MA.4.GR.1.1

Overarching Standard: MA.4.GR.1 *Draw, classify, and measure angles.*

Benchmark of Focus

MA.4.GR.1.1: Informally explore angles as an attribute of two-dimensional figures. Identify and classify angles as acute, right, obtuse, straight or reflex.

Benchmark Clarifications
Clarification 1: Instruction includes classifying angles using benchmark angles of 90° and 180° in two- dimensional figures.
Clarification 2: When identifying angles, the expectation includes two-dimensional figures and real- world pictures.

Related Benchmark/Horizontal Alignment
- MA.4.GR.1.2
- MA.4.GR.1.3

Vertical Alignment
Previous Benchmarks Next Benchmarks
MA.3.GR.1.2   MA.5.GR.1.1
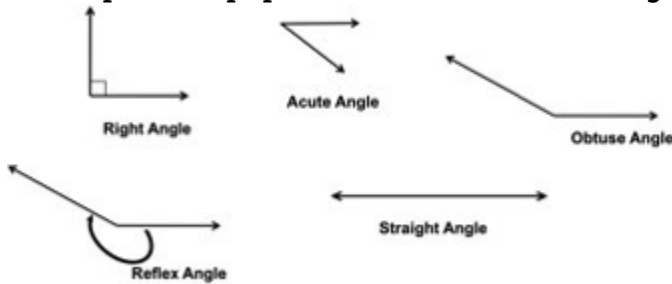

Terms from the K-12 Glossary
- Acute Angle
- Angle
- Obtuse Angle
- Reflex Angle
- Right Angle
- Straight Angle

Purpose and Instructional Strategies
The purpose of this benchmark is to begin the understanding of angles and how they can be identified in lines and shapes. Understanding angles will be used to define shapes by their attributes. This builds on the work students completed in Grade 3 to identify perpendicular lines in shapes in mathematical and real-world situations (MA.3.GR.1.1).
- During instruction, students should gain experience using benchmark angles of 90° and 180° (MTR.6.1). For right angles (90°) students can use the corner of a piece of paper. By lining the edge of the corner

of the paper on one ray to the vertex of the angle, students can determine that angles that are smaller than the corner are acute and angles that are larger than the corner are obtuse. Similarly, students can use the side of a piece of paper to determine if the angles are greater than 180°.

Common Misconceptions or Errors

- Students believe a wide angle with short sides may seem smaller than a narrow angle with long sides. Students can compare two angles by tracing one and placing it over the other. Students will then realize that the length of the sides does not determine whether one angle is larger or smaller than another angle. The measure of the angle does not change.
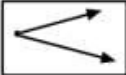
Strategies to Support Tiered Instruction

- Instruction includes providing a graphic organizer and several examples of each type of angle (acute, right, obtuse, straight and reflex). The graphic organizer will have angles labeled on them for the students to use to help them classify the figures provided.
    - o For example, the teacher provides a graphic organizer similar to the one shown below. Along with the graphic organizer, the teacher provides examples of various angles to classify.

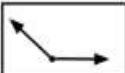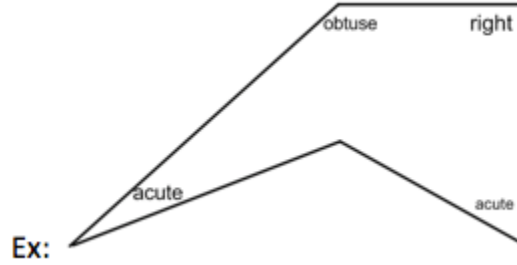| Acute Angle	Right Angle	Obtuse Angle	Straight Angle	Reflex Angle

- Instruction includes providing a right angle and a straight angle printed on a clear transparency or sheet protector. Students lay the angles over angle examples provided by the teacher to help them classify the angles as less than 90 degrees (acute angle), greater than 90 degrees (obtuse angle), exactly 90 degrees (right angle), exactly 180 degrees (straight angle), or greater than 180 degrees (reflex angle). Students trace one angle and place it over the other to compare them.
    - For example, the teacher may provide the student with a clear transparency with a right angle printed on it. The teacher provides sample angles and asks students to place the transparency over the angles. The students sort the angles into greater than 90 degrees, less than 90 degrees, and equal to 90 degrees. The teacher will then provide a straight angle printed on a transparency and have students use that to classify the angles that were sorted as greater than 90 degrees into an additional grouping. Students will determine if the angles are equal to 180 degrees or greater than 180 degrees.

Questions to ask students:
- **Identify the measure of a straight angle. Identify the possible measures of a reflex angle, right angle, acute angle, and obtuse angle.**
    - A straight angle measure 180 degrees. A right angle measures 90 degrees. An acute angle measures less than 90 degrees, an obtuse angle measures between 91 and 179 degrees, and a reflex angle measure between 181 and 359 degrees.
    - Sample answer that indicates an incomplete understanding or a misconception: *The students confuses the types of angles or has inaccurate angles measures identified.*
- **What is an example of acute angle in your classroom? What is an example of an obtuse angle in your classroom?**
    - Sample answer that indicates understanding: *The tip of my pencil forms an acute angle. The hands on the clock form an obtuse angle when one hand is on the 12 and the other hand is on the 4. .*
- **Draw a shape with at least one acute, one obtuse and one right angle. Label the angles and explain.**

Ex:

Instructional Tasks

Instructional Task 1

Part A: Draw and label an example of 3 objects that have a right angle.

Part B: Draw and label and example of 3 objects that have an acute angle.
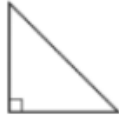
Part C: Draw and label an example of 3 objects that have an obtuse angle.

Part D: Is it possible to find an object with a reflex angle? Why or why not?

Instructional Items

Instructional Item 1

Which statement correctly describes the figure?

a.   It has 5 acute angles.

b.   It has 4 obtuse angles.

c.   It has 1 right angle and 2 acute angles.

d.   It has 2 right angles and 2 obtuse angles.

Achievement Level Descriptors

Benchmark	Context	Assessment Limits
MA.4.GR.1.1 Informally explore angles as an attribute of two-dimensional figures. Identify and classify angles as acute, right, obtuse, straight or reflex. Clarification 1: Instruction includes classifying angles using benchmark angles of 90° and 180° in two-dimensional figures. Clarification 2: When identifying angles, the expectation includes two-dimensional figures and real-world pictures.	Mathematical	Whole number degree measures may be within 0° and 360°. Items with two-dimensional figures will not include hatch marks representing sides of equal lengths, arcs representing angles of equal measure, or arrows indicating parallel lines/sides.

ALD 2	ALD 3	ALD 4	ALD 5
informally explores angles as an attribute of two-dimensional figures.	identifies angles as acute, right, obtuse, straight, or reflex.	informally explores angles as an attribute of two-dimensional figures; identifies and classifies angles as acute, right, obtuse, straight, or reflex.	identifies and classifies angles as acute, right, obtuse, straight, or reflex using two-dimensional figures and real-world pictures; justifies the classification.

Additional Resources:

CPALMS Resources

Resources/Tasks to Support Your Child at Home:

Identify angles in the real-world environment: As you are in your home, driving, at a store… look for examples of acute, right, reflex, and obtuse angles. Extend to have your child record and draw the examples of each angle found.

Khan Academy: Acute, Right, and Obtuse Angles