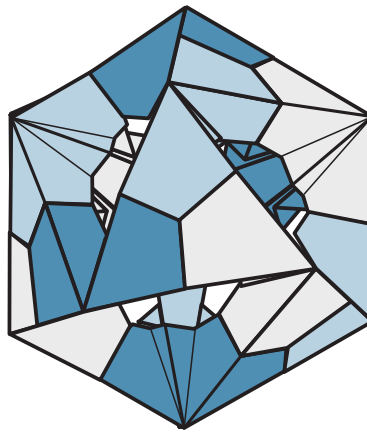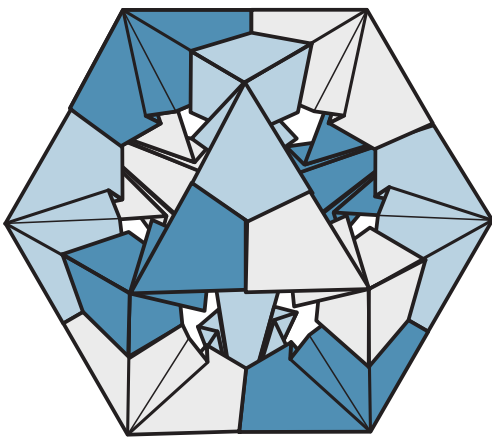
Assembly ★★★

1 Join three units to make a triangle. Use the creases from step 14 to lock the units.

2 Continue adding units to make more triangles. If you are using three colours, note that the order of colours on each face is not always the same.

3 Remember to make square "holes" with four triangles. As you make the cuboctahedron, the vertices have colours that form three rings

1 Push near and far faces together, faces will twist as they approach…

2 …the circumference will buckle, making an icosahedral configuration …

3 …continue pushing to form an octahedron.

Action

Pressing the opposite faces of Jitterbug transforms it from a truncated cuboctahedron to an octahedron — let go and it springs back to its original shape.