Crook County High School: Geometry

Course Length: Year Long

Instructor's Names for 2019-2020: Christine Kasberger and Amanda Groves

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Websites: Mrs. Kasberger's google classroom code: 4g76u0
Mrs. Groves' google classroom code: 7grjyiw
http://mrsgrovesmath.weebly.com

Course Description: Students will explore more complex geometric situations and deepen their explanations of geometric relationships, and present and hear formal mathematical arguments.

Goals: (SMART-specific, measurable, achievable, relevant, timeline-a reflection of specific critical content mastery): By the end of each semester 100% of students will meet or exceed geometry standards (60% or higher).

Expectations:

- Please be to class on time.
- Once you enter the room, please sit down, and quietly begin the daily opener.
- No hats in class.
- No cell phone use, you will receive a referral per school policy.
- Be Respectful, Reasonable, Responsible, and Safe at all times.
- Keep an organized notebook.
- Persevere

Notebook Requirements:

- Used to assess organization, work ethic, and thoroughness
- Needs to include all work related to the learning process, except standards assessments (these will be kept in the classroom)
- Chronological order

Supplies:

- Notebook (either spiral or composition)
- Pencils (PLENTY)
- Scientific Calculator *TI-30XIIS is recommended* (**Your cell phone cannot be used as your calculator**)

Homework/Assignment Quizzes

Homework will be assigned almost on daily basis. At least once a week there will be an assignment quiz where questions will be chosen from the homework assignments. Students will be able to use their homework on the Assignment Quiz so it is imperative to have the homework completed. In addition, part of the points on the

Assignment Quiz will come from having the corresponding homework completed at time of Assignment Quiz. Students will have several opportunities to get help and ask questions to ensure understanding of the material prior to Assignment Quizzes.

Standard Assessment Retakes

- In order to retake a test, students will need to do an error analysis on their mistakes.
- Error analysis needs to be done in the classroom outside of class time prior to retake. No tests will leave the classroom.
- A retake assignment may be given to demonstrate proficiency.
- A unit test retake needs to be completed before the next unit's test.
- Test retake grade replaces original score.

Grading Policy:

Your grade for the class will be calculated from the following categories:

75% Standard Assessments (Tests, Projects, etc.)
10% Assignments (Assignments, Quizzes, Projects, Homework)
15% Final Exam

Corresponding Letter Grade	Proficiency Scale	Percentage Scale
A	Exceptional Mastery	90 - 100
B	Mastery	80 - 89
C	Proficient	70 - 79
D	Minimal Proficiency	60 - 69
F	Does Not Meet	Below 60

Students must earn a minimum grade of a D to move on to the next mathematics class.
There will be no extra credit offered. Make-up work will have a 1-day extra per day absent time limit.

Materials: Agile Mind Textbook
www.crookcounty.agilemind.com

Notification of the Right to Object to the Use of Materials:

Any resident of the district may raise objection to instructional materials used in the district's educational program despite the fact that the individuals selecting such materials were duly qualified to make the selection and followed the proper procedure and observed the criteria for selecting such material.

The first step in expressing objection is consultation with the classroom teacher or library staff and providing a brief written complaint. The staff member receiving a complaint regarding instructional materials shall try to resolve the issue informally through the discussion of the original assignment or the opportunity for an alternative assignment.

If not satisfied with the initial explanation or an alternative assignment, the person raising the questions will meet with a building administrator who, if unable to resolve the complaint, will provide a Request for Reconsideration form which will be given to the superintendent for action.

Standards:

<table>
<tr><th>Units</th><th>Standards</th></tr>
<tr><td>Unit 1:
Simplifying Radicals/Laws of Exponents</td><td>Review of 8th grade standards</td></tr>
<tr><td>Unit 2:
Right Triangle Trigonometry & Pythagorean Theorem</td><td>
<table>
<tr><td>G-SRT.6</td><td>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.</td></tr>
<tr><td>G-SRT.7</td><td>Explain and use the relationship between the sine and cosine of complementary angles.</td></tr>
<tr><td>G-SRT.8</td><td>Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.</td></tr>
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<tr><td>Unit 3:
Area, Surface Area, Volume</td><td>
<table>
<tr><td>G-GMD.1</td><td>Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone. Use dissection arguments, Cavalieri's principle, and informal limit arguments.</td></tr>
<tr><td>G-GMD.3</td><td>Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.⋆</td></tr>
<tr><td>G-GMD.4</td><td>Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.</td></tr>
<tr><td>G-MG.1</td><td>Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).⋆</td></tr>
<tr><td>G-MG.2</td><td>Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).⋆</td></tr>
<tr><td>G-MG.3</td><td>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).⋆</td></tr>
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Unit 4:
Transformations & the Coordinate Plane

G-CO.1	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
G-CO.2	Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).
G-CO.3	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
G-CO.4	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
G-CO.5	Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

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.

Unit 5:
Dilations & Similarity

G-SRT.1	Verify experimentally the properties of dilations given by a center and a scale factor: a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. b. The dilation of a line segment is longer or shorter in the ratio given by the 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.

Unit 6:
Graphing Quadratics

A-REI.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line* $y = -3x$ and the circle $x^2 + y^2 = 3$.

F-IF.7	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases a. Graph linear and quadratic functions and show intercepts, maxima, and minima. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.

F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*

Unit 7:
Solving Quadratics

A-REI.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line* $y = -3x$ and the circle $x^2 + y^2 = 3$.
A-SSE.2	Use the structure of an expression to identify ways to rewrite it. *For example, see* $x^4 - y^4$ *as* $(x^2)^2 - (y^2)^2$, *thus recognizing it as a difference of squares that can be factored as* $(x^2 - y^2)(x^2 + y^2)$.
A-SSE.3	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression* a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
A-REI.4	Solve quadratic equations in one variable. a. the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.
A-REI.7	Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line* $y = -3x$ and the circle $x^2 + y^2 = 3$.
F-IF.8	Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.

Unit 8:
Modeling with Quadratics

F-IF.9	Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*
F-BF.3	Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k\,f(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*