Correlation of Exploring Math With MicroWorlds EX and the Texas Essential Knowledge and Skills

Middle School – Math

Grade 6

6.1 **Number, operation, and quantitative reasoning. The student represents and uses rational numbers in a variety of equivalent forms,** specifically:
B. generate equivalent forms of rational numbers including whole numbers, fractions, and decimals.
C. use integers to represent real-life situations
E. identify factors and multiples including common factors and common multiples

6.2 **Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, and divides to solve problems and justify solutions**, specifically:
A. model addition and subtraction situations involving fractions with objects, pictures, words, and numbers;

6.3 **Patterns, relationships, and algebraic thinking. The student solves problems involving proportional relationships**, specifically:
B. represent ratios and percents with concrete models, fractions, and decimals.

6.5.1 **Patterns, relationships, and algebraic thinking. The student uses letters to represent an unknown in an equation**, specifically: the student is expected to formulate an equation from a problem situation.

6.6 **Geometry and spatial reasoning. The student uses geometric vocabulary to describe angles, polygons, and circles**, specifically:
A. use angle measurements to classify angles as acute, obtuse, or right
B. identify relationships involving angles in triangles and quadrilaterals;
C. describe the relationship between radius, diameter, and circumference of a circle

6.7 **Geometry and spatial reasoning. The student uses coorcinate geometry to identify location in two dimensions**, specifically: The student is expected to locate and name points on a coordinate plane using ordered pairs of non-negative rational numbers.

6.8 **Measurement. The student solves application problems involving estimation and measurement of length, area, time, and angles**, specifically:
A. estimate measurements and evalutate reasonableness of results;

6.9 **Probability and statistics. The student uses experimental and theoretical probability to make predictions**, specifically:

B. find the probablilites of a simple event and its complement and describe the relationship between the two.

6.10 **Probability and statistics. The student uses statistical representations to analyze data**, specifically:

A. draw and compare different graphical representations of the same data;
C. sketch circle graphs to display data;
D. solve problems by collecting, organizing, displaying, and interpreting data.

6.11 **Underlying processes and mathematical tools. The student applies Grade 6 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school**, specifically:

A. identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;
B. use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;
C. select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and
D. select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.

6.12 **Underlying processes and mathematical tools. The student communicates about Grade 6 mathematics through informal and mathematical language, representations, and models,** specifically:

A. communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and
B. evaluate the effectiveness of different representations to communicate ideas.

6.13 **Underlying processes and mathematical tools.** The student uses logical reasoning to make conjectures and verify conclusions, specifically:

A. make conjectures from patterns or sets of examples and nonexamples; and
B. validate his/her conclusions using mathematical properties and relationships.

Grade 7

7.1 **Number, operation, and quantitative reasoning.** The student represents and uses numbers in a variety of equivalent forms, specifically.
A. compare and order integers and positive rational numbers;
C. represent squares and square roots using geometric models.

7.2 **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, or divides to solve problems and justify solutions, specifically:
A. represent multiplication and division situations involving fractions and decimals with concrete models, pictures, words, and numbers;
C. use models to add, subtract, multiply, and divide integers and connect the actions to algorithms;
F. select and use appropriate operations to solve problems and justify the selections; and
G. determine the reasonableness of a solution to a problem.

7.3 **Patterns, relationships, and algebraic thinking.** The student solves problems involvingproportional relationships, specifically:
A. estimate and find solutions to application problems involving percent; and
B. estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units.

7.4 **Patterns, relationships, and algebraic thinking.** The student represents a relationship in numerical, geometric, verbal, and symbolic form, specifically:
A. generate formulas involving conversions, perimeter, area, volume, and scaling;

7.5 **Patterns, relationships, and algebraic thinking.** The student uses equations to solve problems, specifically:
A. use concrete models to solve equations and use symbols to record the actions;
B. formulate a possible problem situation when given a simple equation

7.6 **Geometry and spatial reasoning.** The student compares and classifies shapes and solids using geometric vocabulary and properties, specifically:
A. use angle measurements to classify pairs of angles as complementary or supplementary;
B. use properties to classify shapes including triangles, quadrilaterals, pentagons, and circles;

7.7 **Geometry and spatial reasoning.** The student uses coordinate geometry to describe location on a plane, specifically:
A. locate and name points on a coordinate plane using ordered pairs of integers;
B. graph translations on a coordinate plane.

7.8 **Geometry and spatial reasoning.** The student uses geometry to model and describe the physical world specifically:

(C) use geometric concepts and properties to solve problems in fields such as art and architecture.

7.9 **Measurement.** The student solves application problems involving estimation and measurement. The student is expected to estimate measurements and solve application problems involving length (including perimeter and circumference), area, and volume.

7.10 **Probability and statistics.** The student recognizes that a physical or mathematical model can be used to describe the probability of real-life events, specifically:
A. construct sample spaces for compound events (dependent and independent);
B. find the approximate probability of a compound event through experimentation.

7.11 **Probability and statistics.** The student understands that the way a set of data is displayed influences its interpretation, specifically:
A. select and use an appropriate representation for presenting collected data and justify the selection; and
B. make inferences and convincing arguments based on an analysis of given or collected data.

7.13 **Underlying processes and mathematical tools.** The student applies Grade 7 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school, specifically:
A. identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;
B. use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;
C. select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem; and
D. select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.

7.14 **Underlying processes and mathematical tools.** The student communicates about Grade 7 mathematics through informal and mathematical language, representations, and models, specifically:
A. communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models; and
B. evaluate the effectiveness of different representations to communicate ideas.

7.15 **Underlying processes and mathematical tools.** The student uses logical reasoning to make conjectures and verify conclusions, specifically:

A make conjectures from patterns or sets of examples and nonexamples; and
B validate his/her conclusions using mathematical properties and relationships.