

# 4th Grade Geometry and Angle Measurement Unit

Use these links to access resources for this unit.

<b>BEGIN WITH THE END IN MIND!</b>	<b>Unit at a Glance</b>
<p>4th Grade Garden (<a href="#">Area/Perimeter</a>) Performance Task</p> <p><a href="#">Finding an Unknown Angle</a></p> <p><a href="#">Real world angle problems</a></p> <p><a href="#">Are these right triangles?</a></p> <p><a href="#">Lines of symmetry for quadrilaterals</a></p>	<p><b>4th Grade <a href="#">Geometry and Angle Measurement Unit</a></b></p> <p><b>Suggested Dates:</b> Dec ? – January 30</p> <p><b>Estimated Duration:</b> 20 days</p>
<b>Standards Addressed in the Unit</b>	
<p>Link to the <a href="#">CCSS Unpacking Document</a>- Updated Sept. '14</p> <p><b>Measurement and Data</b></p> <p><b>A. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</b></p> <p><b>4.MD.A3.</b> Apply the area and perimeter formulas for rectangles in real world and mathematical problems. <i>For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.</i></p>	

### **C. Geometric measurement: understand concepts of angle and measure angles.**

**4.MD.C5.** Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of

the circular arc between the points where the two rays intersect the circle. An angle that turns through  $\frac{1}{360}$  of a circle is called a

“one-degree angle,” and can be used to measure angles.

b. An angle that turns through  $n$  one-degree angles is said to have an angle measure of  $n$  degrees. Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.

**4.MD.C6.** Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

**4.MD.C7.** Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

### **Geometry**

**A. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.**

**4.G.A1-** Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

**4.G.A2-** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.

**4.G.A3-** Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.

# 4th Grade Geometry Planning Differentiation

**Note: There are extension and intervention suggestions at the end of each lesson in this unit.**

Students Who Struggle...		
Behaviors	Resources	How to Use
Line segments, points, etc.		Have them use pieces of string or straws to create different shapes. Have them label the parts of the shape (line segments, points, etc.)
Angles		Partner students up during the tasks that have them sorting out shapes and angles.
Angles		When searching for angles provide students with a hand-made angle to use when searching for angles.
Students Who Have Mastery...		
Behaviors	Resources	How to Use
Sorting	N/A	Allow them to complete the sorting activities on their own.
Vocabulary	N/A	Create a bingo game or a matching game identifying the geometric terms throughout the unit

# 4th Grade Geometry Ten Minute Math

\*These are included in the lesson plans in the unit above.

<b>Ten Minute Math</b>		
<b>Activity</b>	<b>Note</b>	<b>Standard</b>
<b>What's the Value?</b>		<b>4.NBT.1, 4.NBT.2</b>
<b>RoundOff</b>	.	<b>4.NBT.3</b>
<b>Breaking Up Angle</b>	.	<b>4.MD.7</b>
<b>Guess My Number</b>	.	<b>4.OA.4, 4.NBT.1</b>

# 4th Grade Geometry Teaching Standards for Math Practice

## Standards for Mathematical Practice

(behaviors of mathematically proficient students)

### *Building the Language of Mathematics*

*Increasing accountable talk is the goal for ALL students in our district.*

The following activities are provided to help ensure your students are engaging in mathematical conversations that address **SMP 1** (Make sense of problems and persevere in solving them.) and **SMP 6** (Attend to Precision)



### *Words you should hear students use in mathematical conversations:*

Geometric objects, properties, quadrilaterals, symmetrical, right angle, acute angle, obtuse angle, ray, vertex, degree, classify, parallel lines, perpendicular lines, line, line segment, plane, point, ray

## Building Mathematically Proficient Students

### **MP 1 –**

How can shapes be classified by their angles and lines?

How can the types of sides be used to classify quadrilaterals?

### **MP 6 –**

How are geometric objects different from one another?

How are quadrilaterals alike and different?

How are triangles alike and different?

Here is [the link for all SMP posters.](#)

Ask students to draw a shape. Share the picture with their partner. The partner then describes the shapes properties by identifying the geometric objects. The students can write a description below the shape.

Have students look around the room for different geometric figures and identify them based on their properties. For example the white board has four right angles and two sets of parallel sides. You could turn this game into a version of “I Spy”.

# 4th Grade Geometry Assessing Student Understanding

Resource:	Teaching Suggestion:
4th Grade Garden <a href="#">(Area/Perimeter)</a> Performance Task	Details within unit and task.
<a href="#">Finding an Unknown Angle</a>	
<a href="#">Real world angle problems</a>	
<a href="#">Are these right triangles?</a>	
<a href="#">Lines of symmetry for quadrilaterals</a>	
Exit Tickets	
<b>Use after lesson 1.2</b>  <b>(4.NBT.1)</b>	Day 1.  Todd's television weights about 800 pounds. What could've been the actual weight of Todd's television?
<b>Use after lesson 1.2</b>  <b>(4.NBT.1)</b>	Day 2.  Yesterday we discussed Todd's possible weight of his television. Julie choose 765 as a possible weight. Oscar didn't agree because he feels that if it has 7 hundreds, then its estimate would have been 700. Who do you agree with? Explain you answer using a number line.
<b>After Lesson 2.2</b>  <b>(4.NBT.4)</b>	Michael Jordan had 5,012 assists in his career. How many more assists did he need to reach 10,000? He played in 13 seasons. About how many more seasons would he have needed to play to accomplish this?

# 4th Grade Geometry Digital Resources

Interactive Student Resources		
Resource	Suggestion for Use:	What standard(s) are addressed?
<a href="#">Thinking Blocks</a>	This would be a great workshop station or for students who did not master or partially mastered solving word problems involving addition or subtraction word problems.	<b>4.OA.3</b> Solve multistep word problems involving addition and subtraction.
<a href="#">Number Line</a>	Use as a support to assist students with subtracting or adding on a number line, estimation or direct instruction model tool.	<b>4.NBT.3</b> Use place value understanding to round multi-digit whole numbers to any place.
<a href="#">Fluency with Addition and Subtraction Game</a>	Workshop Station	<b>4.NBT.1</b> Build fluency with addition and subtraction using the standard algorithm.

## Resources for Teachers

Resource
<p><b>Literature Connection:</b></p> <p>The Greedy Triangle</p> <p>Grandfather Tang's Story</p> <p>Seeing Symmetry</p>
<a href="#">Vocabulary List</a>

**Geometry Activities:**

[Fencing a Garden](#)

Discovery Education Clip on [lines](#)

Discovery Education Clip on quadrilaterals

[Alphabet Lines](#)

[Geoboard Line Segments](#)

[Classifying 2-dimensional figures](#)

[Classifying Triangles](#)

[Triangle Pack](#)

[Classify Triangles](#)

[How Many Tables?](#)

[Predicting and Measuring Angles](#)

[Angle Barrier Game](#)

[Angles in Triangles](#)

[Angles in Quadrilaterals](#)

[Unknown Angle Word Problems](#)

# 4th Grade Geometry Professional Learning for Teachers

Professional Learning Activities	Things to Discuss with Your Team
<p><a href="#">Line Segments on the Geoboard</a></p>	<p><b>DISCUSS THE FOLLOWING WITH YOUR GRADE LEVEL TEAM:</b></p> <p>Discuss and read the Van Hiele levels of geometric thinking in the Georgia Unit pages 3 – 4. Go through the Geometry unit and discuss each task so that you understand what the outcome is for each lesson.</p> <p>Allow students to use Geoboards to explore the different types of lines. Read the article from Math Solutions Professional Development on <a href="#">Line Segments on the Geoboard</a> by Rusty Bresser. Is there a progression of strategies that might help students move toward the standard algorithm?</p>

## 4th Grade Geometry Teacher to Teacher Files

Teacher to Teacher Files	
Smart Board/Promethean Files	Teacher Made Work
<p>Smart Board: <a href="#">Geometry Unit</a></p> <p><a href="#">Area and Perimeter</a></p> <p><a href="#">Angles</a></p> <p><a href="#">Quad Shape Card Sort</a>-for use with lessons 9 and 10 in the unit</p>	

