7th Grade Monitoring Sheet

Number Sense and Estimation

M.7.1 Evaluate powers with positive, zero, and negative exponents (with numerical bases); write equivalent expressions of powers with negative exponents; [ex. $2^{-3} = 1/(2^3)$].	
Specific skill:	
[a] The students can evaluate powers with positive exponents.	
[b] The students can evaluate powers with zero exponents.	
[c] The students can evaluate powers with negative exponents (with numerical bases).	
[d] The students can write equivalent expressions of powers with negative exponents.	

M.7.2 Convert values between scientific notation and standard form (positive and negative exponents).	
Specific skill:	
[a] The students can convert values between scientific notation and standard form with positive exponents.	
[b] The students can convert values between scientific notation and standard form with negative exponents.	

M.7.3 Round, compare, order, and graph on a number line positive and negative rational numbers (i.e. integers, fractions, mixed numbers, terminating and repeating decimals, numbers written in scientific notation).	
Specific skill:	
[a] The students can round positive and negative fractions and mixed numbers.	
[b] The students can round positive and negative terminating and repeating decimals.	
[c] The students can compare and order positive and negative integers.	
[d] The students can compare and order positive and negative fractions and mixed numbers.	
[e] The students can compare and order positive and negative terminating and repeating decimals.	
[f] The students can compare and order numbers written in scientific notation.	
[g] The students can graph positive and negative integers on a number line.	
[h] The students can graph positive and negative fractions and mixed numbers on a number line.	
[i] The students can graph positive and negative terminating and repeating decimals on a number line.	

Computation and Fluency

M.7.4 Add, subtract, multiply, and divide positive rational numbers (whole numbers, fractions, mixed numbers, decimals), expressing answer in either simplest form or rounded to the nearest given place value; solve real world context problems involving positive rational numbers (decimals, fractions, mixed numbers) using a variety of problem solving strategies.	
Specific skill:	
[a] The students can add fractions and mixed numbers, expressing answer in simplest form.	
[b] The students can subtract fractions and mixed numbers, expressing answer in simplest form.	
[c] The students can multiply fractions and mixed numbers, expressing answer in simplest form.	
[d] The students can divide fractions and mixed numbers, expressing answer in simplest form.	
[e] The students can add and subtract decimals.	
[f] The students can multiply decimals, expressing answer rounded to the nearest given place value.	
[g] The students can divide decimals, expressing answer rounded to the nearest given place value.	
[h] The students can solve real world context problems involving fractions and mixed numbers using a variety of problem solving strategies.	
[i] The students can solve real world context problems involving decimals using a variety of problem solving strategies.	

M.7.5 Evaluate numerical expressions consisting of integers, absolute values, exponents, and/or negative signs by applying the order of operations and the Properties of Real Numbers.	
Specific skill:	
The students can evaluate numerical expressions consisting of integers, absolute values, exponents, and/or negative signs by applying the order of operations and the Properties of Real Numbers.	

M.7.6 Find the percent of a number, what percent one number is of another, and find a number when the percent is known (methods include applying proportional reasoning and writing equations).	
Specific skill:	
[a] The students can find the percent of a number.	
[b] The students can find what percent one number is of another.	

[c] The students can find a number when the percent is known.	

M.7.7 Find and apply the percent of change (i.e percent increase or decrease) to solve real world context problem.	
Specific skill:	
[a] The students can find the percent of change (i.e percent increase or decrease).	
[b] The students can apply the percent of change to solve real world context problems.	

Measurement

M.7.8 Approximate unit conversions between the customary and metric systems; {ex. 1 kg ≈ 2.2 lbs.}.	
Specific skill:	
The students can approximate unit conversions between the customary and metric systems.	

M.7.9 Write equivalent rates by converting one or both of its units; {ex. 1 in/min = 5 ft/hr}	
Specific skill:	
The students can write equivalent rates by converting one or both of its units.	

M.7.10 Convert square and cubic units; (ex. 1 ft^2 = 144 in^2; 1 cm^3 = 1000 mm^3).	
Specific skill:	
The students can convert square and cubic units.	

M.7.11 Construct precise scale drawings and models with appropriate scale factors of real world two-dimensional and three-dimensional objects using rulers and other measuring tools.	
Specific skill:	
[a] The students can construct precise scale drawings with appropriate scale factors of real world two-dimensional objects using rulers and other measuring tools.	
[b] The students can construct precise scale models of three-dimensional objects using rulers and other measuring tools].	

Geometry

M.7.12 Find the perimeter and area of compound figures composed of rectangles, triangles, and/or half circles.	
Specific skill:	
[a] The students can find the perimeter of compound figures composed of rectangles, triangles, and/or half circles	
[b] The students can find the area of compound figures composed of rectangles, triangles, and/or half circles	

M.7.13 Find the volume and surface area of prisms, cylinders, and spheres, using formula sheets, nets, and/or calculating the sum of the area of the faces, approximating for π (pi) or writing in π (pi) notation as necessary.	
Specific skill:	
[a] The students can find the volume of prisms (i.e. cubes, rectangular, triangular).	
[b] The students can find the volume of cylinders, approximating for π (pi) or writing in π (pi) notation as necessary; calculator can be used at teacher's discretion.	
[c] The students can find the volume of spheres using a formula sheet, approximating for π (pi) or writing in π (pi) notation as necessary.	
[d] The students can find the surface area of prisms (i.e. cubes, rectangular, triangular.	
[e] The students can find the surface area of cylinders using a formula sheet, approximating for π (pi) or writing in π (pi) notation as necessary.	
[f] The students can find the surface area of spheres using a formula sheet, approximating for π (pi) or writing in π (pi) notation as necessary.	

M.7.14 Identify properties of triangles (i.e. scalene, isosceles, equilateral, acute, right, obtuse) and quadrilaterals (i.e. trapezoids, parallelograms, rhombi, rectangles, squares).	
Specific skill:	
[a] The students can identify properties of triangles (i.e. scalene, isosceles, equilateral, acute, right, obtuse).	
[b] The students can identify properties of quadrilaterals (i.e. trapezoids, parallelograms, rhombi, rectangles, squares).	

M.7.15 Identify special angle pairs and their properties (i.e complementary, supplementary, adjacent, vertical, linear pair), including corresponding, alternate interior, and alternate exterior angles formed by the intersections of a transversal and parallel lines.	
Specific skill:	
[a] The students can identify complementary angle pairs and their properties.	
[b] The students can identify supplementary angle pairs and their properties.	
[c] The students can identify adjacent angle pairs and their properties.	
[d] The students can identify vertical angle pairs and their properties.	
[e] The students can identify linear angle pairs and their properties.	
[f] The students can identify corresponding angle pairs, formed by the intersections of a transversal and parallel lines, and their properties.	
[g] The students can identify alternate interior angle pairs, formed by the intersections of a transversal and parallel lines, and their properties.	
[h] The students can identify alternate exterior angle pairs, formed by the intersections of transversal and parallel lines, and their properties.	

M.7.16 Find missing angles of a given diagram or situation; {ex. special angle pair; triangle or quadrilateral}.	
Specific skill:	
The students can find missing angles of a given diagram of situation.	

M.7.17 Find the scale factor of two similar figures and/or missing angles and side lengths (methods include writing proportions and using proportional reasoning).	
Specific skill:	
[a] The students can find the scale factor of two similar figures.	
[b] The students can find missing side lengths of two similar figures.	

M.7.18 Identify and graph transformations of ordered pairs on the coordinate plane [translations; reflections over the x-axis and y-axis, 90 or 180 rotations with center (0,0); dilations of positive scales factors with center (0,0)].	
Specific skill:	
[a] Identify transformations of ordered pairs on the coordinate plane. (see above for specifics)	
[b] Graph transformations of ordered pairs on the coordinate plane. (see above for specifics)	

ata Analysis and Probability

M.7.19 Determine the effect on the measures of central tendency (i.e. mean, median, and mode) or range when data is added, removed, or changed.	
Specific skill:	
[a] The students can determine the effect on the mean when data is added, removed, or changed.	
[b] The students can determine the effect on the median when data is added, removed, or changed.	
[c] The students can determine the effect on the mode when data is added, removed, or changed.	
[d] The students can determine the effect on the range when data is added, removed, or changed.	

M.7.20 Identify and find the probability of opposite, mutually exclusive, and overlapping events.	
Specific skill:	
[a] The student can identify and find the probability of opposite events.	
[b] The student can identify and find the probability of mutually exclusive events.	
[c] The student can identify and find the probability of overlapping events.	

M.7.21 Make predictions given a probability (theoretical or experimental) or data display.	
Specific skill:	
[a] The student can make predictions given a probability or data display.	

M.7.22 Determine the number of possible arrangements or outcomes of a given situation using a tree diagram or the Basic Counting Principle.	
Specific skill:	
[a] The students can determine the number of possible arrangements or outcome of a given situation using a tree diagram.	
[b] The students can determine the number of possible arrangements or outcome of a given situation using the Basic Counting Principle.	
[c] [Enrichment] Solve real world problems involving combinations and permutations.	

M.7.23 Collect, display, and analyze data in frequency tables, stem-and-leaf plots, histograms, line plots, and boxplots (i.e. box and whisker diagram); ex. find its median, interquartile range, the percent of data within a given interval.	
Specific skill:	
[a] The students can collect, display, and analyze data in frequency tables.	
[b] The students can collect, display, and analyze data in stem-and-leaf plots.	
[c] The students can collect, display, and analyze data in histograms.	
[d] The students can collect, display, and analyze data in line plots.	
[e] The students can collect, display, and analyze data in boxplots.	

Patterns, Functions and Algebra

M.7.24 Find, interpret, and apply the unit rate of a given real world context, ratio table, or graph that represents a proportional relationship between two quantities; {ex. unit conversion, speed, percents, prices}.	
Specific skill:	
[a] The students can find, interpret, and apply the unit rate of a given real world context.	
[b] The students can find, interpret, and apply the unit rate of a ratio table.	
[c] The students can find, interpret, and apply the unit rate of a graph that represents a proportional relationship between two quantities.	

M.7.25 Identify parts of a given variable expression, equation, or inequality (i.e. operations, variables, constants, coefficients, exponents, bases, terms, factors); interpret the parts of and write variable expression, equation, or inequality that represents a real-world context.	
Specific skill:	
[a] The students can identify parts of a given variable expression, equation or inequality.	
[b] The students can write a variable expression, equation or inequality that represents a real world context.	

M.7.26 Evaluate multi-step, multi-operational variable expressions and formulas given numerical replacement values, including variables with exponents; (ex. utilize surface area and volume formulas; convert temperatures between Fahrenheit and Celsius).	
Specific skill:	
The students can evaluate multi-step, multi-operational variable expressions given numerical replacement values, including variables with exponents.	

M.7.27 Solve two-step linear equations with one variable, including those that represent real world contexts, by applying the Properties of Equality.	
Specific skill:	
The students can solve two-step linear equations with one variable, including those that represent real world contexts, by applying the Properties of Equality.	

M.7.28 Solve, graph, and interpret the solutions of one-step inequalities with one variable, including those that represent real world contexts, by applying the Properties of Inequality.	
Specific skill:	
[a] The students can solve one-step inequalities with one variable, including those that represent real world contexts, by applying the Properties of Inequality.	
[b] The students can graph the solutions of one-step inequalities with one variable, including those that represent real world contexts, by applying the Properties of Inequality.	
[c] The students can determine if a number is a solution to an inequality.	

M.7.29 Identify the independent and dependent variables of a given relationship within a real world context, table, graph, or two-variable equation.	
Specific skill:	
[a] The students can identify the independent and dependent variables of a given relationship within a real-world context.	
[b] The students can identify the independent and dependent variables of a given relationship in a table.	
[c] The students can identify the independent and dependent variables of a given relationship in a graph.	
[d] The students can identify the independent and dependent variables of a given relationship in a two-variable equation.	

M.7.30 Write and graph equations with two variables (i.e. functions) that model a given real world proportional or additive relationship; (ex. a unit rate).	
Specific skill:	
[a] The students can write equations with two variables that model a given real world proportional or additive relationship.	
[b] The students can graph equations with two variables that model a given real world proportional or additive relationship.	