Grade 4 Mathematics
Performance Level Descriptors

Limited

A student performing at the **Limited Level** demonstrates a minimal command of Ohio's Learning Standards for Grade 4 Mathematics. A student at this level has an **emerging ability** to demonstrate understanding of multi-digit multiplication, demonstrate understanding of addition and subtraction of fractions with like denominators and multiplication of fractions by whole numbers, and classify and draw geometric figures and shapes based on their characteristics.

A student whose performance lies within the **Limited Level** typically can:
* Carry out some routine procedures to solve straightforward one-step problems;
* Recognize solutions to some simple computation, straightforward problems;
* Compute accurately a few grade level numbers and operations;
* Recognize a few grade level mathematical concepts, terms and properties, and use previous grade level mathematical concepts, terms and properties.

A student at the **Limited Level** can:

* Use the four operations to solve one-step problems;
* Solve straightforward one-step word problems using basic multiplication and division facts;
* Divide up to four digit dividends and one digit divisors with no remainders using manipulatives, strategies, or visual representations;
* Solve straightforward real-world area and perimeter problems of rectangles involving basic computations;
* Use visual models to determine whether two common fractions are equivalent;
* Add and subtract fractions with like denominators using visual models;
* Compare two decimals using visual models;
* Identify points, perpendicular and parallel lines, right, acute and obtuse angles;
* Measure angles in whole number degrees using a protractor;
* Sort two-dimensional figures by perpendicular or parallel sides and presence or absence of right angles.

Basic

A student performing at the **Basic Level** demonstrates an appropriate command of Ohio's Learning Standards for Grade 4 Mathematics. A student at this level has a **general ability** to demonstrate understanding of multi-digit multiplication, demonstrate understanding of addition and subtraction of fractions with like denominators and multiplication of fractions by whole numbers, and classify and draw geometric figures and shapes based on their characteristics.

A student whose performance falls within the **Basic Level** typically can**:**

- Carry out routine procedures;
- Solve simple problems using visual representations;
- Compute accurately some grade level numbers and operations;
- Recall and recognize some grade level mathematical concepts, terms and properties, and use more previous grade level mathematical concepts, terms and properties.

A student at the **Basic Level** can:

- Solve one-step problems involving addition, subtraction, multiplication or division and an unknown number;
- Solve two-step word problems using visual representations;
- Using a place value chart, determine the relationship of a digit to the digit to its right;
- Multiply four digit by one digit numbers using manipulatives, place value strategies, or visual representations;
- Given a place value chart, compare two multi-digit whole numbers based on the meanings of the digits in each place, using <, >, = symbols to record the results of the comparisons;
- Divide 4 digit dividends by 1 digit divisors with remainders using manipulatives, strategies, or visual representations;
- Compare two fractions with different numerators and different denominators using the symbols <, >, and = with the assistance of visual models (denominators limited to 2, 4, 8, 10, and 100);
- Using visual models, add and subtract fractions with like denominators in reference to the same whole;
- Solve mathematical problems involving multiplication of a fraction by a whole number, with the assistance of a visual model;
- Write fractions with denominators of 10 and 100 as decimals;
- Solve simple addition and subtraction problems involving fractions from data in a line plot;
- Measure and/or draw angles in whole number degrees using a protractor;
- Identify points, perpendicular and parallel lines, right, acute and obtuse angles in two-dimensional figures;
- Sort two-dimensional figures by their perpendicular and parallel sides and angle sizes.

Proficient

A student performing at the **Proficient Level** demonstrates an appropriate command of Ohio's Learning Standards for Grade 4 Mathematics. A student at this level has a **consistent ability** to demonstrate understanding of multi-digit multiplication, demonstrate understanding of addition and subtraction of fractions with like denominators and multiplication of fractions by whole numbers, and classify and draw geometric figures and shapes based on their characteristics.

A student whose performance falls within the **Proficient Level** typically can:
- Solve most routine and straightforward problems accurately;
- Compute accurately with most grade level numbers and operations;
- Apply most grade level mathematical concepts, terms and properties, and use informal (visual representation and language) and some formal reasoning.

A student at the **Proficient Level** can:

- Solve routine multi-step word problems posed with whole numbers and whole-number answers using the four operations, including problems in which remainders must be interpreted;
- Accurately add and subtract multi-digit numbers;
- Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right;
- Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form;
- Compare two multi-digit whole numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons;
- Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations;
- Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division;
- Use the four operations to solve routine word problems (metric and US standard units where applicable) involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit;
- Apply the formulas for area and perimeter to rectangles with whole number sides in real-world problems;
- Identify and generate equivalent forms of a fraction including mixed numbers with like denominators using visual models;
- Compare two fractions with different numerators and different denominators using visual models or by creating common denominators or numerators; record using the symbols <, >, and =;
- Compare two decimals to the hundredths place by using place value understanding, models, or number lines; record using <, >, and =.

- Add and subtract to solve routine word problems involving like denominators in reference to the same whole using visual models and/or equations;
- Create a line plot to represent a data set using the fractions $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$; then solve problems involving addition and subtraction;
- Solve routine word problems involving multiplication of a fraction by a whole number;
- Make conversions within a given measurement system by expressing measurements in a larger unit in terms of a smaller unit;
- Determine the measure of an angle by using the sum of two angle parts;
- Draw and identify in two dimensional figures: lines, line segments, rays, perpendicular and parallel lines and angles;
- Classify two-dimensional figures (e.g. squares, rectangles and right triangles) based on the properties of parallel or perpendicular lines and/or angle sizes.

Accelerated

A student performing at the **Accelerated Level** demonstrates a strong command of Ohio's Learning Standards for Grade 4 Mathematics. A student at this level has a **superior ability** to demonstrate understanding of multi-digit multiplication, demonstrate understanding of addition and subtraction of fractions with like denominators and multiplication of fractions by whole numbers, and classify and draw geometric figures and shapes based on their characteristics.

Students whose performance falls within the **Accelerated Level** typically can:
- Accurately solve routine and straightforward problems;
- Solve a variety of routine and multi-step problems;
- Compute accurately and efficiently with familiar numbers;
- Recognize connections between mathematical concepts, terms and properties, and use informal and some formal reasoning with symbolic representation.

A student at the **Accelerated Level** can:

- Solve routine multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent the problems using equations with a letter standing for the unknown quantity;
- Apply place value understanding to read, write, and compare multi-digit whole numbers less than or equal to 1,000,000;
- Select and accurately apply mental computation and estimation strategies to solve problems and/or assess reasonableness of answers;
- Use efficient procedures for multiplying whole numbers to solve routine problems; use understanding of place value and properties of operations to explain why the procedures work;
- Use efficient procedures by applying understanding of models for division, place value, properties of operations, and the relationship of division to multiplication to find quotients involving multi-digit dividends; and use them to solve routine problems;
- Apply perimeter and area formulas to solve routine real-world problems.
- Compare two fractions with different numerators and different denominators using the symbols <, >, and =;
- Compare two decimals to the hundredths place using the symbols <, >, and =;
- Know and be able to use conversions in multiple measurement units to solve real world problems;
- Solve addition and subtraction problems to find unknown angles in a diagram with a symbol for the unknown angle measure;
- Measure and/or draw angles in whole number degrees using a protractor to solve problems;
- Classify two-dimensional shapes by the properties of their lines and angles.

Advanced

A student performing at the **Advanced Level** demonstrates a distinguished command of Ohio's Learning Standards for Grade 4 Mathematics. A student at this level has a **sophisticated ability** to demonstrate understanding of multi-digit multiplication, demonstrate understanding of addition and subtraction of fractions with like denominators and multiplication of fractions by whole numbers, and classify and draw geometric figures and shapes based on their characteristics.

A student whose performance falls within the **Advanced Level** typically can:
- Solve routine and straightforward problems accurately and efficiently;
- Solve a variety of non-routine multi-step problems;
- Compute accurately and efficiently;
- Recognize, apply and justify mathematical concepts, terms and properties and their connections and use more formal reasoning and symbolic representation (precise mathematical language).

A student at the **Advanced Level** can:

- Use equations to solve non-routine multi-step word problems posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted;
  Compare multi-digit whole numbers using <, >, and =; then justify answers using place value understanding;
- Select and accurately apply mental computation and estimation strategies to solve problems, assess reasonableness of answers or to interpret remainders;
- Use number patterning to solve problems and generalize rules;
- Use efficient procedures to accurately multiply multi-digit whole numbers and to find quotients involving multi-digit dividends in solving non-routine problems;
- Apply perimeter and area formulas in solving non-routine real-world problems;
- Use the four operations to solve non-routine word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit;
- Solve problems by comparing two fractions with different numerators and different denominators using the symbols <, >, and =, and justifying the conclusion using a visual fraction model;
- Interpret line plot data including fractions to solve non-routine real-world problems;
- Demonstrate an understanding of the concepts of angles by determining the measure of complex angles using appropriate strategies (protractors, equations);
- Write and solve equations to find the measure of angles including those with multiple parts or missing parts from real world problems.