Algebra 2019-20 Syllabus

Algebra 1/2
Franklin High School
Dr. Marla Baber
Fall 2019-20

Our math program uses multiple resources to best help students gain understanding of the Common Core State Standards in high school Algebra. They include *Illustrative Mathematics*, *Mathematics Assessment Project* and *College Preparatory Math: Algebra Connections.* Students will experience mathematics through explorations related to real life situations. The area of study is mainly Algebra with connections to Geometry and Statistics and Probability through Problem Solving. We will incorporate Organizational and Communication Skills through the Common Core State Standards Mathematical Practices.

Students are required to maintain and bring to class regularly the following:
- Mathematics Journal, which will include:
    - Vocabulary, notes, classwork and home practice
- Active listening skills as shown by note taking and participating in class
- A willingness to learn and explore
- A willingness to work as a responsible group member
- A positive attitude
- A growth mindset of "**YET**"

Students will be asked to keep a Math Journal which act as the student's textbook for the class. It will contain:
- Warm up activities
- Daily classroom activities & notes
- Reflections on learning

Grades will be based on demonstrating understanding of the standards and learning targets on:
- Assessments (Tests, Quizzes, and Work Samples)
- Projects

Students have opportunities to experience algebra through differentiation of curriculum both for enrichment and reconstruction of concepts. Students are given access to concepts through different means. This is done automatically for students who are on an IEP's, TAG and in ELL. If you believe you (or your child) would benefit from differentiation, please let me know. Honors credit is available through contract and you must see Ms. Baber and *Baber's Math World* if you are interested.

Attendance is important to the learning process. Students are responsible for **all** missed content knowledge due to absences, either excused or not. This may mean having to spend time on math class during tutorial or before/after school by arrangement. You can call and excuse your student when absent at 503-916-5140 ext. 81269.

Communicating mathematical ideas is a big part of learning mathematics. Taking notes and writing about your thinking is an important part of math class and prepares students for future in college and career. Class notes are a snapshot of what is covered in class and is to be used alongside activity sheets and on-line resources. Journals serve as the textbook for this class and will be used for studying for assessments and to reflect on learning.

Cell phones are always to be away during learning as per Franklin High expectations. There will be times we will use phones in the learning environment such as using Desmos Graphing, looking at *Baber's Math World,* taking pictures of notes and doing research. In special situations students will be able to use the music applications. Students will be **clearly** informed when they may use their phones in class. I will follow the FHS Cell Phone policy if they have them out in class for non-academic uses, including listening to music during instruction and group work time.

Grading will be based on mastery of content, or proficiency. Students will earn a grade on the journal (with includes all assignments), projects and tests based on student's understanding of the concept(s) covered and learning targets. Grades will be assessed both formatively and summatively.

Formative Assessments do not affect the final grade and are meant to inform their understanding. They include short quizzes, journal writes, check-ins. Summative Assessments which will determine the grade and are based on learning targets. They are in the form of chapter/unit tests, work samples, end of term exams, and projects. Assessments will be graded by Proficiency of each learning goal or standard.

Advanced understanding of learning targets or standards: Highly Proficient	HP	4 - 3.5
Proficient understanding of learning targets or standards: Proficient	PR	3.49 - 3
Some understanding of learning targets or standards, but **NOT YET**: Close to Proficient	CP	2.99 – 2
Does **NOT YET** understand learning targets or standards: Developing Proficiency	DP	1.99 - 1

NOTE: All learning targets or standards that are **NOT YET** will need to be revisited to earn Proficiency or better.

Algebra Overview

These are the standards are from the PPS Guaranteed and Viable Curriculum that has been designed to allow all students a strong mathematics background that allows them to build future learning upon. For more information see https://www.pps.net/domain/4886

Students will use the **Mathematical Practices** of:
1. Making sense of problems and persevere in solving them.
2. Reasoning abstractly and quantitatively.
3. Constructing viable arguments and critique the reasoning of others.
4. Modeling with mathematics.
5. Using appropriate tools strategically.
6. Attending to precision.
7. Looking for and make use of structure.
8. Looking for and express regularity in repeated reasoning.

Students will learn the **Mathematical Standards** of:
1. One-Variable Statistics
Represent data with plots on the real number line (dot plots, histograms, and box plots).
Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.
2. Creating and Solving Linear Equations
Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.
Interpret parts of an expression, such as terms, factors, and coefficients.
3. Graphing Slope-Intercept Form
Priority Standards:
Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
Interpret the parameters in a linear or exponential function in terms of a context.
Write a function that describes a relationship between two quantities.
Graph linear and quadratic functions and show intercepts, maxima, and minima.
4. Graphing Standard & Point-Slope Form
Interpret the parameters in a linear or exponential function in terms of a context.
Interpret expressions that represent a quantity in terms of its context.

Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

5. Two-Variable Statistics

Represent data on two quantitative variables on a scatter plot and describe how the variables are related.

Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models.

Fit a linear function for a scatter plot that suggests a linear association.

Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

6. Systems of Linear Equations

Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

7. Inequalities

Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality) and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

8. Exponential Functions

For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features
include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

Write a function that describes a relationship between two quantities.

Interpret the parameters in a linear or exponential function in terms of a context.

9. Quadratics

Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.

Solve quadratic equations in one variable.

Graph linear and quadratic functions and show intercepts, maxima, and minima.

10. Sequences

Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

Please feel free to call on me anytime to help make the mathematics experience better. Our school number is **503-916-5140 ex. 84459** or email at **mbaber@pps.net**. For more see my website "Baber's Math World"
at https://sites.google.com/site/babersmathworld/ or scanning the code on front of this sheet.