Geometry Concepts and Connections

Unit 2: Geometric Foundations, Constructions, and Proofs

Overview:

In this unit, students will further develop their understanding of the basic elements of geometry by learning constructions using a straightedge and a compass. Additionally, students will begin the fundamental geometric practice of writing proofs.

Learning Targets:

In Unit 2, students will:

- Use the undefined notions of point, line, line segment, plane, distance along a line segment, and distance around a circular arc to develop and use precise definitions and symbolic notations to prove theorems and solve geometric problems.
- Classify quadrilaterals in the coordinate plane by proving simple geometric theorems algebraically
- Make formal geometric constructions with a variety of tools and methods
- Prove and apply theorems about lines and angles to solve problems
- Use geometric reasoning to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles

Key Vocabulary: (linked to GA DOE Interactive Glossary)

Angle Bisector	Alternate Exterior Angles	Alternate Interior Angles	Compass
Construction	Corresponding Angles	Distance Formulas	Line
Line Segment	Linear Pairs	Midpoint	Perpendicular Bisector
Parallelogram	Plane	Planar Region	Point
Proof	Protractor	Ray	Same Side / Consecutive Interior Angles
Same Side / Consecutive Exterior Angles	Rectangle	Theorem	Vertical Angles

Supporting Resources:

http://ctlslearn.cobbk12.org/

https://gavirtual.instructure.com/courses/34328

Quadrilaterals and Proofs

Points, Lines, and Planes

Online Construction Tool

Parallel Lines, Transversals, and Angles