

Right Time Geometry

Purpose

Students will use a clock to identify, describe, and draw rays, right angles, acute angles, obtuse angles, and straight angles.

Materials

For the teacher: *Clocks and More Clocks* by Pat Hutchins, demonstration clock, overhead projector, overhead transparency of Black Line Master (BLM) *Clocks, Clocks*, overhead markers
For each student: individual manipulative clocks, copy of BLM *Clocks, Clocks*, math journal, pencils

Activity

A. Introduction

1. Read *Clocks and More Clocks*.
2. Tell students they are going to be using clocks to learn some new geometry terms.

B. Teacher-Led Activity

1. Hand out a manipulative clock and a copy of the BLM *Clocks, Clocks* to each student.
2. Say: "Look at the hands of the clock. The hands start at a point and extend in a straight line toward a number on the clock." The geometry term that best fits the hands of a clock is *ray*.
3. Have students write in their math journal: *A ray is part of a line. It has one endpoint and continues on and on in one direction.*
4. Say: "An angle is formed by two rays that meet at the same point."
5. Have students look again at their clocks to see that the hands of the clock form an angle.
6. Say: "There are four kinds of angles we are going to learn about."
7. Tell students to make their clock read 3:00. The angle that is formed by the hands of the clock is a *right angle*. Have students write in their math journal: *"A right angle is an angle that forms a square corner."*
8. Ask students to find another hour setting on the clock that forms a right angle. [9:00] Tell them to draw the hands on the first clock on the BLM *Clocks, Clocks* and label the time and the angle. Model on the overhead transparency so that students can check.

(continued)



INCORPORATING **TECHNOLOGY**

Use a drawing program to draw, or a digital camera to take pictures of, shapes with straight edges and different angles. Label the angles.



MEETING INDIVIDUAL **NEEDS**

For students wanting more of a challenge, have them form angles by moving both the hour and minute hands to form different kinds of angles and answer questions similar to those on the BLM.

Standards Link
4.4.4

Activity (continued)

9. Tell students to make their clock read 2:00. Ask what they notice about the angle that is formed. Say: “This kind of angle is called an *acute* angle.” Have students write in their math journal: “An angle less than a right angle is an *acute* angle.”
10. Ask students to find another hour setting on the clock that forms an acute angle. Tell them to draw the hands on the second clock on the BLM and label the time and the angle. Draw an example on the overhead transparency so that students can check.
11. Follow this procedure to describe and define an *obtuse* and a *straight* angle.


C. Student Activity

1. Have students use their clocks to complete the BLM.
2. Tell students that the minute hand should be on the 12 so that they are using only “on the hour” time to answer questions.

Questions for Review

Basic Concepts

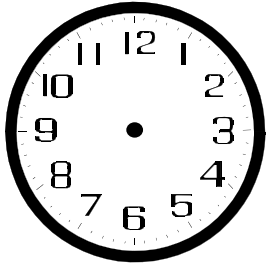
During the activity, discuss the following question with students to gauge their understanding of the indicators:

-  What type of angle is this [*indicate an angle*]: acute, right, obtuse, or straight?
-

Name: _____

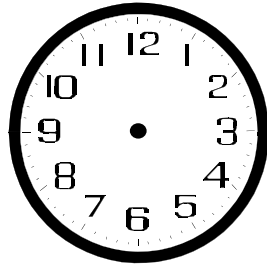
Clocks, Clocks

Follow your teacher's directions and draw the hands on the clocks and fill in the blanks:



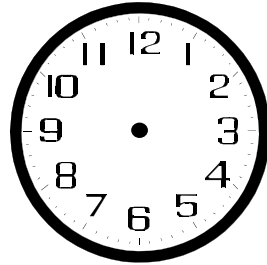
1.

Time: _____



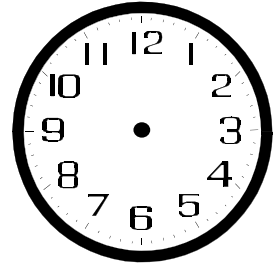
2.

Time: _____



3.

Time: _____



4.

Time: _____

Use your clock to find the answer to the following questions:

5. At what hours do the clock hands form right angles?

6. At what hours do the clock hands form acute angles?

7. At what hours do the clock hands form obtuse angles?

8. At what hours do the clock hands form straight angles?

Clocks, Clocks

Teacher Directions

Use the BLM both in the Teacher-Led Activity and the Student Activity.

Answer Key

Answers will vary depending on the instructions given to students.

5. 3:00, 9:00

6. 1:00, 2:00, 10:00, 11:00

7. 4:00, 5:00, 7:00, 8:00

8. 6:00