

Geometry Explorations

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Geometry will provide students with the foundation to continue on to additional mathematics courses. This year begins learning basic concepts and skills, giving students' the foundation to move toward higher level thinking. This class moves at a slower pace to ensure student understanding and giving students the opportunity to get additional help when needed. Success in this course will better prepare students to reach more advanced topics in their high school math careers. Geometry requires continual effort and attention. Expectations are for students to do their best everyday. It is very important that students seek help as soon as they are feeling confused, lost, or overwhelmed. We want students to experience success in mathematics and feel confident in their abilities.

Graduation Standards

Standard 1 - Reason and model quantitatively, using units and number systems to solve problems.

Standard 2 - Interpret, represent, create and solve algebraic expressions.

Standard 4 - Prove, understand, and model geometric concepts, theorems, and constructions to solve problems.

Standard 10 - Apply the formulas for area of geometric shapes, and use those formulas to solve problems.

Standard 11 - Apply the formulas for surface area of geometric shapes, and use those formulas to solve problems.

Standard 12 - Apply the formulas for volume of geometric shapes, and use those formulas to solve problems.

| Unit 1 | Tools of Geometry |
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| Summary | Students will be introduced to points, lines, and angles. Accuracy of measurement will be explored, and the concept of congruency will be introduced. |
| Performance Indicators Assessed in Unit | S2. G. Create equations that describe numbers or relationships. S4. A. Experiment with transformations in the plane. S4. D. Make geometric constructions. S4. N. Apply geometric concepts in modeling situations. |
| Unit 2 | Parallel and Perpendicular Lines and Congruent Triangles and Relationships in Triangles |
| Summary | Students will learn how to make conjectures about lines and angles and determine the validity of the conjectures. They will learn how to use slopes of equations to investigate geometric relationships, including parallel and perpendicular lines. Additionally, students will learn how to use triangles and their properties to model and analyze many real-world situations. They will also learn about relationships in and among triangles, including congruence and similarity. |
| Performance Indicators Assessed in Unit | S4. B. Understand congruence in terms of rigid motions. S4. D. Make geometric constructions. S4. E. Understand similarity in terms of similarity transformations. S4. F. Prove theorems involving similarity. |
| Unit 3 | Circles |
| Summary | Students learn the special properties of circles, including the form of their equations. They also learn about inscribed and circumscribed polygons, tangents, and secants. |
| Performance Indicators Assessed in Unit | S4. H. Understand and apply theorems about circles. S4. I. Find arc lengths and areas of sectors of circles. S4. J. Translate between the geometric description and the equation for a conic section. S4. K. Use coordinates to prove simple geometric theorems algebraically. |
| Unit 4 | Right Triangles, Proportions and Similarity |

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| Summary | Students will learn how to use triangles and their properties to model and analyze many real-world situations. They will also learn about relationships in and among triangles, including congruence and similarity. Students will apply the Pythagorean Theorem and use the geometric mean. |
| Performance Indicators Assessed in Unit | S4. B. Understand congruence in terms of rigid motions. S4. D. Make geometric constructions. S4. E. Understand similarity in terms of similarity transformations. S4. F. Prove theorems involving similarity. S4. G. Define trigonometric ratios and solve problems involving right triangles. S4. K. Use coordinates to prove simple geometric theorems algebraically. |

Summative Assessments Retake

- Students have the opportunity to retake summative assessments.
- The student must submit a retake form to the teacher within five (5) school days of the date that the summative assessment score is reported to the student.
- The highest score a student can receive on a retake or late assessment is a 75.
- The score achieved on a retake will replace the current score (even if the score is lower).
- If a student is making up a test from an absence, that assessment will be graded up to 100.

Make-up Work

Upon their return to school from an absence, it is the student's responsibility to secure make-up work from their teacher. The due date of the missed work will be one additional class period for each day of absence from that class or at the discretion of the teacher.

Grading of Formative Assessments

- Formative assessments will count as 30% of the grade.
- Formative assessments may be scored on either a 0-100 scale or a 0-4 scale.
- The 0-4 scale will be represented in Power School as 4=100, 3=87, 2=77, and 1=67.
- The method of scoring of formative assessments will be determined by assignment.