Topic C
Problem Solving with the Addition of Angle Measures

4.MD.7

Focus Standard:	4.MD.7	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.
Instructional Days:	3	
Coherence -Links from:	G3–M7	Geometry and Measurement Word Problems

In Topic C, students use concrete examples to discover the additive nature of angle measurement. As they work with pattern blocks in Lesson 9, students see that the measures of all of the angles at a point, with no overlaps or gaps, add up to 360°, and they use this fact to find the measure of the pattern blocks' angles.

In Lesson 10, students use what they know about the additive nature of angle measure to reason about the relationships between pairs of adjacent angles. Students discover that the measures of two angles on a straight line add up to 180° (supplementary angles) and that the measures of two angles meeting to form a right angle add up to 90° (complementary angles).

In Lesson 11, students extend their learning by determining the measures of unknown angles for adjacent angles that add up to 360°. Additionally, through their work with angles on a line, students go on to discover that vertical angles have the same measure.

In both Lessons 10 and 11, students write addition and subtraction equations to solve unknown angle problems. Students solve these problems using a variety of pictorial and numerical strategies, combined with the use of a protractor to verify answers (**4.MD.7**).

A Teaching Sequence Toward Mastery of Problem Solving with the Addition of Angle Measures

Objective 1: Decompose angles using pattern blocks.
(Lesson 9)

Objective 2: Use the addition of adjacent angle measures to solve problems using a symbol for the unknown angle measure.
(Lessons 10–11)