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

Elementary – Math

Grade 4

4.2 **Number, operation, and quantitative reasoning. The student describes and compares fractional parts of whole objects or sets of objects**, specifically:
    A. generate equivalent fractions using concrete and pictorial models;
    C. compare and order fractions using concrete and pictorial models; and
    D. relate decimals to fractions that name tenths and hundredths using models.

4.3 **Number, operation, and quantitative reasoning. The student adds and subtracts to solve meaningful problems involving whole numbers and decimals, specifically:**
    A. use addition and subtraction to solve problems involving whole numbers;

4. 4 **Number, operation, and quantitative reasoning. The student multiplies and divides to solve meaningful problems involving whole numbers,** specifically:
    A. model factors and products using arrays and area models;
    B. represent multiplication and division situations in picture, word, and number form;
    C. apply multiplication facts through 12 x 12;
    D. use multiplication to solve problems involving two-digit numbers; and
    E. use division to solve problems involving one-digit divisors.

4.5 Number, operation, and quantitative reasoning. The student estimates to determine reasonable results, specifically:
    B. estimate a product or quotient beyond basic facts.

4.7 **Patterns, relationships, and algebraic thinking. The student uses organizational structures to analyze and describe patterns and relationships**. The student is expected to describe the relationship between two sets of related data such as ordered pairs in a table.

4.8 **Geometry and spatial reasoning. The student identifies and describes lines, shapes, and solids using formal geometric language,** specifically:
    A. identify right, acute, and obtuse angles;
    C. describe shapes in terms of vertices, edges.

4.9   **Geometry and spatial reasoning. The student connects transformations to congruence and symmetry,** specifically:
  A. demonstrate translations, reflections, and rotations using concrete models;
  B. use translations, reflections, and rotations to verify that two shapes are congruent; and
  C. use reflections to verify that a shape has symmetry.

4.12   **Measurement. The student applies measurement concepts.** The student is expected to measure to solve problems involving length, including perimeter and area.

4.13   **Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data**, specifically:
  A. list all possible outcomes of a probability experiment such as tossing a coin;
  B. use a pair of numbers to compare favorable outcomes to all possible outcomes such as four heads out of six tosses of a coin; and
  C. interpret bar graphs.

4.14   **Underlying processes and mathematical tools. The student applies Grade 4 mathematics to solve problems connected to everyday experiences and activities in and outside of school,** specifically:
  A. identify the mathematics in everyday situations;
  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, 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. use tools such as real objects, manipulatives, and technology to solve problems.

4.15   **Underlying processes and mathematical tools. The student communicates about Grade 4 mathematics using informal language,** specifically:
  A. explain and record observations using objects, words, pictures, numbers, and technology; and
  B. relate informal language to mathematical language and symbols.

4.16   **Underlying processes and mathematical tools. The student uses logical reasoning to make sense of his or her world**, specifically:
  A. make generalizations from patterns or sets of examples and non examples; and
  B. justify why an answer is reasonable and explain the solution process.

Grade 5

5.2 **Number, operation, and quantitative reasoning. The student uses fractions in problem-solving situations,** specifically:
  A. generate equivalent fractions;
  B. compare two fractional quantities in problem-solving situations using a variety of methods, including common denominators; and

5.3 **Number, operation, and quantitative reasoning. The student adds, subtracts, multiplies, and divides to solve meaningful problems**, specifically:
  B. use multiplication to solve problems involving whole numbers (no more than three digits times two digits without technology);
  C. use division to solve problems involving whole numbers (no more than two-digit divisors and three-digit dividends without technology);
  D. identify prime factors of a whole number and common factors of a set of whole numbers; and

5.5 **Patterns, relationships, and algebraic thinking. The student makes generalizations based on observed patterns and relationships**, specifically:
  B. use lists, tables, charts, and diagrams to find patterns and make generalizations such as a procedure for determining equivalent fractions; and
  C. identify prime and composite numbers using concrete models and patterns in factor pairs.

5.6 **Patterns, relationships, and algebraic thinking. The student describes relationships mathematically.** The student is expected to select from and use diagrams and number sentences to represent real-life situations.

5.7 **Geometry and spatial reasoning. The student generates geometric definitions using critical attributes**, specifically:
  B. use critical attributes to define geometric shapes or solids.

5.8 **Geometry and spatial reasoning. The student models transformations**, specifically:
  A. sketch the results of translations, rotations, and reflections; and

5.9 **Geometry and spatial reasoning.** The student recognizes the connection between ordered pairs of numbers and locations of points on a plane. The student is expected to locate and name points on a coordinate grid using ordered pairs of whole numbers.

5.12 **Probability and statistics. The student describes and predicts the results of a probability experiment,** specifically:
  A. use fractions to describe the results of an experiment; and
  B. use experimental results to make predictions.

5.13   **Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data**, specifically:
   A. use tables of related number pairs to make line graphs;
   B. describe characteristics of data presented in tables and graphs including the shape and spread of the data and the middle number; and
   C. graph a given set of data using an appropriate graphical representation such as a picture or line.

5.14   **Underlying processes and mathematical tools. The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school,** specifically:
   A. identify the mathematics in everyday situations;
   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, 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. use tools such as real objects, manipulatives, and technology to solve problems.

5.15   **Underlying processes and mathematical tools. The student communicates about Grade 5 mathematics using informal language**, specifically:
   A. explain and record observations using objects, words, pictures, numbers, and technology; and
   B. relate informal language to mathematical language and symbols.

5.16   **Underlying processes and mathematical tools**. The student uses logical reasoning to make sense of his or her world, specifically:
   A. make generalizations from patterns or sets of examples and non examples; and
   B. justify why an answer is reasonable and explain the solution process.