7th Grade Math

Syllabus

Seventh Grade Math is designed for students to learn the standards set forth by the state of Ohio and prepare students for the Ohio Seventh Grade Achievement test. To do this the student needs to have basic skills in Number sense, Linear Algebra, Probability, Measurement, and Geometry skills.

Classroom Management

I Respect all my students ideas and attitudes and I expect them to respect me as a teacher, and their fellow students as individuals. Attached is a copy of the class rules. A lack of respect can result in the following:

Detentions – for small infractions of class rules
Parent calls – for repeated disrespect
Office referrals – for problems that cannot be handled in any other fashion.

Grading

Grading in all my classes is based on a point system. Tests are worth 100 points, Homework is worth 10 - 20 points, and other projects are scaled on the difficulty of the assignment.

Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>93-100</td>
<td>A</td>
</tr>
<tr>
<td>85-92</td>
<td>B</td>
</tr>
<tr>
<td>70-84</td>
<td>C</td>
</tr>
<tr>
<td>65-69</td>
<td>D</td>
</tr>
<tr>
<td>Below 65</td>
<td>F</td>
</tr>
</tbody>
</table>

Required Materials

Notebook, pencil, calculator, portfolio binder (pockets and three hole compatible)

Content Standards

Content standards for the seventh grade are set forth by the state of Ohio. I have supplied a copy of the standards, they can be found online at [www.ode.state.oh.us](http://www.ode.state.oh.us), or upon request.

E-mail: Tbacon@crestviewlocal.k12.oh.us
Mr. Bacon’s 7th Grade Math Class Rules

• Rules

1) Maximum of THREE people at a table.

2) Be respectful of others questions and comments.

3) Raise your hand before answering.

4) Finish your work correctly when assigned. There will be times to have fun, but there is work to be done.

5) During tests there is NO TALKING unless you are asking the teacher a question.

   Talking while ANYONE is still taking a test will reduce your grade on the test.

• Consequences

1) I will bring attention to misbehavior. You will have one warning.

2) I will remove you from class for five minutes.

3) Once you have returned to class, you will receive a detention for continued rule breaking.

4) I will remove you to Mr. McKay’s office.

For offenses repeated over days, I will make Parent phone calls.
Grade Seven  
Number, Number Sense and Operations Standard

**Number and Number Systems**

1. Demonstrate an understanding of place value using powers of 10 and write large numbers in scientific notation.  
2. Explain the meaning of exponents that are negative or 0.  
3. Describe differences between rational and irrational numbers; e.g., use technology to show that some numbers (rational) can be expressed as terminating or repeating decimals and others (irrational) as non-terminating and non-repeating decimals.  
4. Use order of operations and properties to simplify numerical expressions involving integers, fractions and decimals.  
5. Explain the meaning and effect of adding, subtracting, multiplying and dividing integers; e.g., how adding two integers can result in a lesser value.  

**Meaning of Operations**

6. Simplify numerical expressions involving integers and use integers to solve real-life problems.  
7. Solve problems using the appropriate form of a rational number (fraction, decimal or percent).  
8. Develop and analyze algorithms for computing with percents and integers, and demonstrate fluency in their use.  
5. Represent and solve problem situations that can be modeled by and solved using concepts of absolute value, exponents and square roots (for perfect squares).

**Computation and Estimation**

**Measurement Standard**

**Measurement Units**

1. Select appropriate units for measuring derived measurements; e.g., miles per hour, revolutions per minute.  
2. Convert units of area and volume within the same measurement system using proportional reasoning and a reference table when appropriate; e.g., square feet to square yards, cubic meters to cubic centimeters.  
3. Estimate a measurement to a greater degree of precision than the tool provides.  
4. Solve problems involving proportional relationships and scale factors; e.g., scale models that require unit conversions within the same measurement system.
5. Analyze problem situations involving measurement concepts, select appropriate strategies, and use an organized approach to solve narrative and increasingly complex problems.

6. Use strategies to develop formulas for finding area of trapezoids and volume of cylinders and prisms.

7. Develop strategies to find the area of composite shapes using the areas of triangles, parallelograms, circles and sectors.

8. Understand the difference between surface area and volume and demonstrate that two objects may have the same surface area, but different volumes or may have the same volume, but different surface areas.

9. Describe what happens to the surface area and volume of a three-dimensional object when the measurements of the object are changed; e.g., length of sides are doubled.

**Geometry and Spatial Sense Standard**

**Characteristics and Properties**

1. Use proportional reasoning to describe and express relationships between parts and attributes of similar and congruent figures.

2. Determine sufficient (not necessarily minimal) properties that define a specific two-dimensional figure or three-dimensional object. For example:
   a. Determine when one set of figures is a subset of another; e.g., all squares are rectangles.
   b. Develop a set of properties that eliminates all but the desired figure; e.g., only squares are quadrilaterals with all sides congruent and all angles congruent.

3. Use and demonstrate understanding of the properties of triangles. For example:
   a. Use Pythagorean Theorem to solve problems involving right triangles.
   b. Use triangle angle sum relationships to solve problems.

4. Determine necessary conditions for congruence of triangles.

5. Apply properties of congruent or similar triangles to solve problems involving missing lengths and angle measures.

6. Determine and use scale factors for similar figures to solve problems using proportional reasoning.

**Spatial Relationships**
7. Identify the line and rotation symmetries of two-dimensional figures to solve problems.

8. Perform translations, reflections, rotations and dilations of two-dimensional figures using a variety of methods (paper folding, tracing, graph paper).

9. Draw representations of three-dimensional geometric objects from different views.

Patterns, Functions and Algebra Standard

1. Represent and analyze patterns, rules and functions with words, tables, graphs and simple variable expressions.

2. Generalize patterns by describing in words how to find the next term.

3. Recognize and explain when numerical patterns are linear or nonlinear progressions; e.g., 1, 3, 5, 7... is linear and 1, 3, 4, 8, 16... is nonlinear.

4. Create visual representations of equation-solving processes that model the use of inverse operations.

5. Represent linear equations by plotting points in the coordinate plane.

6. Represent inequalities on a number line or a coordinate plane.

7. Justify that two forms of an algebraic expression are equivalent, and recognize when an expression is simplified; e.g., \(4m = m + m + m + m\) or \(a \cdot 5 + 4 = 5a + 4\).

8. Use formulas in problem-solving situations.

9. Recognize a variety of uses for variables; e.g., placeholder for an unknown quantity in an equation, generalization for a pattern, formula.

10. Analyze linear and simple nonlinear relationships to explain how a change in one variable results in the change of another.

11. Use graphing calculators or computers to analyze change; e.g., distance-time relationships.
Data Analysis and Probability Standard

Data Collection

1. Read, create and interpret box-and-whisker plots, stem-and-leaf plots, and other types of graphs, when appropriate.

2. Analyze how decisions about graphing affect the graphical representation; e.g., scale, size of classes in a histogram, number of categories in a circle graph.

3. Analyze a set of data by using and comparing combinations of measures of center (mean, mode, median) and measures of spread (range, quartile, interquartile range), and describe how the inclusion or exclusion of outliers affects those measures.

4. Construct opposing arguments based on analysis of the same data, using different graphical representations.

5. Compare data from two or more samples to determine how sample selection can influence results.

6. Identify misuses of statistical data in articles, advertisements, and other media.

Statistical Methods

1. Compute probabilities of compound events; e.g., multiple coin tosses or multiple rolls of number cubes, using such methods as organized lists, tree diagrams and area models.

Probability

8. Make predictions based on theoretical probabilities, design and conduct an experiment to test the predictions, compare actual results to predicted results, and explain differences.
Parent Signature:__________________________________________________

Student Signature:________________________________________________