Geometry Blueprint and FAL Alignment

Reporting Category: Congruence and Proof

Critical Areas of Focus

G.CO.6	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.
G.CO.7	Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.
G.CO.8	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
G.CO.9	Prove theorems about lines and angles.
G.CO.10	Prove theorems about triangles.
G.CO.11	Prove theorems about parallelograms.
G.GPE.4	Use coordinates to prove simple geometric theorems algebraically.
G.GPE.5	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
G.GPE.6	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
G.GPE.7	Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.

Associated FALs

Evaluating Conditions for Congruency

This lesson unit is intended to help you assess how well students are able to:

- Work with concepts of congruency and similarity, including identifying corresponding sides and corresponding angles within and between triangles.
- Identify and understand the significance of a counter-example.
- Prove and evaluate proofs in a geometric context.

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Reporting Category: Similarity and Trigonometry

Critical Areas of Focus

G.SRT.1	Verify experimentally the properties of dilations given by a center and a scale factor.
G.SRT.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
G.SRT.3	Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
G.SRT.4	Prove theorems about triangles.
G.SRT.5	Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
G.SRT.6	Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
G.SRT.7	Explain and use the relationship between the sine and cosine of complementary angles.
G.SRT.8	Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
G.MG.1	Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).
G.MG.2	Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).
G.MG.3	Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

Associated FALs

Modeling Motion: Rolling Cups

This lesson unit is intended to help you assess how well students are able to:

- Choose appropriate mathematics to solve a non-routine problem.
- Generate useful data by systematically controlling variables.
- Develop experimental and analytical models of a physical situation.

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Deducting Relationships: Floodlight Shadows

This lesson unit is intended to help you assess how well students are able to identify and use geometrical knowledge to solve a problem. In particular, it aims to identify and help students who have difficulty in:

- Making a mathematical model of a geometrical situation.
- Drawing diagrams to help with solving a problem.
- Identifying similar triangles and using their properties to solve problems.
- Tracking and reviewing strategic decisions when problem-solving.

Proving the Pythagorean Theorem

This lesson unit is intended to help you assess how well students are able to produce and evaluate geometrical proofs. In particular, it is intended to help you identify and assist students who have difficulties in:

- Interpreting diagrams.
- Identifying mathematical knowledge relevant to an argument.
- Linking visual and algebraic representations.
- Producing and evaluating mathematical arguments.

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