Unit 6: Polygons & Quadrilaterals

Unit Length: 17 days

Domain: Congruence

•Cluster 3: Apply and prove geometric theorems

Domain: Circles

•Cluster 10: Understand and apply theorems about circles

**Standards:**

**\*HSG.CO.C.11** Apply and prove theorems about quadrilaterals Note: Theorems include but are not limited to relationships among the sides, angles, and diagonals of quadrilaterals and the following theorems concerning parallelograms: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.

**HSG.C.A.3** Construct the inscribed and circumscribed circles of a triangle • Prove properties of angles for a quadrilateral inscribed in a circle

**HSG.CO.E.14** Apply inductive reasoning and deductive reasoning for making predictions based on real world situations using: • Conditional Statements (inverse, converse, and contrapositive) • Venn Diagrams Note: This is not intended to be an isolated topic but instead to support concepts throughout the course

*\*Guaranteed Viable Curriculum*

**Vocabulary to Emphasize:**

* Polygon
* Quadrilateral
* Parallelogram
* Rectangle
* Square
* Rhombus
* Trapezoid (isosceles/right)
* Kite
* Diagonal
* Consecutive side/angle
* Opposite side/angle
* Congruent
* Parallel
* Perpendicular
* Supplementary
* Bisect
* Inscribed
* Circumscribed

Unit 6: Part 1

Polygons

6 days

Essential questions: **What are the properties of polygons?**

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| **Learning Goal** | **Notes** | **Bellwork/Exit** | **Practice** |
| Students will discover what makes a polygon and determine whether or not polygons are regular, irregular, concave, or convex. | [What Makes a Polygon? Intro Notes](https://drive.google.com/open?id=0B3ryw9LfAU6LRW9Xc0VfTVQ0dm8)  [Classifying Polygons Notes](https://drive.google.com/open?id=0B3ryw9LfAU6LTER3NzZZTkVodWs) | **BW:**  •Go over rules and  procedures again  and set up INB’s  **\*first day back from break** | Use polygon manipulatives and have students sort and classify  [Polygon Worksheet #1](https://drive.google.com/open?id=0Bw8Yn0w4uhl_eGE3andQaUV1aW8)\*  \*resource from Holt Geometry textbook and workbook pages |
| Students will solve for interior and exterior angles in polygons. | [Polygon Angle Notes](https://drive.google.com/open?id=0B3ryw9LfAU6LQ0p6QktDcEZtZm8) | **BW:**  • [Pre-assessment](https://drive.google.com/open?id=0B3ryw9LfAU6LNHNfTjZzZzNEWlk)  • [Polygons BW #1](https://drive.google.com/open?id=0B3ryw9LfAU6LdHdSMTBLUHhZemM) | [Polygon Worksheet #2](https://drive.google.com/open?id=0Bw8Yn0w4uhl_aFdzMlEtaHNFSjQ)\*  \*resource from Holt Geometry textbook and workbook pages |
| Students will set up algebraic equations and solve for interior and exterior angles in polygons. | [Polygon Angle Algebra Notes](https://drive.google.com/open?id=0Bw8Yn0w4uhl_bXhIS0QxaFdPbWc) | **BW:**  • [Polygons BW #2](https://drive.google.com/open?id=0B3ryw9LfAU6LNWl2VEt1T255Zm8) | [Polygon Worksheet #3](https://drive.google.com/open?id=0Bw8Yn0w4uhl_dmt0WUhQV1B1UkE)\*  \*resource from Holt Geometry textbook and workbook pages  **Pre-AP/Enrichment:**  [Polygon Homework Sheet](https://drive.google.com/open?id=0Bw8Yn0w4uhl_WEF6YzFaSlBOdE0) |
| Students will solve problems based on the properties of polygons. |  | **BW:**  • [Polygons BW #3](https://drive.google.com/open?id=0B3ryw9LfAU6LWENTc3ZHT3Vha2c) | [Polygon Worksheet #4](https://drive.google.com/open?id=0Bw8Yn0w4uhl_VUVOdGp0NTJSNUk) |
| Students will solve for missing angles using the properties of polygons. |  | **BW:**  • [Polygons BW #4](https://drive.google.com/open?id=0B3ryw9LfAU6LRmd5bWx4SE5SbzA) | [Polygon Worksheet #5](https://drive.google.com/open?id=0Bw8Yn0w4uhl_Z2Jkd2JjZjdBLTQ) |
| Students will solve for missing angles using the properties of polygons. |  | **BW:**  • [Polygons BW #5](https://drive.google.com/open?id=0B3ryw9LfAU6LRVNjejhVelhwTDg) | [Polygon Algebra Scavenger Hunt](https://drive.google.com/open?id=0B3ryw9LfAU6LWFlJNkJQTFh4MVU) |

[CFA #1, Version A:](https://drive.google.com/open?id=0B3ryw9LfAU6LQTRIV2VLYmRUa1U) Polygons [CFA #1- Revised Polygon Quiz 2018](https://drive.google.com/open?id=1zg1wUY-cRpsJz_1LW_FM9gjn1vE4RduD)

[CFA #1, Version B:](https://drive.google.com/open?id=0B3ryw9LfAU6Lb2RhUktTYU82SnM) Polygons

Unit 6: Part 2

Quadrilaterals

10 days

Essential questions: **What are the properties of quadrilaterals?**

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| **Learning Goal** | **Notes** | **Bellwork/Exit** | **Practice** |
| Students will explore and apply the properties of parallelograms. | [Quadrilateral Notes Foldable](https://drive.google.com/open?id=0B3ryw9LfAU6Lc2FJZlJ4U1RxdVk)\*  (Talk about parallelograms today and vocabulary)  \*resource from http://newellssecondarymath.blogspot.com/2016/02/quadrilaterals.html | **BW:**  •[Quads BW #1](https://drive.google.com/open?id=0Bw8Yn0w4uhl_SEVUQXdBWFJLX1E) | [Proving Quadrilaterals are Parallelograms Practice](https://app.box.com/s/51bssrxnoze9xb7n3dufdy1qtongzp3j)\*  \*Resource found athttp://www.mrseteachesmath.com/2017/03/quadrilaterals-inb-pages-part-1.html |
| Students will explore and apply the properties of parallelograms. |  | **BW:**  •[Quads BW #2](https://drive.google.com/open?id=0Bw8Yn0w4uhl_VGZ3NWc3cUZfY0U) | [Quadrilateral Worksheet #1](https://drive.google.com/open?id=0Bw8Yn0w4uhl_RVhEb2diVENaa28)\*  \*resource from Holt Geometry textbook and workbook pages |
| Students will apply the properties of parallelograms to algebraic equations. | [Quadrilateral Notes Foldable](https://drive.google.com/open?id=0B3ryw9LfAU6Lc2FJZlJ4U1RxdVk)\*  (The last ten or fifteen minutes of class, go over notes on squares, rhombi, and rectangles)  \*resource from http://newellssecondarymath.blogspot.com/2016/02/quadrilaterals.html | **BW:**  • [Quads BW #3](https://drive.google.com/open?id=0B3ryw9LfAU6LNUNXSnh1dGFmeWM)  **Exit**: (if time allows)  •[Quadrilateral Properties](https://drive.google.com/open?id=0Bw8Yn0w4uhl_ZW5ySmRpODRKSHc) | [Parallelogram Maze Activity](https://drive.google.com/open?id=0B3ryw9LfAU6LLTNELVMxbUo1dzA)\*  \*resource from <http://newellssecondarymath.blogspot.com/2016/02/quadrilaterals.html>  **Pre-AP/Enrichment**:  [Quadrilateral Homework #1](https://drive.google.com/open?id=0Bw8Yn0w4uhl_eDBkQWlSTWRzcmM)\*  \*resource from Holt Geometry textbook and workbook pages |
| Students will explore the properties of Squares, Rhombi, and Rectangles as related to parallelograms. | [Quadrilateral Notes Foldable](https://drive.google.com/open?id=0B3ryw9LfAU6Lc2FJZlJ4U1RxdVk)\*  (Finish going over notes of squares, rhombi, and rectangles)  \*resource from http://newellssecondarymath.blogspot.com/2016/02/quadrilaterals.html | **BW:**  • [Quads BW #4](https://drive.google.com/open?id=0B3ryw9LfAU6LYTVMZFYxUUFtU2c) | [Squares & Rhombi Partner Activity](https://drive.google.com/open?id=0B3ryw9LfAU6LUlJZYmxGMk54eU0)  \*resource from <http://newellssecondarymath.blogspot.com/p/classroom-activities.html>  **Pre-AP/Enrichment:**  [Quadrilateral Homework #2](https://drive.google.com/open?id=0Bw8Yn0w4uhl_Q3VWc0VsTUVJLVU)\*  \*resource from Holt Geometry textbook and workbook pages |
| Students will apply the properties of parallelograms, squares, rectangles, and rhombi to solve algebraic equations. |  | **BW:**  • [Quads BW #5](https://drive.google.com/open?id=0B3ryw9LfAU6LWDVicWVXRWVySlU) | [Quadrilaterals Task Cards #1-20](https://drive.google.com/open?id=0B3ryw9LfAU6LdDBkcjhOUTk3cHM)  \*resource from http://newellssecondarymath.blogspot.com/p/classroom-activities.html |
| Students will apply the properties of parallelograms, squares, rectangles, and rhombi to solve algebraic equations. |  | **BW:**  • [Quads BW #6](https://drive.google.com/open?id=0B3ryw9LfAU6LZ0pLQ0FBallBVGM)  **Exit:**  • CFA | Finish Task Cards |
| Students will explore and apply the properties of kites and trapezoids. | [Quadrilateral Notes Foldable](https://drive.google.com/open?id=0B3ryw9LfAU6Lc2FJZlJ4U1RxdVk)\*  (Talk about trapezoids and kites today)  \*resource from http://newellssecondarymath.blogspot.com/2016/02/quadrilaterals.html | **BW:**  • [Quads BW #7](https://drive.google.com/open?id=0B3ryw9LfAU6LdTA5QTIzOU9CSW8) | [Quadrilateral Worksheet #2- Kites and Trapezoids](https://drive.google.com/open?id=0Bw8Yn0w4uhl_Q3BkUlE3NEZtRDg)\*  \*resource from Holt Geometry textbook and workbook pages  **Pre-AP/Enrichment:**  [Quadrilaterals Homework #3](https://drive.google.com/open?id=0Bw8Yn0w4uhl_YnpQNkVvbUNMZXM)\*  \*resource from Holt Geometry textbook and workbook pages |
| Students will apply the properties of kites and trapezoids to solve algebraic equations. |  | **BW:**  • [Quads BW #8](https://drive.google.com/open?id=0B3ryw9LfAU6LM18tZVJEZktBd28)  **Exit:**  • CFA | [Kites & Trapezoids Practice](https://drive.google.com/open?id=0B3ryw9LfAU6LdTIwU08xcHFaSDQ) |
| Students will apply the properties of all quadrilaterals to solve algebraic equations. |  | **BW:**  • [Quads BW #9](https://drive.google.com/open?id=0B3ryw9LfAU6LRmJiMzFBMTg2dG8) | [Quadrilaterals Task Cards #21-30](https://drive.google.com/open?id=0B3ryw9LfAU6LdDBkcjhOUTk3cHM)  \*resource from http://newellssecondarymath.blogspot.com/p/classroom-activities.html  **Pre-Ap**: [Quadrilaterals Stations](https://drive.google.com/open?id=0B3ryw9LfAU6LdzlCNWUzTUt4WWc)\*  \*resource from  http://newellssecondarymath.blogspot.com/p/classroom-activities.html |
| Students will review all of the properties of polygons. |  | **BW:**  • [Quads BW #10](https://drive.google.com/open?id=0B3ryw9LfAU6LUVdOeDJoVXhvSzA) | [Unit 6 Review](https://drive.google.com/open?id=0B3ryw9LfAU6LX1hBTjFuMEVBQms) |

[CFA #2, Version A: Parallelograms](https://drive.google.com/open?id=0B3ryw9LfAU6LLXdkSFNKSmVLR1k) [CFA #2- Revised Parallelogram Quiz 2018](https://drive.google.com/open?id=1IDF18p1A90SgDwvfGbb3fAodl3Y3UBrG)

[CFA #2, Version B: Parallelograms](https://drive.google.com/open?id=0B3ryw9LfAU6LYXNKZmJTWnNSUmM)

[CFA #3, Version A: Kites & Trapezoids](https://drive.google.com/open?id=0Bw8Yn0w4uhl_a0c4QkRQVTFrLWs)

[CFA #3, Version B: Kites & Trapezoids](https://drive.google.com/open?id=0Bw8Yn0w4uhl_cThDTUExUmlQTHM)

Unit 6 [Common Summative Assessment](https://drive.google.com/open?id=0B3ryw9LfAU6LRDJYX3pNSklXUk0)

[Unit 6 Revised Summative Assessment 2018](https://drive.google.com/open?id=1uvdw0PAV-xHzHdrH_8lP5Ycl47-I7VE8)

[**Unit 6 Pre-AP Assessment**](https://drive.google.com/open?id=1CJn1bIavCi2HSAQnriZ4W8u6DBgi8IJe)

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| **Unit 6 previous learning: Where do I start/What should they know?** | |
| 3.G.1 | ​Understand that shapes in different categories (e.g. rhombuses, rectangles, and others) may share attributes (e.g. having four sides). And that the shared attributes can define a larger category (e.g. quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. |
| 5.G.3 | Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. |
| 6.G.A.3 | Apply the following techniques in the context of solving real-world and mathematical problems: Draw polygons in the coordinate plane given coordinates for the vertices • Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate |
| 7.G.A.2 | Differentiate between regular and irregular polygons. |