# Math 6 - Act. 18: Angle Land and Angle Aerobics 

Summary
Students will use a protractor to investigate different types of angle: acute, obtuse and straight.

## Materials

- Sir Cumference and the Knights of Angle Land

Protractor
Clock Protractor Overhead
Fraction Protractor Overhead

## Background for Teachers

Why is a circle divided up into 360 degrees? The degree is derived from the Babylonian base 60 numerical system. Hours and minutes are also divided into 60 's.
Mathematicians were going to use the number 365 (corresponding to the number of days in a year), but since everyone has at least 5 bad days in a year, they threw them out!
360 degrees was also used because it is easily divisible by many numbers. Students should understand the following vocabulary for this activity: right angle, obtuse angle straight angle, and acute angle.

## Intended Learning Outcomes

2. Become mathematical problem solvers.

## Instructional Procedures

## Invitation to Learn

Ask the students if they have ever heard anyone say, "That car just spun a 360 !" Or, "I can do a 180 on my skateboard." Ask them to share what they think this means.
Instructional Procedures
Read Sir Cumference and the Great Knight of Angleland.
Discuss what the medallion could represent.
Show a protractor, and explain that it is used to measure degrees in a circle.
Go over the following:
acute--a positive angle whose measure is less than 90 degrees
obtuse--an angle whose measure is greater than 90 degrees
straight--an angle whose measure is 180 degrees
right--an angle whose measure is exactly 90 degrees.
Compare a protractor to an overhead clock and fraction circle.
Have students find examples of these angles as they move around the room.
Play angle aerobics as described on the handout.
Curriculum Integration
Math/Science; Health--Increase the speed of Angle Aerobics, then talk about aerobic fitness. Have them measure resting heart rate before they exercise and then their heart rate afterwards.
Science--Have students find angles in nature, and record them. What type of objects occur naturally with angles? (spider webs, tree branches etc.)

## Extensions

Possible Extensions/Adaptations
For physically challenged students, have them point to the direction being spoken instead of moving
their bodies.
If you can do this activity outside, you can add action words like, "jump around 180 degrees," and "spin around 360 degrees."
Homework \& Family Connections
Have students play angle aerobics at home. Have students find four objects in their home that have acute, obtuse, straight, and right angles. Have them write them down so that they can share them with the class the next day.

## Assessment Plan

While students are playing angle aerobics, evaluate them visually using the following rubric;
Rubric:

1. The student can move right or left, but confuses the angles.
2. The student can move 90 degrees, 180 degrees, and 360 degrees, but confuses them.
3. The student can move 90 degrees, 180 degrees, and 360 degrees, without mistake.
4. The student can move 90 degrees, 180 degrees, and 360 degrees, and can verbalize what they have learned either in a journal or orally.

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