Ms. Knapp

7th Grade Math

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**Course Goals:**

* Understand ratio (proportion) concepts and use ratio reasoning to solve problems.
* Apply and extend previous understandings of operations with real numbers.
* Use properties of operations to generate equivalent expressions and linear equations.
* Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
* Solve problems using scale drawings and informal geometric constructions, and working with 2 and 3 dimensional shapes to solve problems involving area, perimeter, surface area, and volume.
* Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
* Use random sampling to draw inferences about a population.
* Draw informal comparative inferences about two populations.
* Investigate chance processes and develop, use, and evaluate probability models.
* Understand and use linear relations and functions.

**Objectives:**

*Knowledge and Understanding*

* Understand and use a variety of mathematical forms and should have the ability to move confidently between them.

*Application and Reasoning*

* Select and use appropriate mathematical knowledge when investigating problems.
* Select and apply appropriate mathematical skills and techniques when investigating problems.
* Recognize patterns and structures and describe them as relationships or general rules when investigating problems.
* Draw conclusions consistent with findings.
* Justify mathematical relationships when investigating problems.

*Communication*

* Communicate mathematical facts, ideas, methods, results, and conclusions using appropriate language and symbols and a variety of media and technologies.

*Reflection and Evaluation*

* Reflect on his or her methods and processes.
* Consider possible alternative approaches.
* Evaluate the significance and reliability of his or her findings and the findings of others.

**Standards for Mathematical Practice:**

* Make sense of problems and preserver in solving them
* Reason abstractly and quantitatively
* Construct viable arguments and critique the reasoning of others
* Model with mathematics
* Use appropriate tools strategically
* Attend to precision
* Look for and make sense of structure
* Look for and express regularity in repeated reasoning

**Resources:**

* Textbook
* Mathematical games
* Protractors, rulers, and compasses
* Pre-published and teacher-made worksheets
* Interactive notebook
* Hands-on labs and activities
* Projects

**Curriculum Schedule:**

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| --- | --- | --- | --- |
| *Time Frame* | *Topics Studied* | *Standard* | *Big Idea* |
| July-September | Operations with Integers, Operations with Rational Numbers; Order of Operations | 7.NS | Man continually explores the best way to find the truth. |
| September-November | Data Collection; Measures of Central Tendencies; Standard Deviation; Box-and-Whisker Plots; Analyzing and Interpreting Graphs; Misuse/Misrepresentation of Data; Making Inferences About Populations Based on Samples; Probability | 7.SP | While there is constantly change, the World favors balance. |
| November-January | Writing Algebraic Expressions and Variables; Identifying Equivalent Forms of Expressions and Equations; Solving Equations and Inequalities; Distributive Property; Word Problems | 7.EE | Every action has a consequence. |
| January-March | Language of Geometry; Perimeter; Area; Surface Area; Volume; Dimensional Changes; Word Problems | 7.G | Structure defines a system. |
| March-May | Ratios, Proportions, and Unit Rates; Indirect Measurement, Similarity; Congruency; Dilations; Transformations; Percent of Change; Markup and Discount; Simple Interest; Theoretical and Experimental Probability.  | 7.RP | Patterns can be used to make predictions. |
| May-June | Review | All |  |