Pre-Algebra

Course Description

8th Grade Pre-Algebra focuses largely on the prerequisite skills needed for Algebra. A few of the most significant topics include solving equations, performing geometric transformations, working with linear equations, and investigating the Pythagorean Theorem. Students will complete 9 units throughout the year; each unit including a pre-test, post-test, and one to two quizzes. Organization will also play a role in this course by keeping a binder with all class materials.

Instructor:

Monica Burke
Room 54
Email: monica.burke@central301.net
Phone: *847-464-6000*
Website: http://burkecmsmath.weebly.com/

Course Materials Required:

- *Binder*
- *Tab Dividers*
- *Pencils*
- *Calculator*
- *Chromebook*

Learning Activities

- *Pre-Tests*
- *Unit Quizzes*
- *Homework Quizzes*
- *Activities and Games*
- *Mini-Projects (only certain units)*
- *Maintaining Assessment Portfolios*
- *Word Walls (Vocabulary)*
- *Post-Test*

Pre-Algebra

Learning Outcomes

- Students will be able to investigate the different ways numbers are classified and be able to place them on a number line.
- Students will be able to connect standard notation to scientific notation and understand the purpose for using scientific notation.
- Students will be able to solve multi-step equations, including variables on both sides, and investigate the situations in which these equations would have one solution, no solutions, or infinitely many solutions.
- Students will recognize and perform the transformations that represent congruency (translations, rotations, and reflections) and the transformations that represent similarity (dilations).
- Students will understand and use the components of a linear equation to understand it's importance in both mathematical situations and real-world situations.
- Students will look at two linear equations on the same graph and determine what the intersection point of the two lines represents.
- Students will apply their knowledge of linear equations to the concept of scatter plots and use that knowledge to make conclusions regarding the data shown in the scatter plots.
- Students will use geometric formulas to find side lengths, distances between two points on a coordinate plane, and the volume of cylinders, cones, and spheres.
- Students will use parallel lines cut by a transversal to identify angle relationships and use them to solve equations, as well as use known triangle theorems to solve equations.

Pre-Algebra

Course Outline

Unit	Approximate Time Frame	Topics	Student Activities
1: Working with Real Numbers	*Q1* *Approx. 3 Weeks*	• *Rational and irrational numbers* • *Approximating square roots* • *Using square roots and cube roots*	• *Creating number lines with irrational numbers* • *Solving Equations*
2: Working with Exponents	*Q1* *Approx. 3 Weeks*	• *Using the product rule, quotient rule, and power rule with exponents.* • *Scientific notation*	• *Exponent Rules* • *Scientific Notation Switch* • *Converting back and forth between Standard Notation and Scientific Notation*
3: Equations with Rational Numbers: Algebra	*Q2* *Approx. 4 Weeks*	• *Multi step equations* • *Equations with one solution, no solution, or infinitely many solutions* • *Equations with variables on both sides*	• *Investigating the types of solutions* • *Relating numerical equations to words*
4: Transformations, Congruency, and Similarity	*Q2* *Approx. 4 Weeks*	• *Performing translations, rotations, reflections, and dilations in isolation* • *Performing translations, rotations, reflections, and dilations in a sequence*	• *Transformations of your initial* • *Describing sequences of transformations* • *Find the first image when given the figure and second image*
5: Functions	*Q3* *Approx. 5 Weeks*	• *Components of a linear equation: slope and y-intercept* • *Inputs and Outputs* • *Linear vs. Non-Linear* • *Relating functions to distance-time graphs*	• *Relating linear equations to real-world situations* • *Telephone Races* • *Mathcing*
6: Systems of Equations	*Q3* *Approx. 4 Weeks*	• *Identifying solutions by graphing linear equations* • *Identifying solutions using algebraic methods with linear equations*	• *Connecting systems of equations to real-world situations.* • *Around the school systems* • *Emoji Story*

Pre-Algebra

		(substitution and elimination)	
7: Statistics and Probability	*Q3* *Approx. 3 Weeks*	● *Rational and irrational numbers* ● *Approximating square roots* ● *Using square roots and cube roots*	● *Gathering data to create scatter plots* ● *Scatter plot projects: picking a topic to investigate and create a scatter plot.*
8: Pythagorean Theorem, Area, and Volume	*Q4* *Approx. 3 Weeks*	● *Learning to use the Pythagorean Theorem* ● *Using the converse of the Pythagorean Theorem* ● *Finding the volume of cylinder, cones, and spheres.*	● *Using Pythagorean Theorem to find distance and area.* ● *Applying volume formulas to real-world objects.* ● *Investigating the proof behind the volume of a cone.*
9: Equations with Rational Numbers: Geometry	*Q4* *Approx. 3 Weeks*	● *Angle relationships with parallel lines and a transversal* ● *Angle-Sum Theorem* ● *Angle-Angle-Similarity Theorem* ● *Exterior Angle Theorem*	● *Using angle relationships to solve equations* ● *Using the properties of triangles to solve equations* ● *Prove the Angle-Sum Theorem and Exterior Angle Theorem.*

Major Course Assignments/Assessments

Each unit will consist of the following major assignments and assessments:

- *Pre-Test (not included in grade book)*
- *Unit Quizzes (1 or 2, depending on length of unit)*
- *Word Wall*
- *Post-Test*

Each quarter, 2 binder quizzes are given (this is an organizational grade)

Grading Procedures:

- *Homework quizzes are given/graded on a daily basis.*
  - *Each quarter, the 2 lowest scores will be dropped from their grade.*
- *Unit quizzes, binder quizzes, and word walls are graded based on total points.*
- *ALL Unit tests are graded out of 100 points.*

Pre-Algebra

Grades will be determined by the following category weights:

Category	Percentage
Unit Pre-Tests	*0%*
Homework Quizzes	*25%*
Unit/Binder Quizzes/Word Walls	*35%*
Unit Post-Tests	*40%*

Grading Scale:

Letter Grade	Range
A	100-90
B	89.99-80
C	79.99-70
D	69.99-60
F	59.99-below

Absences/Make-up Work:
Students who are absent from school will be allowed to make up work for equivalent academic credit. The time allowed to makeup work will generally be one school day for every school day missed, starting with the first day the student returns to school. In extenuating circumstances a student may ask his/her teacher for additional time to make up work. It is the responsibility of the student (and his/her parent/guardian), not the teachers, to get the assignments, complete them, and turn them in, and to arrange a time with the teacher to make up any missed quizzes or tests. Incomplete work or failure to do the work may result in a lowering of grades.

Pre-Algebra

Timeframe for makeup work:

- Students will take the missed homework quiz the day they return.
- Students will complete the homework assignment they missed in full and turn it into the teacher no later than two days from the day they return. *Students will not take a homework quiz on material missed because of an absence.*

Procedure to follow to receive and submit makeup work:

1. *Student will log into Canvas and go to date missed*
2. *Student will take the homework quiz*
3. *Student will get the handouts and homework assignment missed from teacher*
3. *Student will complete the homework assignment in full*
4. *Student will turn the assignment in no later than 2 days after the date of return*

Technology Policy

The District's electronic networks, including the Internet, are part of the District's instructional program and serve to promote educational excellence by facilitating resource sharing, innovation, and communication. Use of all electronic devices allowed as part of the District's Bring Your Own Device ("BYOD") program and the District issued Chromebook must be consistent with District policies and procedures. Such electronic devices may be used during instructional time only for educational purposes as approved by the Administration or teacher. Personal devices may be used by students during non-instructional time, such as during passing periods and before or after school. Students may not place or receive phone calls during school day hours (8:12am to 2:50pm). Use is a privilege, not a right. Students and staff members have no expectation of privacy in any material that is stored, transmitted, accessed via the District's electronic networks. The District's rules for behavior and communications apply when using the electronic networks. Refer to the Chromebook Handbook issued by the district.

Classroom Technology Policy:

If students choose to bring their phone into the classroom, it will be left in a designated holder until the end of the class. Students will not be allowed to have their cell phone on their persons while in the classroom. Students are expected to bring their Chromebook to class every day.

Pre-Algebra

Academic Integrity:

Students engaging in academic dishonesty, including cheating, intentionally plagiarizing, wrongfully giving or receiving help during an academic examination, altering report cards, and wrongfully obtaining test copies or scores will be held to the standards of the 17-18 CMS Plagiarism Policy.

Plagiarism/Cheating

Using someone else's ideas, phrasing or words and representing those as your own, either on purpose or through carelessness, is plagiarism. This is the same as "copying" the ideas of someone else. This includes, but is not limited to: copying from the Internet, copying from a reference source, copying from a friend, etc. Plagiarism can encompass an entire paper, a paragraph, a sentence, or even just one word. Any work that is turned in and is found to have been plagiarized will be disciplined as follows:

- All daily work, classwork, homework, and quizzes will result in a zero
- For large/unit assessments and projects:
- 1st offense-Conference with the teacher with the option to redo the project/assessment for 50% off
- 2nd offense– Conference with the teacher, parental contact, and a zero on the project/assessment

All subsequent offenses will result in a mandatory conference with the student, teacher, principal or student service coordinator. Consequences will be handled on a case by case basis.

Resources:

Resource Teacher: Karla Baumrucker - karla.baumrucker@central301.net
Classroom Website: http://burkecmsmath.weebly.com/

**The syllabus is subject to change without notice*