

Course Syllabus

Mathematics, Mathematics Grade 4

Morgan County Curriculum 4.1 Elementary., Final
Morgan County School District

Number Properties and Operations (40%)

- 1.1 (DOK 2) ASSESSED
The learner will be able to explain how the base 10 numbers system relates to place value and APPLY multiple representations such as drawings, manipulatives, base-10 blocks, number lines, expanded form and symbols to describe whole numbers 0 to 9,999 as well as be able to APPLY these same representations to describe fractions (halves, thirds, fourths) and APPLY these numbers to real world problems.
- 1.1.2 Supporting
The learner will be able to read, write and rename whole numbers, fractions and decimals and apply them to real world mathematical problems.
- 1.1.3 ASSESSED
The learner will be able to compare and order whole numbers to whole numbers, decimals to decimals (as money only) and picture representations of fractions to fractions using $<$, $>$, $=$ symbols.
- 1.2.1 (DOK 2) ASSESSED
The learner will be able to apply and describe appropriate strategies for estimating quantities of objects and computational results.
- 1.3.1 (DOK 2) ASSESSED
The learner will be able to analyze real world problems to identify appropriate representations including mathematical operations, and will apply operations to solve real-world problems such as adding and subtracting whole numbers with three digits or less, multiplying whole numbers of 10 or less, problems and problems fractions with like denominators less than or equal to four and add and subtract decimals related to money.
- 1.3.2 Supporting
The learner will be able to skip count forward and backward by 2s, 3s, 4s, 5s, 10s, 20s, 25s, 50s, 100s, 1000, and 10,000s.

- 1.5.1 (DOK 2) ASSESSED
The learner will be able to identify and provide examples of odd numbers, even numbers and multiples of a number, and will apply these numbers to solve real-world problems.
- 1.5.2 Supporting
The learner will be able to use the commutative properties of addition and multiplication, the associative properties of addition and multiplications, the identity properties of addition and multiplication and the zero property of multiplication in written and mental computation.

Measurement (10%)

- 2.1.1 (DOK 1) ASSESSED
The learner will be able to apply standard units to measure length to the nearest quarter-inch or the nearest centimeter, to determine weight to the nearest ounce, pound, gram and kilogram; to determine area (figures that can be divided into rectangular shapes), to tell time to the nearest five minutes, and to rectangular Fahrenheit temperature.
- 2.1.2 Supporting
The learner will be able to choose and use appropriate tools like thermometers, scales, balances, clock, meter stick, yardstick, ruler, for specific measurement tasks.
- 2.1.3 Supporting
The learner will be able to use nonstandard and standard unites of measurement to identify measurable attributes of an object like length and width using appropriate units of measurement.
- 2.1.4 Supporting
The learner will be able to use units of measurement to describe and compare attributes of objects to include length (in, ft, yd, mile; cm, m, km) width, height, money (cost), temperature (F) and weight (oz, lb, ton, g, kg) and sort objects and compare attributes.
- 2.1.6 Supporting
The learner will be able to estimate weight, length, perimeter, area, angle measures and time using appropriate units of measurement.

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■ 2.2.1 Supporting

The learner will be able to describe, define, give examples of and use to solve real-world and mathematical problems nonstandard and standard (US Customary, metric) units of measurement (e.g., weight-oz., lbs., tons, g, kg; length-in., ft., yd., mile, cm, m, km; area in square units) and money.

■ 2.2.2 Supporting

The learner will be able to determine elapsed time to the nearest quarter hour.

■ 2.2.3 Supporting

The learner will be able to convert units within the same measurement system including money, time (seconds, minutes, hours, days weeks, months, years) weight (ounce, pound) and length (inches, feet, yards).

■ 2.1.5 Supporting

The learner will be able to use nonstandard and standard units to measure angles (as compared to 90 degrees).

Geometry (20%)

■ 3.1.1 (DOK 2) ASSESSED

The learner will be able to describe and provide examples of basic geometric elements and terms like points, segments, lines (perpendicular, parallel, intersecting), rays, angles (acute, right, obtuse), sides, edges, faces, bases, and angles, and will apply these elements to solve real-world and mathematical problems.

■ 3.1.2 (DOK 2) ASSESSED

The learner will be able to describe and provide examples of basic two-dimensional shapes like circles, triangles (right, equilateral), squares, rectangles, trapezoids, rhombuses, pentagons, hexagons, octagons and will apply these shapes to solve real-world and mathematical problems.

■ 3.1.3 (DOK 1) ASSESSED

The learner will be able to describe and provide examples of basic three-dimensional objects like spheres, cones, cylinders, pyramids, cubes, triangular and rectangular prisms and will apply the attributes to solve real-world and mathematical problems.

■ 3.1.4 Supporting

The learner will be able to explore two-dimensional representations of three-dimensional objects (nets).

■ 3.1.5 Supporting

The learner will be able to identify and describe congruent figures and similar figures in real-world and mathematical problems.

■ 3.2.1 (DOK 2) ASSESSED

The learner will be able to describe and provide examples of line symmetry in real-world and mathematical problems or will apply one line of symmetry to construct a simple geometric design.

■ 3.2.2 Supporting

The learner will be able to identify basic two-dimensional shapes in different orientations using 90 rotations (turns) around a point of rotation, reflections (flips) and translations (slides) within a plane.

■ 3.3.1 (DOK 2) ASSESSED

The learner will be able to identify and graph ordered pairs on a positive coordinate system scaled by ones or locate points on a grid.

Data Analysis and Probability (15%)

■ 4.1.1 (DOK 3) ASSESSED

The learner will be able to analyze and make inferences from data displays like drawings, tables/charts, tally tables, pictographs, bar graphs, circle graphs, line plots, and Venn diagrams.

■ 4.1.2 Supporting

The learner will be able to collect data.

■ 4.1.3 (DOK 2) ASSESSED

The learner will be able to construct data displays like pictographs, bar graphs, line plots, Venn diagrams and tables.

■ 4.2.1 Supporting

The learner will be able to determine the median, mode (for a set of data with no more than one mode) and the range of a set of data.

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- 4.3.1 Supporting
The learner will be able to pose questions that can be answered by collecting data.
- 4.4.1 (DOK 1)
The learner will be able to determine all possible outcome of an activity/event with up to six possible outcomes.
- 4.4.2 (DOK 1) ASSESSED
The learner will be able to determine the likelihood of an event and the probability of an event (expressed as a fraction).
- 4.4.3 Supporting
The learner will be able to describe and give examples of the probability of an unlikely event (near zero) and a likely event (near one).

Algebraic Thinking (15%)

- 5.1.1 (DOK 3) ASSESSED
The learner will be able to extend patterns (e.g., 108, 208, 308, 408, ...; ???????...) from real-world and mathematical problems; compare simple patterns (numbers, pictures, words; e.g., ????? ; ?????); and describe rules for simple number patterns (e.g., 1, 3, 5, 7, ...; 5, 10, 15, 20, ...; 30, 27, 24, 21, ...).
- 5.1.2 (DOK 2) ASSESSED
The learner will be able to describe functions (input-output) through pictures, tables and words; and will analyze functions from a table based on real-world and mathematical problems.
- 5.1.3 (DOK 2) ASSESSED
The learner will be able to determine the value of an output given a function rule and an input value.
- 5.3.1 (DOK 2) ASSESSED
The learner will be able to model real-world and mathematical problems with simple number sentences (equations and inequalities) with a variable or a missing value (e.g., $4 = 7 - \underline{\quad}$, $N + 5 > 14$, $+ N = 1$) and apply simple number sentences to solve mathematical and real-world problems.