

# Acute One Or An Obtuse One?

---

**Objective:** To determine types of angles and estimate their measures.

**Grade Level:** 5-8  
**Subject(s):** Mathematics, Geometry  
**Prep Time:** < 10 minutes  
**Duration:** 30 minutes  
**Materials Category:** None

National Education Standards	
Science	
Mathematics	8a, 8b
Technology (ISTE)	
Technology (ITEA)	
Geography	

**Materials:**

- Student Sheets

**Related Links:**

None

**Supporting NASAexplores Article(s):**

Wide Load!  
[http://www.nasaexplores.com/show2\\_article.php?id=04-003](http://www.nasaexplores.com/show2_article.php?id=04-003)



# Acute One Or An Obtuse One?

Teacher Sheet(s)

---

## Pre-lesson Instructions

- Duplicate the Student Sheets.

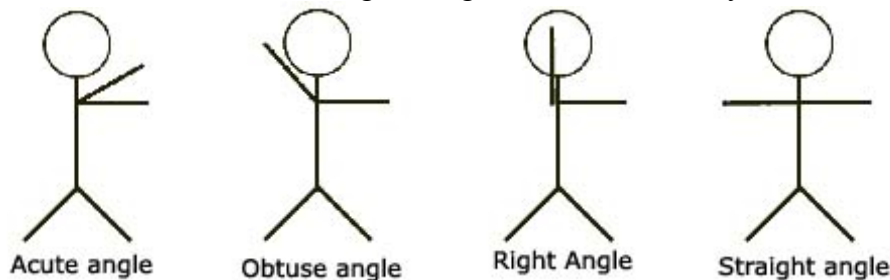
## Background Information

In this lesson, students will learn the types of angles: acute, right, and obtuse. A ray is a line with an endpoint. An angle is formed by the meeting of two rays. The point where the two endpoints meet is called the vertex.

Angles are measured in degrees ( $^{\circ}$ ) using a protractor. An angle with a measure of less than  $90^{\circ}$  is called an acute angle. The name of a  $90^{\circ}$  angle is a right angle. Angles with a measure between  $90^{\circ}$  and  $180^{\circ}$  are called obtuse angles. The measures of angle can be estimated. For example, an angle that looks to be half of a right angle is  $45^{\circ}$ .

## Guidelines

1. Read the 5-8 NASAexplores article, "Wide Load!".
2. Discuss the hinge on the Super Guppy opens  $110^{\circ}$ , which is a measurement of an angle.
3. Draw an angle with a measure of approximately  $110^{\circ}$  on the board.
4. Distribute the Student Sheets.
5. Review the definitions of the types of angles.
6. Have students act out the angles using their arms. As you call an angle name, have students form this angle using their arms as the rays.



7. Have students form the angles without the Student Sheet in view.
8. Tell students to make angles of a particular measure so that they can begin estimating the sizes of the angles.



## Discussion / Wrap-up

- Discuss how you can estimate the measure of an angle.
- Answers:

Acute— $45^\circ$	Right— $90^\circ$	Obtuse— $110^\circ$
Straight— $180^\circ$	Obtuse— $93^\circ$	Acute— $22.5^\circ$
Obtuse— $135^\circ$	Acute— $88^\circ$	Obtuse— $174^\circ$
Acute— $60^\circ$	Acute— $30^\circ$	Acute— $45^\circ$

## Extensions

- Play music to the angle dance.
- Have students stand in pairs and make complementary and supplementary angles.



# Acute One Or An Obtuse One?

*Student Sheet(s)*

---

## Background Information

An angle is two rays that are connected whose endpoints meet at a point called the vertex. Angles are measured in units called degree ( $^{\circ}$ ). To measure an angle, you measure the distance between the two rays at the vertex.

There are different kinds of angles. The names of the angles depend on the measurements of the angles. A straight angle measures  $180^{\circ}$ . A right angle is half of a straight angle, or  $90^{\circ}$ . A right angle has a corner. Angles in whose measurements are between  $90^{\circ}$  and  $180^{\circ}$  are called obtuse angles. An angle that is smaller than a right angle is an acute angle.

Many times you can estimate the measure of an angle just by looking at it. For example, if the angle looks like it is exactly half of a right angle, then its measure is  $45^{\circ}$  or half of  $90^{\circ}$ . An obtuse angle that looks as if it is exactly halfway between  $90^{\circ}$  and  $180^{\circ}$  would have a measurement of  $135^{\circ}$ . This is a right angle ( $90^{\circ}$ ) plus half of a right angle ( $45^{\circ}$ ).





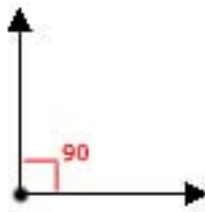


## Materials

- None

## Procedure

1. Read the definitions of each type of angle.
2. Name the type of angle, and estimate its measure in degrees.



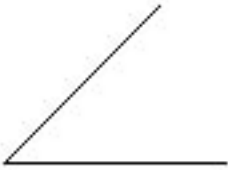




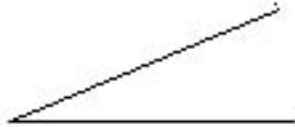
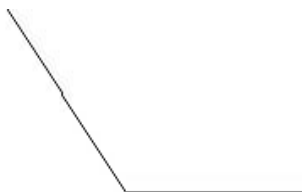



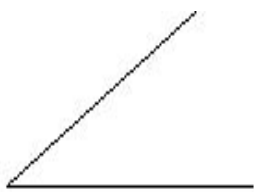

Ray—a line segment with an endpoint	
Angle—two rays that meet at a point	
Vertex—the point where the rays meet in an angle	
Straight angle—an angle with a measure of $180^\circ$	
Right angle—an angle with a measure of $90^\circ$	
Obtuse angle—an angle with the measure between $90^\circ$ and $180^\circ$	
Acute angle—an angle with a measure of less than $90^\circ$	



## Acute One Or An Obtuse One?

Name \_\_\_\_\_

What type of angle is each of the following? Choose from acute, obtuse, right, or straight. Then, estimate measure of the angle.

 _____	 _____	 _____
 _____	 _____	 _____
 _____	 _____	 _____
 _____	 _____	 _____

