

# Colored Sectors: Recognizing Angles

## Ages

Four and up.

## Prerequisites

The child should have experience sequencing objects of various dimensions. In a Montessori classroom, this experience should include the knobless cylinders.

## Materials

Colored sectors (Figure 1). There are templates for the colored sectors at [http://www.leonelearningsystems.com/sector\\_sheets.htm](http://www.leonelearningsystems.com/sector_sheets.htm). Each set of sectors may be kept in their own container.

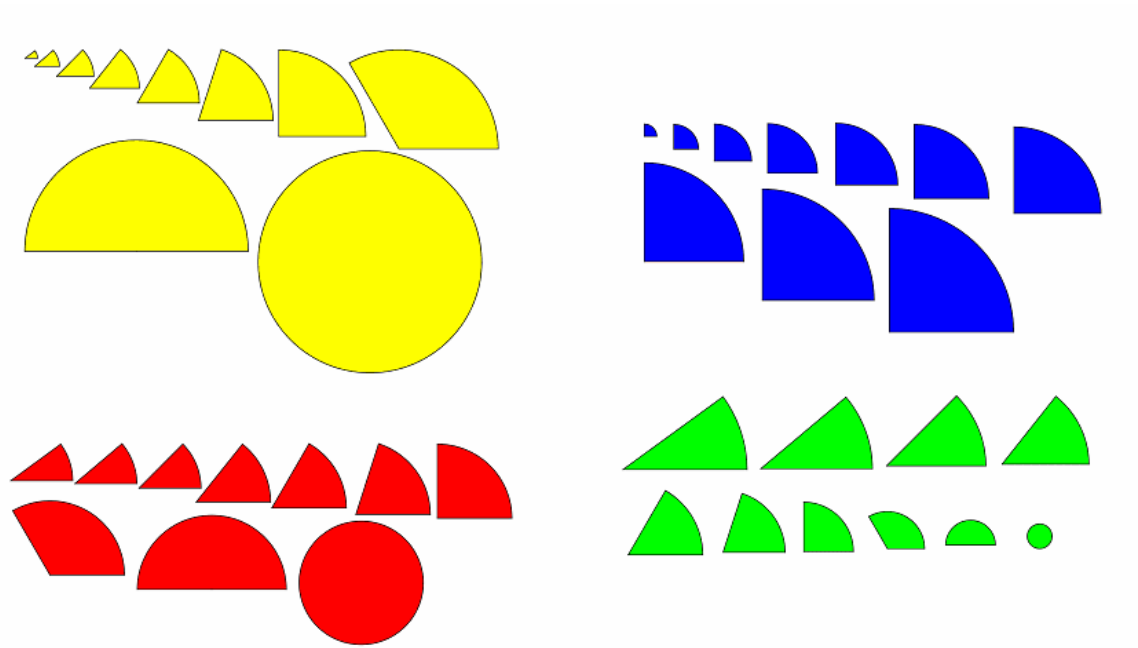
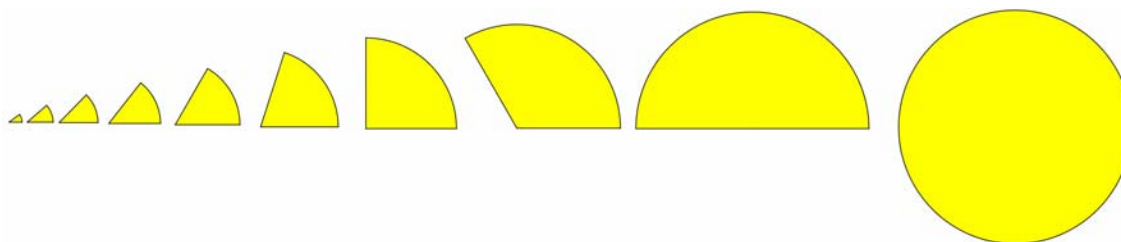


Figure 1. The yellow sectors can be placed in increasing order by both radius length and angle. The red sectors can be ordered by angle. The blue sectors can be ordered by radius length. The green sectors can be placed in increasing order by angle and simultaneously in decreasing order by radius.

## Presentation (Individual or small group)

Invite the child(ren).

For the initial presentation, only the yellow sectors (Figure 2) are used.



**Figure 2. The set of yellow sectors is the simplest set to put into sequence. The radius and angle increase together, so the total size of the sector increases rapidly as the angle increases.**

Arrange the sectors by size (smallest to largest or largest to smallest).

Return the sectors to their container.

Invite the child(ren) to put the yellow sectors in order again.

### **Variations**

After the child has experience with this activity, she may be given other sets to put in order. After she has mastered this, she can work with more than one set at a time.

### **Extensions**

The child can match yellow sectors to red and green sectors with the same angle. The yellow, red and green  $\frac{1}{3}$  (120-degree) sectors can be arranged to complete 360 degrees. The yellow, red, blue and green  $\frac{1}{4}$  (90-degree) sectors can be arranged to complete 360 degrees.

### **Points of Interest**

To match sectors by angle, the radii (straight sides) and vertices need to be aligned. Sectors can have the same central angle and different sizes.

### **Control of Error**

The teacher checks to make sure that the child correctly sequences and matches sectors.

### **Direct Aims**

Recognize angle as an attribute distinct from area or length.

### **Indirect Aims**

Preparation for drawing, describing, and measuring angles.