



MAKE ART
ANYWAY.

ART ACTIVITY
INSTRUCTIONS:
**TETRAHEDRON
BUILDING PROJECT**

@ARTSCORPS

#MAKEARTANYWAY

TETRAHEDRON BUILDING

Discipline: Visual Arts

Duration: 1 hour

Age Range: Grades 6 - 12

Creator:
Adam Collet

Contact:
integration@artscorps.org

Materials:

Cereal boxes or
Thin cardboard or
Cardstock
Scissors
Ruler
Pencil
Masking tape

Vocabulary:

Tetrahedron
Fractal
Pyramid

Here's a fun project to build with your leftover cereal boxes. In the end you'll have something cool with which to experiment and build.

Learning Goals

- You will understand that art and science use the same type of creativity when making something.
- You will learn how to build a tetrahedron.
- You will learn what a fractal is and how to build one.

Activity Opening:

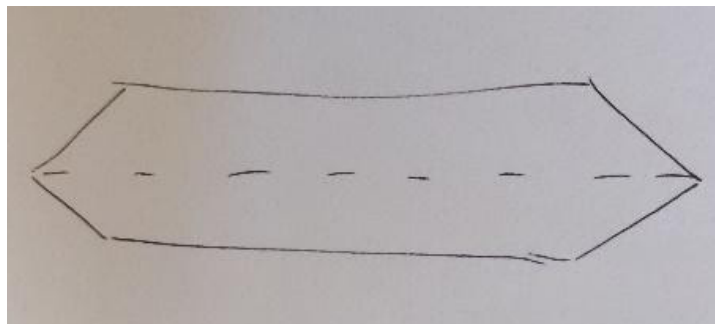
You've been stuck inside for a few weeks. What to do? Well here's a great building project that uses common materials and stuff you were just about to recycle.

Imagine for a moment you draw a triangle, then you draw a bigger triangle around that one so that each corner of the inner one touches the side of the larger one. Then you draw another triangle around the outer one, and so on and so on. You just made a **fractal**!

That's what we're about to do.

Steps/Instructions: Part I

1. Take apart a couple of your cardboard food boxes to start.
2. Cut down one side and trim the edges or flaps off.
3. Take one flat piece of the cardboard and measure and cut it into pieces 3"x 3/4". You'll need six of these pieces to get started. These will be our edge pieces.
4. Fold each piece in half lengthwise and cut the corners off at a 45 degree angle towards the fold line. Pieces should look like this:



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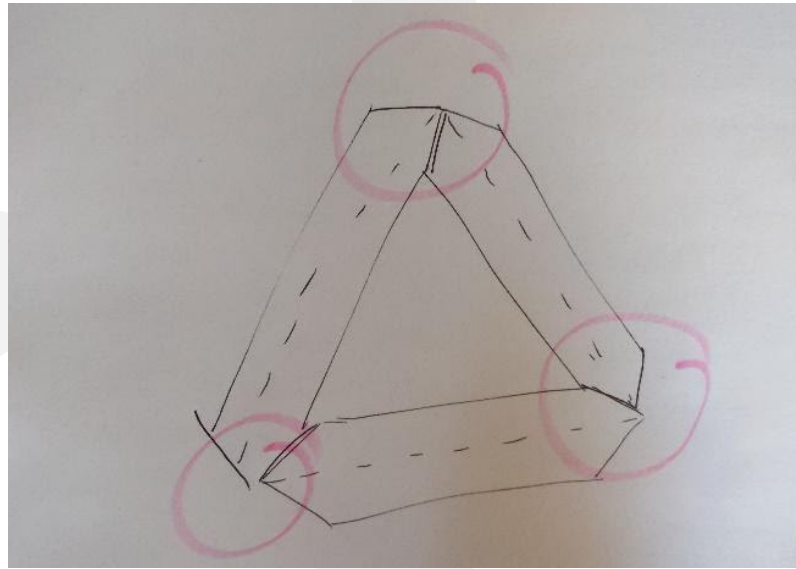
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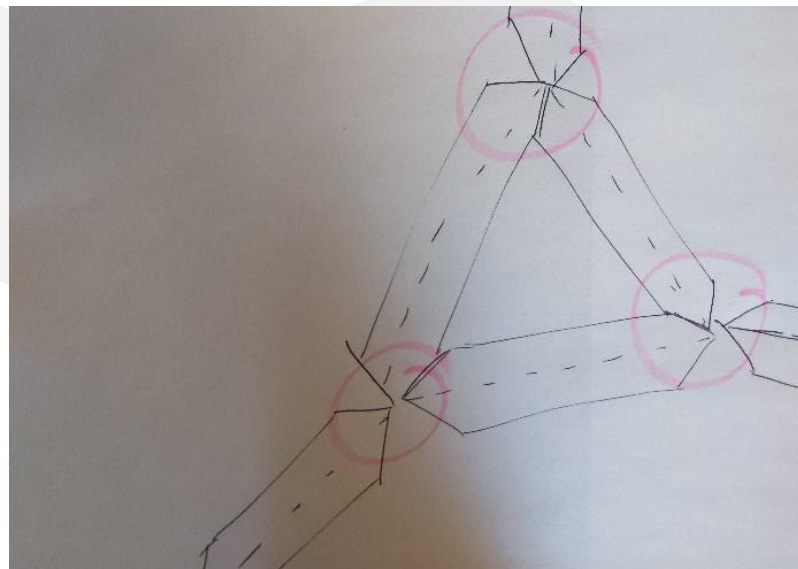
Tetrahedron
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5. Lay three pieces in a triangle formation with the fold pointed down and tape each corner together.



6. At each corner, add one more edge piece on the outside of the triangle.

7. You should now have three edge pieces at each corner of the triangle.



8. Lift up the pieces that are outside the triangle and tape them together over the center.

9. Congratulations! You just made your first tetrahedron. Let's call this a Stage 1 **tetrahedron**.

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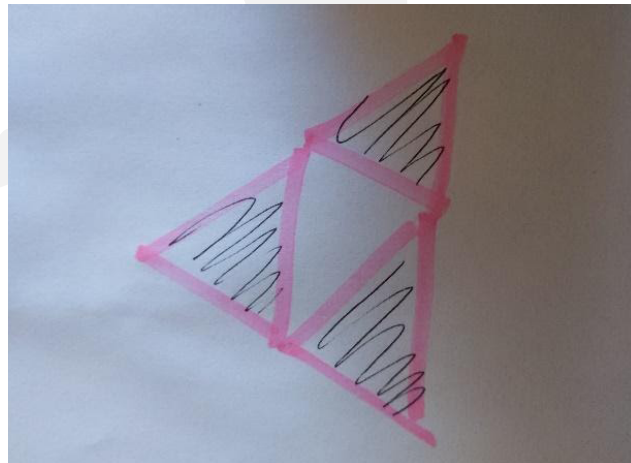
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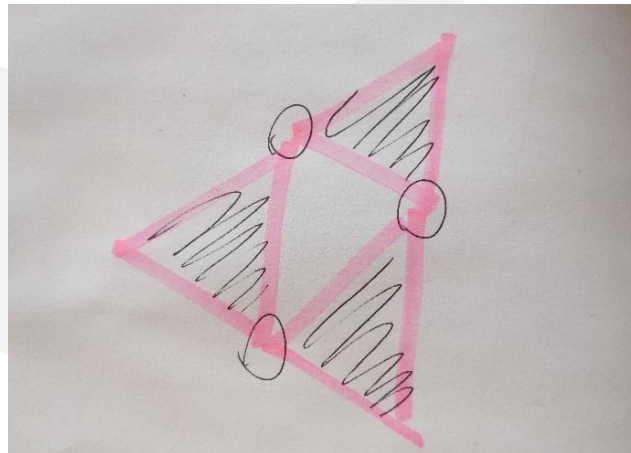
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Steps/Instructions: Part II

1. You should have **four** Stage 1 tetrahedrons now.
2. Arrange **three** of them like this:



3. Now tape the corners together that are touching.



4. Stack the fourth tetrahedron on top so that just the corners touch.
5. Congratulations! You made a Stage 2 tetrahedron. To make our final piece we're going to need three more step 2 tetrahedrons.
6. Follow the steps in Part I and II until you have 4 Stage 2 tetrahedrons.



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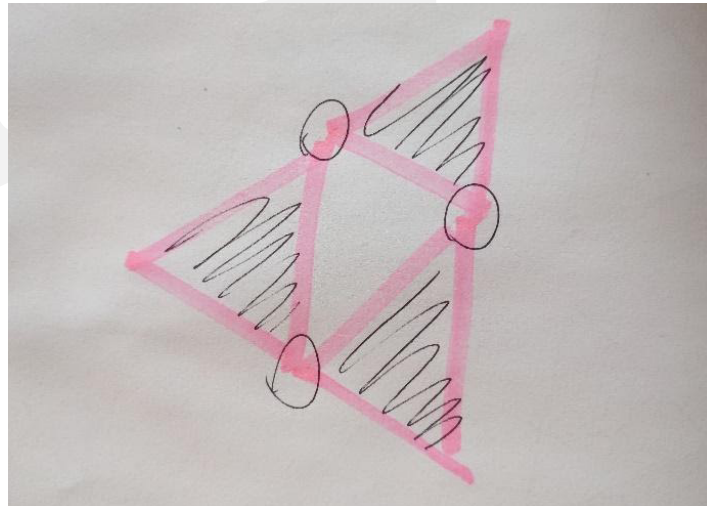
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Steps/Instructions: Part III

1. You should have four Stage 2 tetrahedrons now. We are going to arrange these Stage 2 tetrahedrons the same way we arranged our Stage 1 tetrahedrons.
2. Arrange them like this and tape the corners together.



3. Now stack the final one on top so it just touches at the edges.
4. Congratulations! You made a Stage 3 tetrahedron. This also has another name: a **Sierpinski Pyramid**. It's named after the Polish mathematician Waclaw Sierpinski. It's also a **fractal**. A fractal is a pattern of similar shapes repeated at different scales.

Activity Closing

- What else could you build with these tetrahedrons?
- Could you build a bridge? Or a tower? Or a sculpture?

I think you'll be surprised at all the different things you can make using tetrahedrons. If you make something and you want to share it send a photo to: integration@artscorps.org

**CLICK HERE TO WATCH THE VIDEO
VERSION OF THIS LESSON.**

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