Curriculum Sample: 7th Math
Max. 8 Pages

Grade Level	7	**Content Area**	Math
Course Title (grades 9-12 Only)			
Length of Unit	Five 55-minute periods	**Time of Year**	Fourth Quarter
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	Students are expected to understand order of operations, scientific notation, and be able to perform all four operations using whole numbers, decimals, percentages and fractions. Students are expected to understand how to make an estimate.		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	The school's program of instruction stresses alignment with research-supported instructional techniques of Hunter's Essential Elements of Instruction.		
Standard Number and Description *List the Number* and full description for the required Standard.*	7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*		
Summative Assessment *Describe a cumulative and comprehensive activity, clearly separate from instruction and guided or independent practice, which allows each student to individually demonstrate mastery of the required Standard. A copy of the summative assessment must be attached to the curriculum sample.*	Students will complete 5 open-response questions to assess their ability to solve multi-step real-life problems. Whole number, fraction, percentage and decimal values will be included within contextual situations. The assessment and answer key are below.		
Scoring Scale and Mastery Level *Explain how the assessment is scored, to include points per question, how points are awarded, total points*	The 5 open-response questions will be scored on an absolute scale with an answer key provided for both the work that should be shown and the final answer. Credit will only be awarded for answers that completely match the answer key, and no partial credit will be awarded. Students must get at least 4 of the 5 questions completely correct to master the standard.		

possible, criteria necessary to demonstrate mastery, and grading scale. A copy of the answer key and scoring rubric (whichever applicable) must be attached to the curriculum sample.	
Materials/Resources Needed	Paper, pencil, dry-erase board, markers, eraser Teacher generated Edhelper mixed review word problem sheets Note cards with multi-step word problems written out, tape Rulers with metric on one side, English units on the other Fake business receipts for: restaurant meals including tax and tip; store purchases involving multiple items and sales tax Students handouts on how to solve tough problems: http://letsplaymath.files.wordpress.com/2007/10/how-to-solve-a-tough-problem.pdf Student handouts on tools for solving tough problems: http://letsplaymath.files.wordpress.com/2007/10/problem-solving-tool-box.pdf Easel with restaurant menu and prices

* ***Standard Number****: For English Language Arts (Reading and Writing), use Grade, Strand, Standard (e.g., 3.RI.2). For K-8 Math, use Grade, Domain, Standard (e.g., 6.EE.7). For HS Math, use Conceptual Category-Domain, Standard (e.g., A-REI.6). For Science, use Grade, Strand, Concept, PO (e.g., 4.1.3.1).*

Lesson (add as needed	**Instruction**	**Student Activities**
1	SWBAT read word problem and break it into multiple steps Key Points: Review word clues to what operations are involved (total, difference, out of, etc.) Estimation of an answer will provide a quick double-check at the end Real world problems provide clues as to accuracy of answer (for example, if the student get a negative number as an answer for a distance problem, there is an error somewhere) Drawing a picture can help make a problem concrete and get solution started Tools for solving problems include: work backward; think about "before" and "after" situations; act the problem out; guess and check; make a chart or graph; look for a pattern; restate the problem Method of Instruction: Teacher-led class discussion, guided questioning	Do-Now: Students get worksheets with real-life word problems, highlight the key words and write in the associated operations Do-Now: Class review and discussion of tools for solving tough problems
2	SWBAT solve multi-step word problems Key Points: Questions to help organize your thinking about a problem are: What do I know What do I want What can I do? Does it make sense? Method of Instruction: Teacher-led discussion, Think-Pair-Share	Guided Discussion: Class discussion of ways to organize thinking about a problem Do-Now: In pairs, students work through sheets of a variety of multi-step word problems, identifying any technique or tool they used to help
3	SWBAT solve multi-step word problems involving conversions between and within measurement systems (English/metric) Key Points:	Do-Now: Students do 10 one-step conversion review on worksheets Metric mania scavenger hunt

	Metric system based on multiples of 10 Writing units as part of problem and canceling them as appropriate can help student to recognize correct procedures Method of Instruction: Teacher-led discussion, guided practice	Cards with multi-step metric/English conversion problems are hidden throughout the classroom Student teams work to find and solve as many problems as possible A team cannot progress to the next problem until it gets the current one correct
4	SWBAT solve multi-step real-world involving purchasing multiple items which are taxed, and problems with eating in restaurants Key Points: Sales tax is calculated as a percentage of a total, which is then added to the total A tip is a calculated as a percentage of a total, and then is often paid separately Method of Instruction: Teacher-led discussion, guided practice	Do-now: Students look at receipts to determine the amount of sales tax. They then calculate the amount of sales tax if an additional item had been purchased, or the tax rate were different. Do-now: Students use items off the restaurant menu to create a their own bill for a full meal for two people, including tax and tip
5	Teacher supervises guided practice Teacher provides summative assessment	Guided-Practice: Individual students solve a variety of multi-step word problems on worksheets

Paste Summative Assessment Here:

1) A store originally priced a canoe at $200. In order to make room for winter inventory, however, it placed the canoe on sale for 25% off. If the sales tax is 9%, what will be the final amount paid for the canoe?

2) Elise found an old truck mud flap in a pile of junk near her grandfather's house. It was a piece of rubber that measured 24 inches by 33 inches. She decided to make a piece of art out of it to decorate her room. However, she thought it was a bit too big, so she drew a line on it parallel to one of the long sides that marked off 1/5 of the area of the mud flap. She planned to cut along the line to make a smaller piece. What would the area of the largest piece be after she made the cut? Hint: Make a sketch of the problem.

3) Juan estimated the length of a garden slug to be two and eight tenths inches. Micala estimated the length of the same garden slug to be two and forty-four hundredths inches. By how much did Juan's estimate differ from Micala's?

4) Ana Maria has applied for United States citizenship. She has studied American history and government for a long time and thinks she is ready to take the citizenship test. When she took the practice test online she answered thirty-nine questions correctly and only missed three. What percent of the questions did she get right?

5) Gerri has measured some yeast cells she isolated from the surface of grapes. The cells she measured were 15, 23, 15, 25, 24, and 23 micrometers in length. What was their average length in meters? Express your answer using scientific notation.

Paste Answer Key/Scoring Rubric Here:

1. [$200 X (1-.25)] + {.09[$200 X (1-.25)]} =
   $150 + .09($150) = $150 + $13.50 = $163.50

2. 24in X 4/5 = 19 1/5
19 1/5 in X 33 in = 633 3/5 square inches

3. 2.8 = 2.80
   2.80 – 2.44 = 0.36 of an inch
   2.81
4. 39 - 3 = 36
   36/39 = .93 = 93%

5. (15 mm+ 23mm + 15mm + 25mm + 24mm + 23mm)/6 = 20.8 mm
20.8 mm/1,000,000 mm/m = 0.0000208m = 2.08 x 10-5 m