

LESSON: Recycled Fractals**GRADE: 2****OBJECTIVES:****Geometry****Reason with Shapes and Their Attributes-**

- **2.G.1.** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces.1 Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

MATERIALS & RESOURCES:

- Educator's Guide from Fractal Foundation website - <http://fractalfoundation.org/fractivities/FractalPacks-EducatorsGuide.pdf>
- Items collected by students (examples: metal objects, such as nuts and bolts, wire, old door handles, bottle caps, pop top tabs, rubber bands, wood scraps, branches, pinecones, used paper rolls, old cards, bits of ribbon, yarn, etc.)
- Clean & Green Lessons, *Geometric Jumble Recycled & Recycled Art*

PRESENTATION:

Shapes are everywhere. This activity is about looking for repeated shapes or patterns. Fractals are repeated patterns on varying scales.

DIRECTIONS:

1. Show students examples of the shapes that they are going to collect. Some items might not be a familiar shape, but can be molded, bent, arranged in some way into a shape.
2. As instructed in the 2nd grade Math lesson *Geometric Jumble Recycled*, have students collect items with various shapes. See list for examples above.
3. After collection phase is complete, spend time identifying shapes from the collection.
4. Next show examples of geometric fractals (examples below). Have the students use the collected items to create fractals.
5. Consider using the Sierpinski Triangle download from the Educator's Guide found on the Fractal Foundation website- <http://fractalfoundation.org/fractivities/FractalPacks-EducatorsGuide.pdf>
6. Use the items to make art as described in the 2nd grade English Language Art lesson, *Recycled Art*.

TIME: few days to collect items + 1- 2 hours for creating art

