Dallas High School
Home of the Dragons

GEOMETRY

2013-2014

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Office Hours: Tues-Friday 3:00-3:30; Beliakoff Tue/Thurs 8:30-10Cassim Tue/Thurs 1:30-3; Henrickson Tue-Fri 10:30-12; Hanson Wed/Fri 8:30-10, additional times by arrangement.

Course Description: This course is designed to investigate Geometry in a way that applies arithmetic, algebra and reasoning to learn about the objects that you see all around you. During this course, students will answer questions such as "How can I describe this shape?" or "How can I convince others that what I think about this shape is true?" This course places a strong emphasis on the CCSS Mathematical Practices, to develop skills in mathematical reasoning and modeling. Students will receive mathematics credit for this course toward graduation.

Prerequisite: Algebra 1 (C or above)

Textbook: CPM Geometry Connections (Vol. 1 & 2): Dietiker, Kysh, Hoey, Sallee

Course Outline

Unit	Topic	Summative Assessment
(order subject to change based on pre-assessments)		Standards 1-3, 12, 21, 27 will be assessed throughout the year
Unit 1	Shapes and Transformations	Unit Test: Standard 6, 7, 9
Unit 2	Angles and Measurement	Unit Test: Standard 17, 9
Unit 3	Justification and Similarity	Unit Test: Standards 10,15
Unit 4	Trigonometry	Unit Test: Standards 5, 16, 17
Unit 5	Congruent Triangles	Unit Test: Standard 8
Unit 6	Proofs and Quadrilaterals	Unit Test: Standards 9, 22
Unit 7	Polygons	Unit Test: Standards 13, 19
Unit 8	Circles	Unit Test: Standards 5,14,18,19, 20
Unit 9	Solids	Unit Test: Standards 23, 24, 25, 26

Standards to Be Assessed (bracketed number refer to the CCSS Standards):

Use fractions, decimals and irrational numbers to solve problems.

1. Reason quantitatively and use units and descriptive models to solve problems. [N-Q 1, 2 &3]

Use variables, expressions and equations to model and solve problems.

2. Identify, interpret and model parts of expressions such as factors, terms and coefficients. [A-SSE 1]
3. Rewrite algebraic expressions and solve equations and formulas for specific variable. [A-SSE 2]

Use the unit circle to explore trigonometric functions.

4. Identify the connection between arc length and central angle. [F-TF 1]
5. Describe the domain of trigonometric functions, interpreted as radian angle measures. [F-TF 2]

Define, create and describe rigid transformations on a coordinate plane.

6. Precisely define the terms: angle, circle, perpendicular line, parallel line, line segment, rotation, reflection, translation. [G-CO 1, 4]
7. Construct, compare and contrast single or multiple transformations of polygons. [G-CO 2,3 5]

Create geometric proofs.

8. Prove congruence by applying properties of rigid transformations. [G-CO 6, 7, 8]
9. Prove theorems about lines, angles, triangles and parallelograms. [G-CO 9,10,11]
10. Prove theorems about similar triangles, including AA~, Pythagorean theorem, and triangle midsegment theorem [G-SRT 3, 4]
11. Prove that all circles are similar, and prove properties of angles for a quadrilateral inscribed in a circle [G-C 1, 3]
12. Use coordinates to prove simple geometric theorems algebraically (prove a figure is a parallelogram, prove slope criteria). [G-GPE 4, 5]

Make formal geometric constructions.

13. Make formal geometric constructions using a variety of methods, shapes including equilateral triangles, squares, and regular hexagons inscribed in a circle. [G-CO 12, 13]
14. Construct the inscribed and circumscribed circles of a triangle. [G-C 3]

Define, create and describe similarity transformations.

15. Define and verify experimentally the properties of similarity, and use these properties to solve unknown side lengths of similar figures. [G-SRT 1, 2, 5]

Define trigonometric ratios and solve problems involving right triangles.

16. Define trigonometric ratios in terms of side ratios of similar triangles, and relationships with sine and cosine of complementary angles. [G-SRT 6, 7]
17. Apply trig ratios and the Pythagorean Theorem to solve problems involving right triangles. [G-SRT 8]

Apply theorems about circles to solve problems.

18. Identify, describe and prove the relationships among inscribed angles, radii, and chords. [G-C 2]
19. Apply (and derive) the formula for arc lengths and sectors, based on the similarity proportions of radii and central angles. [G-C 5]

Express geometric properties with equations.

20. Derive the equation of a circle, parabola, arc length, and sector. [G-GPE 1, 2][G-C 5]
21. Use coordinates to prove simple geometric theorems algebraically. [G-GPE 4]
22. Use coordinates to partition line segments in a given ratio (i.e. find the midpoint), and use the distance formula to find area and perimeter of polygons. [G-GPE 6, 7]

Solve problems with three-dimensional figures.

23. Explain volume formulas and use them to solve problems. [G-GMD 1, 3]
24. Identify the shapes of the cross-sections of three-dimensional objects, and identify 3-D objects generated by rotations of 2-D objects. [G-GMD 4]

Apply geometry concepts to model and solve problems.

25. Use geometric shapes, measures and properties to describe objects (tree trunk = cylinder). [G-MG 1]
26. Apply concepts of density based on area and volume in modeling situations. [G-MG 2]
27. Apply geometric methods to solve design problems (design an object to minimize cost). [G-MG 3]

Career Related Learning Standards: Career-related learning standards (CRLS) are fundamental skills essential for success in employment, college, family, and community life. We have integrated the Personal Management standard from the CRLS into all courses at DHS. **This standard will be assessed and communicated independent of the academic grade**. It is included below and mainly includes behaviors that will be assessed in this course.

- **Personal Management Standard**: Exhibit appropriate work ethic and behaviors in school, community and workplace.
    - Students will identify tasks that need to be done and initiate action to complete the tasks.
    - Students will plan, organize and complete projects and assigned tasks on time, meeting agreed upon standards of quality.
    - Students will take responsibility for decisions and actions and anticipate consequences of decisions and actions.
    - Students will maintain regular attendance and be on time daily.
    - Students will maintain appropriate interactions with colleagues.

Grading and Assessment: **S**tudent's final grade for each course will be broken down into two categories: 1) **Academic:** based on assessments, tests, projects and performances that measure learning. 2) **Personal Management:** based on homework completion, homework checks, and other behaviors measuring the CRLS personal management standard.

The Final grade is calculated as follows: 75% of the course grade will be based on the **Academic** grade and **25%** on the **Personal Management** grade.

- Any items included in the Academic grade (PA) may be retaken and the higher grade recorded. Teachers may extend the retake time period, but as a rule all retakes need to be done within 2 weeks of the initial assessment.
- Students will complete extra preparation before retaking an assessment.
- Personal management work turned in late may be reduced by up to 50% credit.
- Retakes are not allowed on Personal Management assignments.
- Students must schedule performance retakes at their teacher's convenience. (Speech, drama, labs, etc.)

Academic Integrity: We expect students to express academic integrity by doing their own work and properly documenting information gathered from other sources. Students who violate the principles of academic integrity will be subject to disciplinary consequences (see Insubordination section of the on-line student agenda).

Extra Credit: Extra credit is *not* offered, however students may be given additional opportunities to show mastery.

Hall Passes: All students are allowed 5 hall passes per semester. Each unused hall pass is 5 extra credit points towards their Personal Management grade at the end of the semester.

Assignment Records: Each student is to maintain records of the assignments each week and will complete a Homework Check individually using their resources created through notes, completed exercises, and textbook at the beginning of each week. The Homework Check is usually worth an equivalent number of points as the Assignments from the previous week.

Cell Phones and Electronic Devices: Mobile phones are not to be in use or in open view within classrooms, restrooms, locker rooms, or during lockdown situations. Misuse of mobile phone or electronic device will lead to the following consequences:
 1st offense - confiscated device is delivered to the main office and returned to the student at the end of the school day.
 2nd offense - confiscated device is delivered to the main office where parent/guardian will be contacted to reclaim possession.
 3rd offense – discipline referral for "insubordination", parent contact, and student will no longer be allowed to have the device at school without administrator permission
Personal Communication Devices Board Policy:
http://policy.osba.org/dallas/j/jfceb%20r%20g1.pdf

Tardies and Unexcused Absences: Points will be given towards the Personal Management grade at the end of each grading period (9 weeks/18 weeks) for daily attendance and punctuality. Points will be deducted for each tardy and each unexcused absence in that 9-week grading period. Overly disruptive behavior may also result in loss of attendance points.

Parents:

Please detach this page and return it to the teacher while keeping the rest of the syllabus.

By signing this form, you acknowledge that you have read and fully understood the expectations, rules, and standards associated with Geometry. If you have questions, please call 503-623-8336 extensions 3607, 3614, 3613, 3606 or email using the email address provided in this document.

Please return this form to the teacher as soon as possible.

Parent Name: _____

Parent Signature: _____

Parent email Address: _____

Parent Phone: _____

Student Name: _____

Student Signature: _____