Whole to Part/Part to Whole

Students must understand the concept of part to whole to be able organize data.

In order to understand and label part to whole, students must be able to explore data systematically, see constancies across variations, organize space, and understand the labeling process.

We begin by directly teaching how the whole can be divided into parts and labeled with:

- Numbers.
- Letters.
- Colors.
- Symbols.

Attached pages 21 and 22 give an example of how students can use shaped blocks to work with whole to part. The student chooses a shape to trace on his/her paper. Students are given the number of parts that their shape is to be divided into. Once the shape has been traced and divided, the student then labels the parts with a number, letter, color, or symbol.

Students learn to create and label a new image by using three separate shapes. Pages 23 and 24 give an example of how one student used the three shapes to create a new image. Many younger students have difficulty with the labeling process because they continue to see separate shapes instead of individual sections. Students are encouraged to trace around the outside of the new image with a dark crayon or marker before they begin to label.

Students who don't have a concrete understanding of part to whole and whole to part will face many challenges in the classroom. Sentence structure is difficult to understand, as is paragraph construction. In order to understand the scientific process, students must first be able to organize information. Without an understanding of part/whole concepts, the task is very difficult to accomplish. An understanding of historical events requires an understanding of time, space, and part to whole.

The following activities were used to help students create a mental model for part to whole.

Purpose: To develop a mental model for whole to part and part to whole.
Materials: Pencil, wooden or plastic shape blocks and 19, 21, 24, 26, 28, 30.
Vocabulary: Corners, sides, intersection, point, segment, ray, part, whole.

Activity 1: Whole to Part, page 21

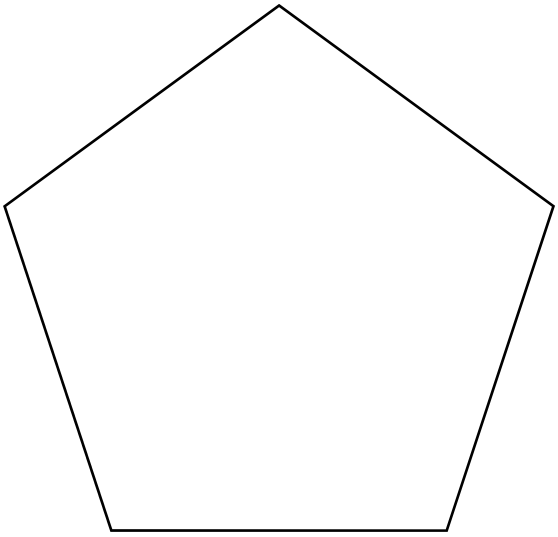
1. Students are asked to define what they see on the page.
    - How many segments?
    - How many corners?
    - How many points of intersection?
2. Students label the corners of each shape.
3. Read and label the directions.
4. Students label the final product.

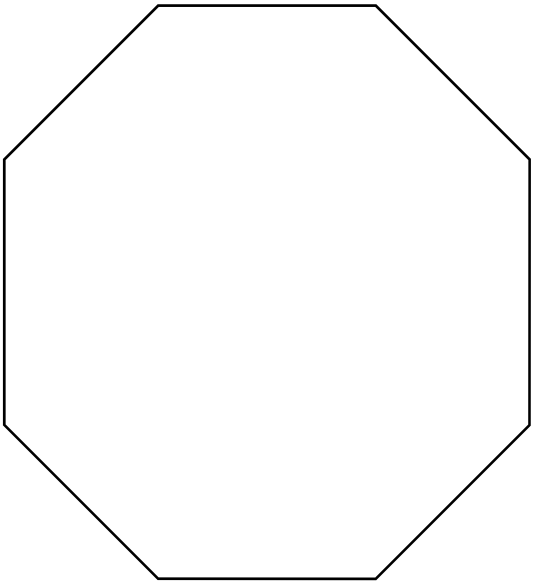
Activity 2: Part to Whole, page 23

1. Students choose or are given three plastic or wooden shape pieces. Paper examples at the bottom of the page can be used if plastic or wooden pieces are not available.
2. Students create a new image using the three shapes.
3. The image is repeated in the second box.
4. Students label the image by numbering each section.
5. Students label the image by coloring each section.

Whole to Part

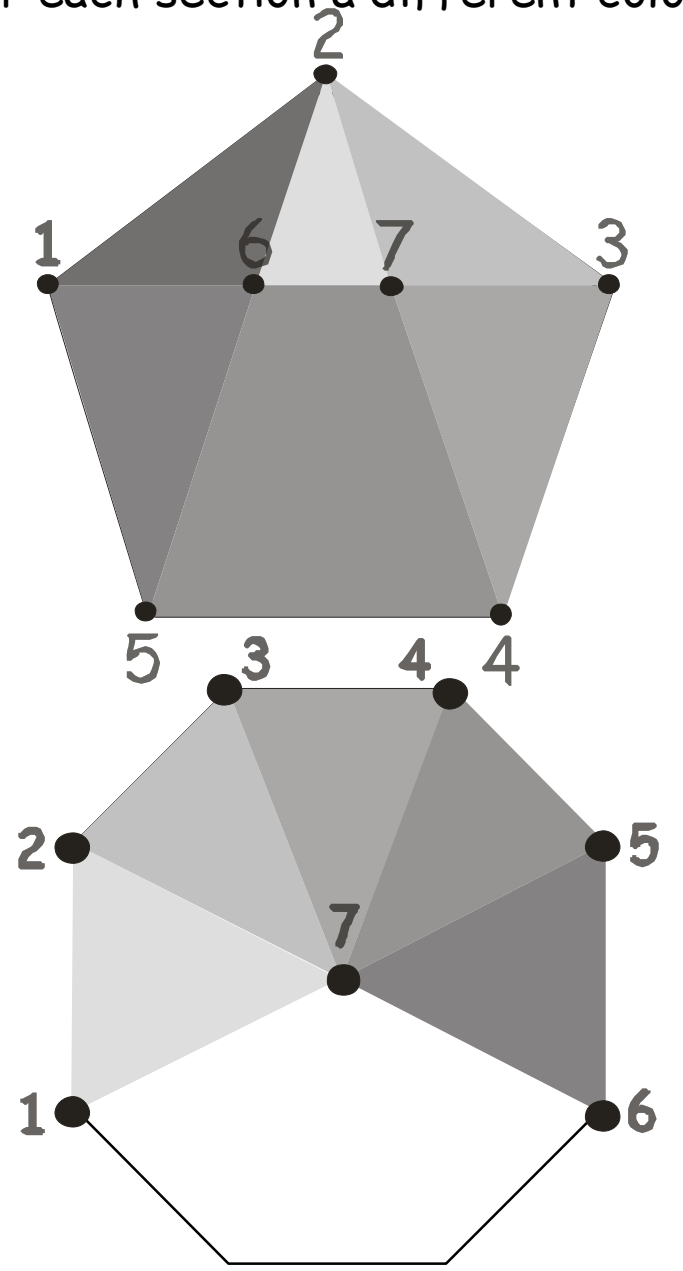
Divide each shape into six sections.
Color each section a different color.





Whole to Part

Divide each shape into six sections.
Color each section a different color.



Part to Whole

Using three shapes, create a new image in the box below. Repeat the image in the second box.

After the new image is created, number each section differently.

After the new image is created, color each section a different color.