

## 4TH GRADE

### **NUMBER SENSE**

**NB4:1** TLW read, write, order, and compare numbers through nine digits, relate numbers to the quantities they represent, and compose and decompose numbers using place value.

**NB4:2** TLW find all factors of a whole number up to 50, list the first ten multiples of a given one-digit whole number, identify prime and composite numbers, and solve problems.

**NB4:3** TLW multiply fluently any whole number by a one-digit number, a three-digit number by a two-digit number, and solve applied problems.

**NB4:4** TLW divide numbers up to four digits by one-digit numbers and by ten, use the inverse operation (multiplication) to check solution, and solve applied problems.

**NB4:5** TLW read, write, interpret and compare decimals through hundredths, relate decimals to money and place value decomposition, and solve problems.

**NB4:6** TLW understand fractions as parts of a set of objects; read, write, compare, and order unit fractions through sixteenths; explain why equivalent fractions are equal; and write improper fractions as mixed numbers.

**NB4:7** TLW solve problems involving the addition and subtraction of fractions with like denominators or where one denominator is a multiple of the other.

**NB4:8** TLW estimate sums, differences, products, and quotients, know when an estimation or approximation is appropriate and reasonable.

**NB4:9** TLW add and subtract decimals, multiply and divide decimals by a one-digit whole number where the result is a terminating decimal, and solve applied problems.

**NB4:10** Using repeated addition and area or array models, TLW multiply fractions by whole numbers and solve applied problems.

### **GEOMETRY/MEASUREMENT**

**GM4:1** TLW select the appropriate tools and units of measure, measure length, weight/mass, temperature and volume (capacity) to a reasonable degree of precision within the customary or metric system to solve problems.

**GM4:2** TLW use formulas to calculate perimeter and area of rectangles and combinations of rectangular shapes, measure surface area of cubes and rectangular prisms, and solve contextual problems.

**GM4:3** TLW identify and utilize the properties of two-dimensional shapes, three-dimensional shapes, angles, parallel lines, perpendicular lines, and intersecting lines, and use their properties to solve problems.

**GM4:4** TLW recognize symmetry and transformations of two-dimensional shapes and objects.

### **DATA/STATISTICS**

**DS4:1** TLW order a given set of data, find the median and specify the range of values, construct tables and bar graphs from given data, and solve problems using data represented in tables and bar graphs.

## 5TH GRADE

### **NUMBER SENSE**

**NB5:1** TLW relate division to repeated subtraction and fractions, fluently divide up to a four-digit by a two-digit number, use division algorithms, and write mathematical statements involving division to solve problems.

**NB5:2** TLW multiply a multi-digit number by a two-digit number, a whole number by powers of ten, and solve problems.

**NB5:3** TLW solve problems involving addition and subtraction of fractions and apply problem-solving strategies.

**NB5:4** TLW find the prime factorization of numbers between 1 and 50, express numbers in exponential notation, and understand that every composite number can be expressed as a product of primes.

**NB5:5** TLW multiply unit fractions and divide a whole number by a fraction and a fraction by a whole number.

**NB5:6** TLW express ratios in several different ways, recognize and find equivalent ratios, and find the unknown in a proportion.

**NB5:7** TLW express percentages as parts of 100 and part of a whole as a percentage, express fractions and decimals as percentages, and percentages as fractions and decimals.

**NB5:8** TLW solve applied problems involving adding, subtracting, multiplying and dividing decimals, and order decimals.

### **GEOMETRY/MEASUREMENT**

**GM5:1** TLW apply the concepts of linear measurement, weight/mass, and volume; make conversions within customary or metric systems; and solve applied problems.

**GM5:2** TLW use the area formula to calculate the area of triangles and parallelograms and show the relationship between areas of rectangles, triangles, and parallelograms using models or illustrations.

**GM5:3** TLW identify, measure and classify angles, find unknown angles and sides using the properties of triangles, parallelograms, and trapezoids, and associate given angles with corresponding turns in transformations.

**GM5:4** TLW find the volume of cubes and rectangular prisms and solve applied problems.

### **DATA/STATISTICS**

**DS5:1** TLW read, interpret, analyze and construct line graphs and solve problems.

**DS5:2** TLW find and interpret the mean and mode in a set of data and solve multi-step problems involving means.

## 6TH GRADE

### **NUMBER SENSE**

**NB6:1** TLW multiply and divide fractions.

**NB6:2** TLW represent rational numbers as fractions or decimals.

**NB6:3** TLW add and subtract integers and rational numbers.

**NB6:4** TLW find equivalent ratios.

**NB6:5** TLW solve decimal, percentage and rational number problems.

**NB6:6** TLW use exponents.

**NB6:7** TLW understand rational numbers and their location on the number line.

### **ALGEBRA**

**AO6:1** TLW calculate rates.

**AO6:2** TLW understand the coordinate plane.

**AO6:3** TLW use variables, write expressions and equations and combine like terms.

**AO6:4** TLW represent linear functions using tables, equations and graphs.

**AO6:5** TLW solve equations.

### **GEOMETRY & MEASUREMENT**

**GM6:1** TLW convert within measurement systems.

**GM6:2** TLW find volume and surface area.

**GM6:3** TLW understand and apply basic properties.

**GM6:4** TLW understand the concept of congruence and basic transformations.

**GM6:5** TLW construct geometric shapes.

### **DATA & PROBABILITY**

**DP6:1** TLW understand the concept of probability and solve problems.



*“Together We’re  
A Powerful Team”*

## MATHEMATICS CORE CURRICULUM 2011/2012

The curriculum area represented in this brochure is aligned directly to Michigan's academic core curriculum. If you would like any additional information or have questions, contact your building principal or district office.

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## KINDERGARTEN

### *NUMBER SENSE*

**NBK:1** TLW verbally count objects in a set of 0-30 numbers.

**NBK:2** TLW count to 100 by ones and tens, and count to 30 by twos, fives, and tens.

**NBK:3** TLW recognize different representations of the same number, compose and decompose numbers from 2 to 10, represent situations/stories involving putting together and taking apart for totals up to 10, and write simple addition and subtraction sentences.

**NBK:4** TLW describe, create, and extend a simple number pattern.

**NBK:5** Given two sets of objects, TLW manipulate the sets to prove which is “more than,” “less than,” or “equal to”.

**NBK:6** TLW read numerals given by the teacher at random from 0-30.

**NBK:7** TLW write numerals 0-30 in order to connect them to the quantities they represent.

**NBK:8** TLW Order numbers to 30 and compare numbers to 30 using phrases such as “more than” or “less than”.

**NBK:9** TLW use groups of ten and ones to create numbers to 30 and use groups of ten to count to 100.

### *GEOMETRY/MEASUREMENT*

**GMK:1** TLW compare two or more objects by length, weight and capacity, identify common measurement tools, and determine the purpose for their use (clock, calendar, thermometer, ruler, scale, balance).

**GMK:2** TLW know and use the common words for parts of the day, week, and year; understand that clocks measure time and a calendar measures days, weeks, and months.

**GMK:3** TLW identify and name familiar three-dimensional shapes and relate them to objects inside and outside the classroom.

**GMK:4** TLW describe, create and extend a geometric pattern.

**GMK:5** TLW identify, sort and classify objects by attribute and identify objects that do not belong in a particular group.

### *DATA/STATISTICS*

**DSK:1** TLW verbally interpret real and picture graphs, answer questions, and compare data.

## 1ST GRADE

### *NUMBER SENSE*

**NB1:1** TLW count, read, and write numbers by ones to 110 and relate them to the quantities they represent; count backward by ones from any number between 1 and 110.

**NB1:2** TLW order and compare numbers to 110 and explore place value by composing and decomposing numbers to 30.

**NB1:3** TLW demonstrate knowledge of fact families and solve problems involving addition of two and three addends with sums up to 20 and subtraction problems and write mathematical sentences.

**NB1:4** TLW fluently recall addition facts to  $10 + 10$  and related subtraction facts within a specified time frame.

**NB1:5** TLW recognize fractions as being equal parts of a whole or set and use models to identify one-half, one-third, and one fourth.

**NB1:6** TLW read, count, and write numbers by twos, fives, and tens to 110 and count to 500 by tens and hundreds and use ordinal numbers to identify position in a sequence.

**NB1:7** TLW mentally calculate sums and differences up to two digit numbers without regrouping.

### *GEOMETRY/MEASUREMENT*

**GM1:1** TLW measure and compare lengths of objects in non-standard units, weigh common objects using a balance, determine capacity of containers, and solve simple word problems involving measurement.

**GM1:2** TLW read, record, and relate time to the hour and half-hour using a digital clock and an analog clock in real-life situations, use a calendar to name months of the year and days of the week, and solve one-step word problems involving time.

**GM1:3** TLW identify the different denominations of coins and bills, tell the total value of combinations of coins up to \$1 and the total value of combinations of bills up to \$100, represent equivalency of coins and bills, and solve simple word problems involving money.

**GM1:4** TLW differentiate between and create common two- and three-dimensional geometric shapes and describe their physical and geometric attributes.

**GM1:5** TLW describe, identify, extend, and create patterns using number, shape, and size.

**GM1:6** TLW describe relative position of objects on a plane and in space.

### *DATA/STATISTICS*

**DS1:1** TLW collect and organize data and create, read, and interpret real and picture graphs.

## 2ND GRADE

### *NUMBER SENSE*

**NB2:1** TLW read and write numbers to 1000 in numerals and words, count to 1000 by ones, twos, fives, tens and hundreds starting with any number, and count by threes and fours starting with 0.

**NB2:2** TLW order numbers to 1000 and compare using  $>$  and  $<$  symbols, express the place value of numbers to 1000, and relate numbers to the quantities they represent.

**NB2:3** TLW decompose 100 into addition pairs, and fluently solve addition using two-digit numbers.

**NB2:4** TLW estimate and calculate the sum of two numbers with three digits that do not require regrouping, and mentally calculate sums and differences involving three-digit numbers and ones, tens, and hundreds.

**NB2:5** TLW demonstrate the concepts of multiplication as repeated addition, division as repeated subtraction, and multiplication and division as inverse operations, and recall multiplication facts to  $5 \times 5$  using various strategies.

**NB2:6** TLW recognize, name, and represent commonly used unit fractions with denominators 12 or less, explain the inverse relationship between the size of a unit fraction and the size of the denominator, and recognize that fractions with the same numerator and denominator are equal to the whole.

**NB2:7** TLW fluently solve subtraction problems using two-digit numbers, find missing values in open addition and subtraction sentences and find distance between two numbers on a number line.

**NB2:8** TLW fluently multiply numbers up to  $5 \times 5$  within a specified time frame.

### *GEOMETRY/MEASUREMENT*

**GM2:1** TLW measure, compare, and add & subtract lengths of objects in meters, centimeters, yards, feet, and inches to solve problems.

**GM2:2** TLW compute the perimeter of polygons, measure area of polygons using non-standard units, find the area of rectangles by covering with unit squares and write as a product, and solve applied problems.

**GM2:3** TLW read and record time to five-minute intervals using A.M. and P.M. and find a time in the past or future (duration).

**GM2:4** TLW add and subtract money in mixed units and solve simple word problems involving money.

**GM2:5** TLW read temperature using the scale on a thermometer in degrees Fahrenheit.

**GM2:6** TLW identify, describe, compare and classify two-dimensional and three-dimensional shapes, distinguish between curves and straight lines and between curved surfaces and flat surfaces, and demonstrate slides, flips, and turns using manipulatives.

**GM2:7** TLW find and name locations using simple coordinate systems such as maps and first-quadrant grids.

### *DATA/STATISTICS*

**DS2:1** TLW make pictographs and interpret data given on a pictograph to solve problems.

## 3RD GRADE

### *NUMBER SENSE*

**NB3:1** TLW read and write numbers to 10,000 in standard, word, and expanded notation, identify place value, compare and order numbers, and identify numbers as odd or even.

**NB3:2** TLW add and subtract numbers with two digits using regrouping mentally and on paper, and add and subtract numbers with up to four digits without using regrouping.

**NB3:3** TLW estimate the sum and difference of two numbers with up to three digits each.

**NB3:4** TLW show multiplication as repeated addition and as the opposite of division.

**NB3:5** TLW use multiplication or division (including remainders) to solve real-life problems and use mental math to calculate products and quotients using multiples of 10 (up to 3 digits) and a one-digit number.

**NB3:6** TLW fluently multiply numbers up to  $10 \times 10$  within a specified time frame.

**NB3:7** TLW solve problems using addition, subtraction, multiplication, and division, draw a picture and write a number sentence to represent the problem, and tell if the answer is a sum, difference, product, or quotient.

**NB3:8** TLW use fractions to show a portion of a whole, add and subtract fractions with like denominators, find equivalent fractions with denominators 2, 4, and 8, and compare and order fractions with denominators 2, 4, and 8.

### *GEOMETRY/MEASUREMENT*

**GM3:1** TLW measure length, weight, and capacity using common metric and customary units, understand the relationship between units, and solve addition and subtraction problems using like measures.

**GM3:2** TLW read thermometers and use the concept of temperature to compare to benchmark temperatures and to solve real-life problems.

**GM3:3** TLW solve applied problems using addition and subtraction of money and understand and relate decimal fractions to fractional parts of a dollar.

**GM3:4** TLW distinguish between perimeter and area, estimate and calculate the perimeter and area of rectangles, use the appropriate unit of measure, and solve related contextual problems.

**GM3:5** TLW use the properties of shapes to describe, classify and compare three-dimensional shapes and construct nets of cubes, prisms, cylinders, and cones.

**GM3:6** TLW identify geometric elements in isolation and in real life, identify and draw two-dimensional shapes, and compose and decompose two-dimensional shapes.

**GM3:7** TLW tell time to the minute on digital and face clocks, know common units of time including hours, minutes, seconds, years, and months, and use elapsed time to solve real-life problems.

### *DATA/STATISTICS*

**DS3:1** TLW construct, read and interpret bar graphs and use information in the bar graphs to solve problems.