

## Algebra/Geometry Institute 2006

### **Lesson Plan 2: Identifying Angles**

**Faculty Name:** Toshiro Conrod

**School:** Stern Enhancement School, Greenville, Ms

**Grade Level:** 5th

**Competency:** Identify, describe, compare, and classify geometric figures.

**Benchmark:** Draw, measure, label, describe, and classify angles, quadrilateral, and triangles.

**Objective:** Identify, draw, measure, and classify acute, right, obtuse, and straight angles.

#### **Instructional Activities:**

The teacher will use a transparency to define the mathematical terms, angle, vertex, ray, acute, right, obtuse, and straight angle. The students will record notes from the transparency in their folder. The teacher will use a large clock to demonstrate the angles using certain times of the day. After students have been given numerous opportunities to identify the angle formed by the hands on the clock, they will complete an activity sheet on identifying angles. The teacher will display a transparency of the activity sheet (attachment 1) to get feedback from the students (checking for understanding).

The teacher will display a transparency of how to measure, and draw angles. The teacher will discuss with students that they use a protractor to measure an angle. The teacher will demonstrate how the protractor should be used. The teacher will use a protractor to demonstrate how to draw angles with given degrees. The students will complete a practice activity (attachment 2) on measuring and drawing angles. After students have been given time to complete the activity, the teacher will display a transparency of the activity to review measuring and drawing angles.

The students will take the information they have learned about angles to complete a group activity using geo-boards, and rubber bands (attachment 4). Each group will be given a strip of paper with directions on it telling them how to create their figure. The students will create figures with acute, right, and obtuse angles. The teacher will circulate around the room checking to see if students are creating their figures correctly. Each group will take one figure that they created and present to the class.

After completing this activity the teacher will display a transparency of an activity (attachment 3) that will check to see what facts students learned from the lesson on angles. The teacher will call on students as they volunteer to read and answer questions aloud.

**Resources:**

Saxon Math, Fifth Grade, Copyright, 1995

Moving On With Geo-boards, Copyright 1988, Creative Publications

**Materials:**

**Transparency**

**Markers**

**Activity Sheets**

**Protractors**

**Overhead Projector**

**Clock**

**Geo-boards**

**Assessment:**

The teacher will observe students to make sure that they are using a protractor correctly to draw and measure angles. The teacher will check each group to see if they are creating their geometric figures correctly. The teacher will assess the students using their oral responses.

**Attachment 1**

**Demonstrate the following times using a large clock and have the students identify the angle formed by the hands on the clock as acute, right, obtuse, or straight.**

1. 3:00

2. 1:00

3. 9:05

4. 1:30

5. 5:00

6. 3:35

7. 6:00

.

8 6:20

9. 12:15

10. 7:40

11. 2:15

12. 9:15 (Note, this is not a straight angle because the hour hand has moved 15 minutes of the time passed.)

## Attachment 2

**Directions:** For Numbers 1 through 3, draw and label an angle with the given measure and name.

1.  $\angle ABC = 135^\circ$

2.  $\angle DEF = 20^\circ$

3.  $\angle XYZ = 95^\circ$

4. What is another way to write  $\angle ABC$ ? \_\_\_\_\_

5. What is the **vertex** in  $\angle EFG$ ? \_\_\_\_\_

6. What type of angle measures  $95^\circ$ ? \_\_\_\_\_

7. Name the **rays** (sides) of  $\angle XYZ$  \_\_\_\_\_

### Attachment 3

#### Recalling Information About Angles

1. The instrument used to measure angles is called a
  - a. compass
  - b. semi-circle
  - c. ruler
  - d. protractor
2. An angle that is exactly  $90^\circ$  is a(n) \_\_\_\_\_ angle.
  - a. right
  - b. obtuse
  - c. acute
  - d. straight
3. An angle that is more than  $90^\circ$  but less than  $180^\circ$  is a(n) \_\_\_\_\_ angle.
  - a. right
  - b. obtuse
  - c. acute
  - d. reflex
4. An angle that is  $180^\circ$  exactly is a(n) \_\_\_\_\_ angle.
  - a. straight
  - b. right
  - c. obtuse
  - d. acute
5. An angle more than  $0^\circ$  but less than  $90^\circ$  is a(n) \_\_\_\_\_ angle.
  - a. straight
  - b. obtuse
  - c. right
  - d. acute
6. When two straight lines intersect, they form
  - a. an arc
  - b. an angle
  - c. a degree
  - d. a curve
7. To measure an angle, you measure
  - a. the length of the sides

- b. how far the sides are rotated from each other
- c. the circle it slices
- d. the little curve inside the angle

#### **Attachment 4 Geo-board Activity**

##### **Strip Directions:**

Make a pentagon with 2 right angles, 1 acute angle, and 2 obtuse angles. Touch 10 pins altogether.

Make a triangle with 0 right angles 2 acute angles, and 0 obtuse angles. Touch 6 pins altogether.

Make a quadrilateral with 4 right angles, 0 acute angles, and 0 obtuse angles. Touch 12 pins altogether.

Make a 6-sided figure with 2 right angles, 1 acute angle, and 3 obtuse angles.

Make a 6-sided figure with 1 right angle, 1 acute angle, and 4 obtuse angles.

Make a 5-sided figure with 1 right angle, 1 acute angle, and 3 obtuse angles.

Make an 8-sided figure with 0 right angles, 1 acute angle, and 7 obtuse angles.

Make a 6-sided figure with 2 right angles, 0 acute angles, and 4 obtuse angles.

Make a 4-sided figure with 0 right angles, 2 acute angles, and 2 obtuse angles.

Make a 6-sided figure with 0 right angles, 0 acute angles, and 6 obtuse angles.

Make a 3-sided figure with 1 right angle, 2 acute angles, and 0 obtuse angles.

Make a 7 sided figure with 1 right angle, 0 acute angles, and 6 obtuse angles.