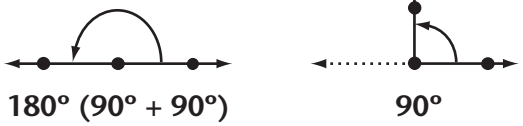
Lesson 70

Objective
Students will learn to measure angles.

Students will learn division facts with remainders with dividends up to 30 and dividends with 5 as a factor.

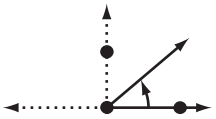
Preparation
For the entire class: a large protractor
For each student: a small protractor

Lesson Plan
Draw the diagrams shown below on the board. Go through the explanation of the measurements of the angles, how 180°, 90° and 45° compare. The purpose of this is to help the students estimate the size of an angle. Sometimes a protractor is read incorrectly. Estimating before measuring will help to eliminate errors.



180° (90° + 90°)

90°



45°

With your protractor, draw several angles on the board that are between 0° and 180°. Have the students draw the same angles with their protractors.

Next have them estimate the size of the angle and also have them explain the reasons for their estimate.
For example, the angle is less than 90°, it is more than 45° and it is about half way between what would be 90° and 45. Their estimate might be 67°. When they then measure the angle it should be between 60° to 75°.

Distribute the Lesson Sheets. Read through the Lesson and do #1 – #9 together.

Using the existing angles on the board, draw a ray to bisect the 90° angle. Explain that you have just created two angles. Ask the students to estimate the sum of the two new angles. If you add these two smaller angles together, what size would the large angle be? Help them understand that the angle measure of the whole is the sum of the angle measures of the two parts.

Draw a ray to bisect the 45° angle. Ask the students, if the new smaller angle is 20°, what size would the new angle next to it be? Write on the board: 45° - 20° = 25°. Do #7 – #9 in this way, adding rays.

Move to the group of division problems. Remind the class to calculate the multiple of the divisor that comes closest to the dividend (without going over it) and then subtract that from the dividend.

Do #10 – #15 together.

Stretch 70
If three birds can catch three worms in three minutes, how long will it take 33 birds to catch 33 worms?

Answer: 3 minutes, each group of 3 birds catches 3 worms in 3 minutes. There are 11 groups of birds (3 in each group). So in the same 3 minutes, 33 (3 x 11) worms are caught.