

KINDERGARTEN - MATHEMATICS STANDARDS AND STUDENT EXPECTATIONS

Through the use of the processes of problem solving, reasoning and proof, communication, connections, and representation, the student will acquire knowledge of the following content standards:

A. NUMBER AND OPERATIONS STANDARD – *The student should be able to understand numbers, ways of representing numbers, relationships among numbers, and number systems; understand meanings of operations and how they relate to one another; compute fluently and make reasonable estimates.*

- K.A.1 Rote count by 1's to 100.
- K.A.2 Use 1:1 correspondence to count to 20.
- K.A.3 Recognize small groups of up to 5 objects (cards, dice, dominoes).
- K.A.4 Estimate quantities to 20
- K.A.5 Recognize and write numbers 0-20.
- K.A.6 Use numerals 1-20 to label a quantity. Order numerals 1-20.
- K.A.7 Use symbols +, -, =.
- K.A.8 Act out and interpret simple addition and subtraction stories
- K.A.9 Compare two groups or two numerals using more, less or the same.
- K.A.10 Use objects determine "one more" and "one less" by counting on or counting back.
- K.A.11 Use objects to build and describe all of the number combinations through 5.
- K.A.12 Develop fluency (4 second recall) with number combinations through 5.

B. ALGEBRA STANDARD –*The student should be able to understand patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols; use mathematical models to represent and understand quantitative relationships; analyze change in various contexts.*

- K.B.1 Explore and extend visual patterns

C. GEOMETRY STANDARD –*The students should be able to analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships; specify locations and describe spatial relationships using coordinate geometry and other representational systems; apply transformations and use symmetry to analyze mathematical situations; use visualization, spatial reasoning, and geometric modeling to solve problems.*

- K.C.1 Recognize and name basic 2-dimensional geometric shapes (square, circle, rectangle, triangle)
- K.C.2 Use positional words to describe locations (over, under, above, between, in front of, in back of, etc.).

D. MEASUREMENT STANDARD – *The student should be able to understand measurable attributes of objects and the units, systems, and processes of measurement; apply appropriate techniques, tools, and formulas to determine measurements.*

- K.D.1 Use non-standard units to measure, compare, and order objects according to length, volume, weight, and area.
- K.D.2 Recognize and state the value of a penny, nickel, dime, and a quarter.

E. DATA ANALYSIS, AND PROBABILITY STANDARD – *The student should be able to formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them; select and use appropriate statistical methods to analyze data; develop and evaluate inferences and predictions that are based on data; understand and apply basic concepts of probability.*

- K.E.1 Sort and classify objects (keys, buttons, junk boxes) according to their attributes.
- K.E.2 Create and interpret real graphs and picture graphs.

FIRST GRADE - MATHEMATICS STANDARDS AND STUDENT EXPECTATIONS

Through the use of the processes of problem solving, reasoning and proof, communication, connections, and representation, the student will acquire knowledge of the following content standards:

A. NUMBER AND OPERATIONS STANDARD – *The student should be able to understand numbers, ways of representing numbers, relationships among numbers, and number systems; understand meanings of operations and how they relate to one another; compute fluently and make reasonable estimates.*

- 1.A.1 Rote count by 2's and 5's to 40
- 1.A.2 Use 1:1 correspondence to count forward/backwards using a number greater than 30 and less than 100.
- 1.A.3 Recognize groups of up to 10 objects in a patterned arrangement without counting.
- 1.A.4 Compare two quantities of up to 20 objects.
- 1.A.5 Order numerals 1-31.
- 1.A.6 Identify place value for 2-digit numbers.
- 1.A.7 Use the numerals 0-30+ to label a quantity.
- 1.A.8 Read and write numerals to 100.
- 1.A.9 Connect number words to numerals 0-10
- 1.A.10 Use ordinal numbers 0-10.
- 1.A.11 Determine "one more" or "one less" without counting.
- 1.A.12 Understand the meaning of addition and subtraction.
- 1.A.13 Solve addition/subtraction stories using number sentences.
- 1.A.14 Estimate quantities up to 50.
- 1.A.15 Use math fact strategies to develop fluency (4 second recall) with number combinations through 12.

B. ALGEBRA STANDARD – *The student should be able to understand patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols; use mathematical models to represent and understand quantitative relationships; analyze change in various contexts.*

- 1.B.1 Create, sort, explore, and extend visual patterns.
- 1.B.2 Add and subtract by identifying and using patterns on a hundreds chart.
- 1.B.3 Use patterns to solve single digit calculations.

C. GEOMETRY STANDARD – *The students should be able to analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships; specify locations and describe spatial relationships using coordinate geometry and other representational systems; apply transformations and use symmetry to analyze mathematical situations; use visualization, spatial reasoning, and geometric modeling to solve problems.*

- 1.C.1 Compare and sort 2-Dimensional and 3-Dimensional shapes according to their attributes.
- 1.C.2 Use small shapes to fill in larger 2-Dimensional shapes.

D. MEASUREMENT STANDARD – *The student should be able to understand measurable attributes of objects and the units, systems, and processes of measurement; apply appropriate techniques, tools, and formulas to determine measurements.*

- 1.D.1 Measure length to the nearest inch.
- 1.D.2 Show money amounts with coins.
- 1.D.3 Tell time to the quarter hour

E. DATA ANALYSIS AND PROBABILITY STANDARD – *The student should be able to formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them; select and use appropriate statistical methods to analyze data; develop and evaluate inferences and predictions that are based on data; understand and apply basic concepts of probability.*

- 1.E.1 Sort and classify objects by at least one attribute.
- 1.E.2 Collect, record, and interpret data using charts and graphs.

SECOND GRADE - MATHEMATICS STANDARDS AND STUDENT EXPECTATIONS

Through the use of the processes of problem solving, reasoning and proof, communication, connections, and representation, the student will acquire knowledge of the following content standards:

A. NUMBER AND OPERATIONS STANDARD – *The student should be able to understand numbers, ways of representing numbers, relationships among numbers, and number systems; understand meanings of operations and how they relate to one another; compute fluently and make reasonable estimates.*

- 2.A.1 Rote count to 50 by 2's.
- 2.A.2 Use 1:1 correspondence to count up to 100 objects by 2's, 5's, and 10's.
- 2.A.3 Identify place value in 3-digit numbers.
- 2.A.4 Explore place value on a hundreds chart.
- 2.A.5 Compare numbers using <, >, and =.
- 2.A.6 Read and write numbers to 500.
- 2.A.7 Understand and represent commonly used unit fractions: $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$.
- 2.A.8 Determine how many more one number is than the other.
- 2.A.9 Put together and take apart 1- and 2-digit numbers in a variety of ways, including coins.
- 2.A.10 Write number sentences involving 1- and 2-digit numbers to solve a variety of addition and subtraction stories.
- 2.A.11 Understand multiplication as repeated addition and division as equal sharing of objects.
- 2.A.12 Solve 2-digit addition and subtraction problems
- 2.A.13 Make reasonable estimations to 50, 100, and 100+.
- 2.A.14 Use math fact strategies to develop fluency with number combinations through 18 (4 second recall)

B. PATTERN AND ALGEBRA STANDARD – *The student should be able to understand patterns, relations, and functions; represent and analyze mathematical situations and structures using algebraic symbols; use mathematical models to represent and understand quantitative relationships; analyze change in various contexts.*

- 2.B.1 Recognize, copy, extend, and create complex (AABBC) repeating and growing patterns.
- 2.B.2 Analyze, describe, label and sort complex repeating and growing patterns.
- 2.B.3 Recognize patterns in the real world.

C. GEOMETRY AND SPATIAL SENSE – *The students should be able to analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships; specify locations and describe spatial relationships using coordinate geometry and other representational systems; apply transformations and use symmetry to analyze mathematical situations; use visualization, spatial reasoning, and geometric modeling to solve problems.*

- 2.C.1 Name, build, compare, sort and describe the attributes of 2-Dimensional and 3-Dimensional shapes.
- 2.C.2 Recognize and create shapes that have symmetry.
- 2.C.3 Use smaller shapes to fill in larger 2 Dimensional shapes.

D. MEASUREMENT STANDARD – *The student should be able to understand measurable attributes of objects and the units, systems, and processes of measurement; apply appropriate techniques, tools, and formulas to determine measurements.*

- 2.D.1 Measure length to the nearest centimeter.
- 2.D.2 Use dollar and cents notation.
- 2.D.3 Show money amounts with coins and bills.
- 2.D.4 Identify equivalent money amounts and make coin/bill exchanges.
- 2.D.5 Tell time on an analog clock using hours and minutes. (Example: 1:30, 2:15, 3:07)
- 2.D.6 Use standard units to measure length, weight, and temperature.

E. DATA ANALYSIS, STATISTICS, AND PROBABILITY STANDARD – *The student should be able to formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them; select and use appropriate statistical methods to analyze data; develop and evaluate inferences and predictions that are based on data; understand and apply basic concepts of probability.*

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- 2.E.1 Sort and classify objects by two or more attributes at the same time.
- 2.E.2 Create and interpret real graphs, picture graphs, and bar graphs.