**Algebra 2**

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**Course Overview**

Algebra 2 applies and extends concepts and skills developed in previous mathematics courses.  It develops deeper concepts about linear, quadratic, rational, exponential, and trigonometric functions.  New concepts, such as complex numbers, are developed to help provide new problem-solving strategies and allow broader applications of algebra to real-world situations.  Statistics and probability are discussed in the context of surveys and statistical data with a focus on deciphering conclusions and their validity.  Students will find connections between multiple representations of functions, transform function families, analyze polynomial graphs and equations, model periodic phenomena, and analyze statistical conclusions.

**Units and Topics**

* + Chapter 1: Functions
  + Chapter 2: Transformations
  + Chapter 3: Equivalent Forms
  + Chapter 4: Solving and Intersections
  + Chapter 6: Inverses and Logarithms
  + Chapter 7: Trigonometric Functions
  + Chapter 8: Polynomials
  + Chapter 9: Randomization and Normal Distributions

**Grading**

The grade in this class is based on evidence of student progress toward a reasonable number of measurable Course Objectives. The way in which grades will be reported is a descriptive scale (Exemplary, Accomplished, Developing, Beginning, Missing/Not Yet Begun) indicating the level at which each Course Objective has been met based on all of the evidence presented. Each Course Objective is considered and reported on separately. To earn credit for the year a student will have to demonstrate that they have moved beyond Beginning on **each and every** Course Objective.

A Course Objective grade is determined by a comprehensive look at all student work regarding that objective. All Course Objectives will be assessed multiple times throughout the year, and the most recent grades have more weight when determining the overall grade for that objective. Students can raise their grade in a given Course Objective by completing a retake shortly after a chapter test, or by demonstrating their understanding on a future assessment. Students are responsible for maintaining their understanding throughout the year. As objectives are reassessed, if a student can no longer demonstrate the same level of understanding, their overall grade can go down.

**Summative Assessments**

Evidence of progress toward each Course Objective will be demonstrated through summative assessments. These can include individual tests, presentations, projects, and write-ups. All summative assessments are subject to the revisions/re-take process, and I encourage students to engage in that process even if they are pleased with how they performed on the assessment. The same Course Objectives will appear on several summative assessments throughout the year, so students will have multiple opportunities to demonstrate their understanding of each Course Objective.

**Formative Assessments**

Students will develop skills, increase fluency, and build understanding through formative assessments. The primary formative assessment is homework assignments, but there are also participation quizzes, team tests, informal class presentations, and core problems. These are designed to provide feedback to me about the progress of the class as we prepare for summative assessments, but also to give students a chance to gauge, reflect on, and adjust their own learning. Formative assessments will be considered during discussions about progress toward the Mathematical Practice Standards, but summative assessments that show evidence of having met Course Objectives will ultimately decide a student’s grade.

**Student Support**

PVPA strives to support all students in their learning in whichever way works best for each individual student. I try to make myself as available for individual student support as possible by offering help before or after school, during lunch, or during D, E, and G blocks. To facilitate a flexible schedule that benefits myself, my colleagues, and all students, I will be available to help individuals or small groups BY APPOINTMENT only. I am not always present at school during all of the times that I am making myself available to help. Please do not hesitate to make an appointment or ask for help at any point during the day or year - individual help can make a huge positive impact on your success in this class.

**Materials**

Students are expected to bring the following materials to class **every day**;

* Two Pencils
* A Graph Paper Notebook
* Math Notes book (provided)
* (note that a calculator is **not required**)

**Where to Get Help**

Your first step should always be to look at my website (cmargolis.weebly.com) which will have the HW assignment posted, and will have resources for extra help. These resources are found on the CPM website (cpm.org) under “Homework Help” and “Extra Practice”.

**Attendance**

Consistent attendance is required, but if a student misses class they are expected to get that day’s HW, notes, and classwork resources from the Absent folder in my room. Students are responsible for making an appointment to learn any topics they missed in class.

**Homework**

Homework will be assigned after each class and students are expected to complete it for the next class block. Homework assignments will be posted in the classroom, as well as on my website. Homework from a given chapter will not be accepted after the assessment for that chapter.

Students will be responsible for completing homework correctly, and will be required to complete revisions for full credit. The homework grades are factored into each student’s HOWL grades, but are not factored into the final GPA grade. The parent portal will display homework as it is assigned, and will be listed as either completed (green star), collected (green circle), waiting for revision (magenta R), or missing (red circle). If a given assignment is marked with an R, it means the assignment was not completed up to standard and the student has until the chapter test to revise it up to standard.

**Timeliness (Due Dates, Revisions, and Extensions)**

All summative assessments will have a posted and announced due date. If a student needs an **extension** for any reason, requests should be made by email at least one day before the test date. These requests will be granted on a case by case basis according to my professional judgment.

Homework revisions will be accepted until the assessment of that chapter. Students should revise chapter tests to process misconceptions and learn from any mistakes. Test revisions will not be collected. In order to improve a course objective grade through retakes, students should schedule a retake outside of regular class time.

* **Honors**
* We will be creating a structured yet student-driven pathway to earning Honors Credit that works within and extends upon the Course Objectives. Information regarding what that looks like will be presented to students within the first few months of the 2014-2015 school year. This will give the math department time to ensure that the work expected for Honors Credit is reasonable and supported by the CPM program, as well as give students a chance to decide if the extra work required for Honors will be manageable for them.

**Classroom Norms**

**Group Work**

Students are expected to work productively in Study Teams that will change throughout the year. Group work fosters effective communication by having students justify their conclusions and listen to the ideas of others.

**Explaining in Writing**

Each student is expected to demonstrate progress toward the Course Objectives and Mathematical Practice Standards by writing about their mathematical process.

**Cell Phones**

The PVPA code of conduct states that cell phones are to be turned off during all class time. I will maintain a 4 stage cellphone intervention policy:

Stage 1: Verbal warning (you only get 1)

Stage 2: Confiscation for the remainder of the class block

Stage 3: Parental notification

Stage 4: Formal incident report with administration

**Taking a Break**

Students are welcome to take a bathroom or water break when they need to for a reasonable amount of time (less than 5 minutes). In order to allow students to be able to take a break as needed without needing to ask permission and/or disrupt the class I will be asking students to use a Sign-In / Sign-Out sheet posted by the door.

• Students must fill out the Sign-In / Sign-Out sheet completely

• Students must take the hall pass with them so that only one student is gone at a time

If you plan to leave the room for something that will take more than 5 minutes then you DO need to ask permission first. If you have not asked permission and you signed out more than 5 minutes I am required to contact the main office and report that you are missing from class.  Students are NOT allowed to sign out during the first or last 5 minutes of class.

**Safe Space**

We will strive to support all students at PVPA by making our classroom a safe space. All students have the right to an educational setting where they feel safe, supported, and welcome regardless of race, class, orientation, sex, gender, ethnicity, religion, or ability. I welcome suggestions on how to make this a more open and supportive space.

**Mathematical Practice Standards**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

**Course Objectives**

1. **Function Transformations**: Analyze the key features of function families and transform them to solve real-world problems.
2. **Solving Equations and Inequalities**: Solve equations and inequalities and explain the reasoning using tables, graphs, expressions, and descriptions.
3. **Polynomials and Complex Numbers**: Perform arithmetic on polynomials and complex expressions to do.
4. **Inverse Functions**: Represent and verify inverse functions graphically and algebraically.
5. **Exponential Expressions and Logarithms**: Derive and explain the structure of logarithms to solve problems involving exponential growth and decay.
6. **Trigonometry/Periodic Modeling**: Model periodic phenomena with trigonometric functions and explain with Pythagorean identities and the unit circle.
7. **Analyze Data Statistically**: Make inferences and justify conclusions about one and two variable data.

**Habits of Work and Learning (School-Wide)**

**• PREPARATION: I am prepared for class and arrive on time with organized materials and any needed attire.**

**• PARTICIPATION: I participate in my learning by engaging actively, contributing productively, and collaborating respectfully and safely.**

**• PERSONAL RESPONSIBILITY: I manage my school work by monitoring my assignment completion, meeting deadlines for assigned work and revisions, and/or successfully navigating the extension process if necessary.**