



NORTH DAKOTA  
**DEPARTMENT OF  
PUBLIC INSTRUCTION**

**North Dakota  
Mathematics  
Content Standards  
Family & Community Guides**

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## Introduction

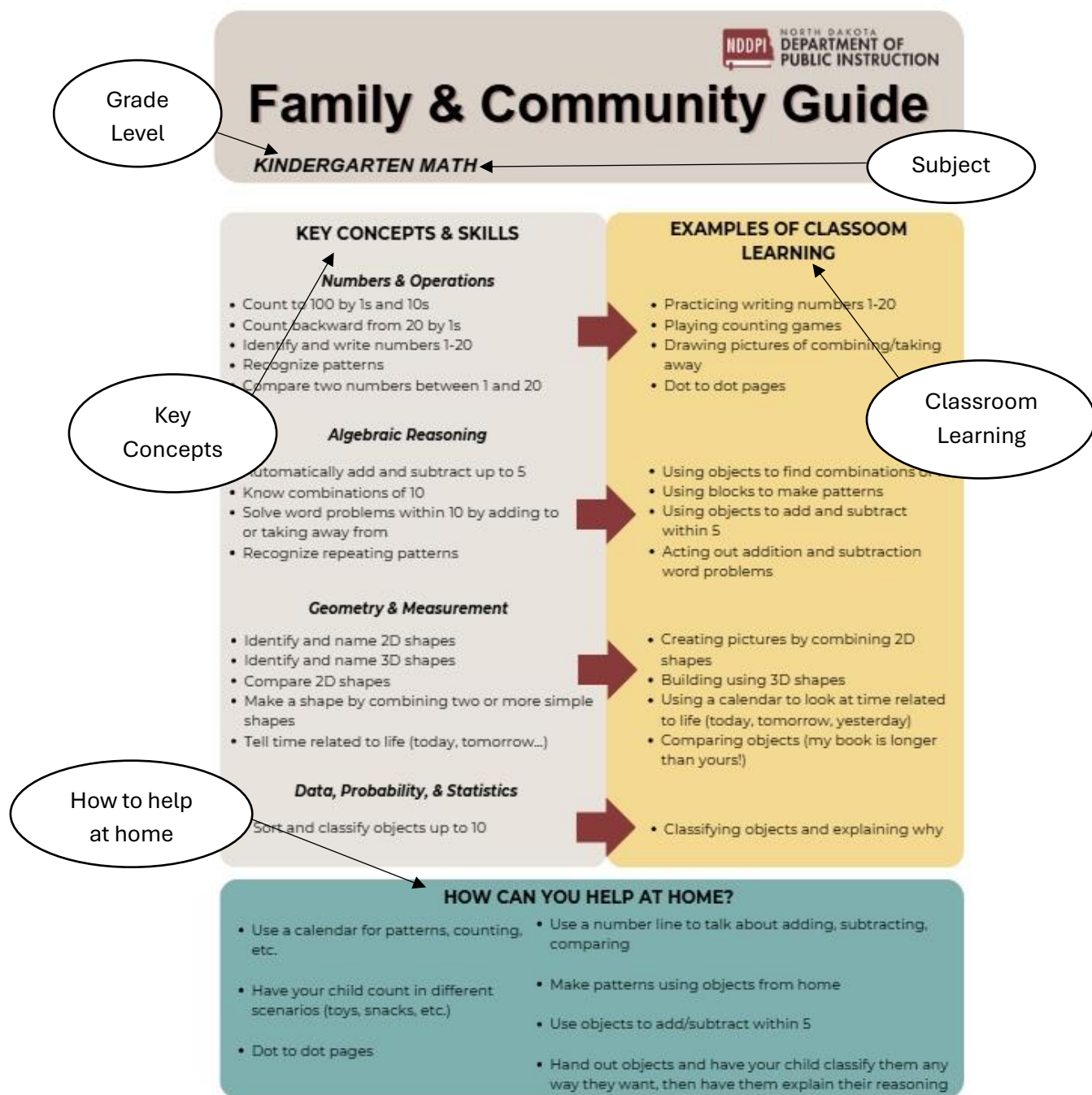
The Family & Community Guides are designed for individuals outside the education field who are invested in students' learning experiences. These guides provide an overview of what students will learn at each grade level, offering insights into classroom activities and suggestions for supporting learning at home.

The guides are organized by grade level to align with the typical school structure, except for High School, which has a single guide each covering grades 9-12. Available in PDF format, these guides can be easily printed and shared, making them accessible to families and community members.

### *Alignment to North Dakota Content Standards*

The North Dakota Content Standards serve as a model to establish teaching and learning goals, outlining the knowledge and skills students should achieve at each grade level. While local school districts choose the specific curriculum to meet these standards, the Family & Community Guides present a simplified version for parents and community members. These guides provide a basic understanding of the expected skills and learning experiences, complementing the more detailed standards written for professional educators.

## How to Read This Document



The document is organized by grade level (K-8) and grade span (9-12). Each guide has a list of all key concepts & skills, corresponding examples of classroom learning, and tips/resources for how families can help support the learning at home. The key concepts and skills are broken down by the Math strands: Numbers & Operations, Algebraic Reasoning, Geometry & Measurement, Functions (grades 9-12 only), and Data, Probability, & Statistics.

## Resources

*2020 Family and Community Guides to the Colorado Academic Standards* | Colorado Department of Education. Colorado Department of Education | Retrieved May 29, 2024, from

<https://www.cde.state.co.us/standardsandinstruction/guidestostandards>

*Learning Standards for Families* | Massachusetts Department of Elementary and Secondary Education. Massachusetts Department of Education | Retrieved May 29, 2024, from <https://www.doe.mass.edu/highstandards/default.html>

*North Dakota Mathematics K-12 Standards* | North Dakota Department of Public Instruction. (2023, July). North Dakota Department of Public Instruction. | Retrieved June 16, 2024, from [ND Mathematics Standards](#)

## **North Dakota Mathematics Family & Community Guides Writing Committee**

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NORTH DAKOTA  
**DEPARTMENT OF  
PUBLIC INSTRUCTION**

**North Dakota**

# **Mathematics**

**Family & Community Guides**



# Family & Community Guide

## KINDERGARTEN MATH

### KEY CONCEPTS & SKILLS

#### *Numbers & Operations*

- Count to 100 by 1s and 10s
- Count backward from 20 by 1s
- Identify and write numbers 1-20
- Recognize patterns
- Compare two numbers between 1 and 20

#### *Algebraic Reasoning*

- Automatically add and subtract up to 5
- Know combinations of 10
- Solve word problems within 10 by adding to or taking away from
- Recognize repeating patterns

#### *Geometry & Measurement*

- Identify and name 2D shapes
- Identify and name 3D shapes
- Compare 2D shapes
- Make a shape by combining two or more simple shapes
- Tell time related to life (today, tomorrow...)

#### *Data, Probability, & Statistics*

- Sort and classify objects up to 10

### EXAMPLES OF CLASSROOM LEARNING

- Practicing writing numbers 1-20
- Playing counting games
- Drawing pictures of combining/taking away
- Dot to dot pages

- Using objects to find combinations of 10
- Using blocks to make patterns
- Using objects to add and subtract within 5
- Acting out addition and subtraction word problems

- Creating pictures by combining 2D shapes
- Building using 3D shapes
- Using a calendar to look at time related to life (today, tomorrow, yesterday)
- Comparing objects (my book is longer than yours!)

- Classifying objects and explaining why

### HOW CAN YOU HELP AT HOME?

- Use a calendar for patterns, counting, etc.
- Have your child count in different scenarios (toys, snacks, etc.)
- Dot to dot pages
- Use a number line to talk about adding, subtracting, comparing
- Make patterns using objects from home
- Use objects to add/subtract within 5
- Hand out objects and have your child classify them any way they want, then have them explain their reasoning

# Family & Community Guide

## FIRST GRADE MATH

### KEY CONCEPTS & SKILLS

#### **Numbers & Operations**

- Count forward and backward within 120
- Skip count by 5s
- Read and write numbers up to 100
- Place value and comparison of two-digit numbers
- Add two-digit and one-digit numbers within 100
- Subtract 10s within 100
- Mentally add/subtract by 10s
- Separate circles/rectangles into two or four equal parts

#### **Algebraic Reasoning**

- Automatically add and subtract within 10
- Addition word problems within 20
- Subtraction word problems within 20
- Separate numbers within 20
- Understand symbols: +, -, and =
- Identify, create, and complete patterns

#### **Geometry & Measurement**

- Name and Identify 2D and 3D shapes
- Combine multiple 2D or 3D shapes to create a solid/shape
- Measure with non-standard units
- Compare the length of three objects
- Tell time to hour and half hour
- Identify and count money up to \$1.00

#### **Data, Probability, & Statistics**

- Collect data using pictures and bar graphs
- Answer data questions

### EXAMPLES OF CLASSROOM LEARNING

- Practicing reading & writing numbers 1-100
- Playing counting games
- Drawing pictures of combining/taking away
- Dot to dot pages
- Mentally solving problems adding or subtracting 10
- Drawing pictures of circles/rectangles cut in halves or fourths

- Exploring the +, -, and = symbols by writing out equations (e.g.,  $9+7=9+6+1$ )
- Using connections between addition and subtraction to solve problems (e.g., if  $5+7=12$ , then what is  $12-7=5$ )

- Creating pictures by combining 2D shapes
- Building using 3D shapes
- Practicing naming coins
- Using analog clocks to practice telling time to the hour and half hour

- Collecting data from their classroom to make graphs (picture or bar graphs)
- Creating data questions based on their graphs

### HOW CAN YOU HELP AT HOME?

- Cut food into two or four equal parts
- Practice counting coins
- Have your child count in different scenarios (toys, snacks, etc.)
- Use analog clocks to help them tell time
- Cut pictures out of magazines to identify 2D shapes
- Using a bag of candy (skittles, M&Ms), separate the colors and create a graph of the data

# Family & Community Guide

## SECOND GRADE MATH

### KEY CONCEPTS & SKILLS

#### **Numbers & Operations**

- Count forward and backward within 120
- Skip count by 5s
- Read and write numbers up to 100
- Place value and comparison of two-digit numbers
- Add two-digit and one-digit numbers within 100
- Subtract 10s within 100
- Mentally add/subtract by 10s
- Separate circles/rectangles into two or four equal parts

#### **Algebraic Reasoning**

- Automatically add and subtract within 10
- Addition word problems within 20
- Subtraction word problems within 20
- Separate numbers within 20
- Understand symbols: +, -, and =
- Identify, create, and complete patterns

#### **Geometry & Measurement**

- Identify and name 2D and 3D shapes
- Combine multiple 2D or 3D shapes to create a solid/shape
- Measure with non-standard units
- Compare the length of 3 objects
- Tell time to hour and half hour
- Identify and count money up to \$1.00

#### **Data, Probability, & Statistics**

- Collect data using pictures and bar graphs
- Answer data questions

### EXAMPLES OF CLASSROOM LEARNING

- Practicing reading & writing numbers 1-100
- Playing counting games
- Drawing pictures of combining/taking away
- Dot to dot pages
- Mentally solving problems adding or subtracting 10
- Drawing pictures of circles/rectangles cut in halves or fourths

- Exploring the +, -, and = symbols by writing out equations (e.g.,  $9+7=9+6+1$ )
- Using connections between addition and subtraction to solve problems (e.g., if  $5+7=12$ , then what is  $12-7=5$ )

- Creating pictures by combining 2D shapes
- Building using 3D shapes
- Practicing naming coins
- Using analog clocks to practice telling time to the hour and half hour

- Collecting data from their classroom to make graphs (picture or bar graphs)
- Creating data questions based on their graphs

### HOW CAN YOU HELP AT HOME?

- Build fractions using pizzas or pie
- Measure the table in more than one unit of measurement
- Identify 2D and 3D shapes around the house
- Practice counting dollars and coins
- Use analog clocks to help them tell time
- Using a bag of candy (skittles, M&Ms), separate the colors and create a graph of the data

# Family & Community Guide

## THIRD GRADE MATH

### KEY CONCEPTS & SKILLS

#### *Numbers & Operations*

- Read and write numbers up to 10,000
- Compare two four-digit numbers
- Round to 10 or 100
- Add/subtract to 1000
- Represent a fraction on a number line
- Compare fractions of the same denominator or numerator

#### *Algebraic Reasoning*

- Automatically multiply and divide through 5X5 and 10s
- Add/subtract two-step word problems within 1,000
- Multiply/divide word problems within 100

#### *Geometry & Measurement*

- Identify lines, angles, perpendicular, and parallel lines in 2D shapes
- Measure lengths using rulers
- Tell and write time to the nearest minute
- Solve word problems involving coins and bills
- Solve rectangular perimeter problems
- Introduce finding the area with whole-number side lengths

#### *Data, Probability, & Statistics*

- Formulate questions to organize data
- Create line plots
- Solve one or two-step problems using information from graphs

### EXAMPLES OF CLASSROOM LEARNING

- Practicing reading and writing numbers up to 10,000
- Comparing four-digit numbers
- Rounding to 10 or 100
- Using visuals to represent fractions
- Using models/drawings to compare fractions

- Solving two-step word problems involving addition and subtraction
- Showing multiplication and division using pictures of equal groups
- Practicing multiplication/division facts up to 5X5 and 10s

- Covering shapes with squares to understand the area and perimeter
- Using a ruler marked with halves and fourths of an inch
- Drawing/acting out word problems involving money
- Telling time to the nearest minute
- Identifying 2D shapes
- Using cubes to find the area

- Organizing data with 4+ categories
- Creating and answering questions based on graphs
- Comparing data
- Making line plots

### HOW CAN YOU HELP AT HOME?

- Play games to practice multiplication/division
- Draw shapes to show fractions
- Practice adding/subtracting large numbers
- Discuss area/perimeter in real life (fencing a yard)
- Practice telling time
- Categorize home items so your child can practice graphing it
- Discuss when graphs can be used (sports statistics, etc.)

# Family & Community Guide

## FOURTH GRADE MATH

### KEY CONCEPTS & SKILLS

#### ***Numbers & Operations***

- Round whole numbers to any place
- Add/subtract whole numbers to the one million place
- Multiply large numbers
- Divide whole number quotients with remainders
- Convert between improper fractions and mixed numbers
- Add/subtract fractions with like denominators

#### ***Algebraic Reasoning***

- Automatically multiply and divide through  $10 \times 10$
- Identify properties of addition, subtraction, multiplication, and division
- Solve multi-step word problems with all four operations

#### ***Geometry & Measurement***

- Identify, label, and draw points, lines, line segments, rays, and angles
- Draw lines of symmetry in 2D shapes
- Identify and use tools to solve problems
- Solve word problems involving money
- Find area and perimeter of rectangles

#### ***Data, Probability, & Statistics***

- Generate data and create line plots
- Solve addition/subtraction of fractions problems by using a line plot
- Use graphs and diagrams to solve word problems

### EXAMPLES OF CLASSROOM LEARNING

- Rounding numbers
- Adding and subtracting large numbers with ease
- Solving multi-digit multiplication and division problems
- Solving word problems about addition and subtraction of fractions

- Practicing multiplication and division facts up to  $10 \times 10$
- Multi-step word problems (all four operations)

- Using tools to solve problems involving time, length, weight, mass, and capacity (customary or metric)
- Solving word problems involving money
- Finding the area and perimeter of rectangles
- Identifying, labeling, and drawing points, lines, line segments, rays, and angles

- Creating questions and solving problems based on graphs
- Creating line plots

### HOW CAN YOU HELP AT HOME?

- Play card games to practice multiplication and division up to  $10 \times 10$
- Double a recipe when baking together
- Practice adding and subtracting large numbers
- Discuss area and perimeter in real life (size of a room)
- Work with money in real-life situations (making change, paying for items, budgeting and saving)
- Categorize home items so your child can practice graphing
- Discuss when graphs can be used (sports statistics, etc.)



# Family & Community Guide

## FIFTH GRADE MATH

### KEY CONCEPTS & SKILLS

#### *Numbers & Operations*

- Explain patterns when multiplying a number by a power of 10
- Read and write decimals
- Compare decimals to the thousandth place
- Round decimals to any place
- Multiply and divide multi-digit whole numbers
- Use all four operations with decimals to the hundredths
- Add and subtract fractions and mixed numbers with unlike denominators
- Identify equivalent forms of fractions/decimals
- Multiply fractions and mixed numbers

#### *Algebraic Reasoning*

- Automatically multiply and divide through 12X12
- Apply the Order of Operations
- Identify factors and multiples within 100

#### *Geometry & Measurement*

- Classify 2D figures based on properties
- Graph in the first quadrant on the coordinate plane
- Convert within customary and metric systems
- Find area and perimeter of a rectangle

#### *Data, Probability, & Statistics*

- Utilize graphs and diagrams to solve authentic word problems

### EXAMPLES OF CLASSROOM LEARNING

- Reading, writing, and comparing decimals
- Rounding decimals
- Using models or drawings to add, subtract, multiply, and divide decimals
- Adding, subtracting, and multiplying fractions and mixed numbers
- Finding patterns when multiplying by powers of 10

- Practicing multiplication and division facts up to 12X12
- Using the Order of Operations to solve multi-step problems (parentheses, exponents, multiplication, division, addition, then subtraction)

- Classifying 2D figures
- Playing games involving coordinates (Battleship)
- Converting recipe measurements
- Calculating area and perimeter of rectangles

- Creating questions and solving problems based on graphs
- Creating line plots

### HOW CAN YOU HELP AT HOME?

- Calculate the cost of multiple items when grocery shopping (6 boxes of cereal at \$2.99 each)
- Draw shapes to show fractions
- Practice adding and subtracting large numbers mentally
- Convert measurements in a recipe when cooking or baking together (halve a recipe!)
- Discuss area and perimeter in real life (tiling a room)
- Categorize home items so your child can practice graphing it in a line plot
- Discuss when graphs can be used (sports statistics, etc.)

# Family & Community Guide

## SIXTH GRADE MATH

### KEY CONCEPTS & SKILLS

#### *Numbers & Operations*

- Add, subtract, multiply, and divide positive fractions and decimals
- Find greatest common factor and least common multiple (GCF/LCM)
- Compare positive and negative fractions, decimals, and whole numbers

#### *Algebraic Reasoning*

- Use unit rates, equal ratios, percentages, and measurement conversions to solve real-world problems
- Read, write, and evaluate one-step equations and expressions
- Write inequality statements with variables

#### *Geometry & Measurement*

- Find the area of triangles and quadrilaterals
- Find surface area and volume of prisms
- Use the coordinate plane to plot and identify points and draw and measure polygons

#### *Data, Probability, & Statistics*

- Write a statistical question and analyze data by calculating mean, median, mode, range, and mean absolute deviation
- Display data on dot plots and histograms

### EXAMPLES OF CLASSROOM LEARNING

- Calculating measurements based on modifying a recipe
- Splitting a restaurant bill between a given number of people
- Comparing average temperatures in a year in ND
- Calculating the GCF to determine when two buses on separate timed routes arrive at the same location
- Calculating a better deal based on different prices and sizes
- Determining sale price
- Calculating miles per gallon
- Completing a ratio table
- Writing an equation or inequality based on a given situation
- Determining the distance between two objects on the coordinate plane
- Calculating the area of a figure with straight edges
- Real-world applications of area, perimeter, surface area, and volume
- Creating dot plots/histograms based on given data
- Collecting and using data to answer questions

### HOW CAN YOU HELP AT HOME?

- Encourage continual practice to improve fact fluency (card games)
- Discuss positive and negative numbers and how they apply to daily life (bank accounts, temperature)
- Compare two items to find the ratio between them
- Show ways area, surface area, and volume apply to daily life (filling a container with liquid)
- Discuss the relevancy of graphs, tables, and statistics in real life (sports stats)

# Family & Community Guide

## SEVENTH GRADE MATH

### KEY CONCEPTS & SKILLS

#### *Numbers & Operations*

- Add, subtract, multiply, and divide positive and negative fractions and decimals

#### *Algebraic Reasoning*

- Determine unit rates using fractions and decimals
- Analyze proportional relationships represented as tables, graphs, and diagrams
- Apply properties of operations to write equivalent expressions
- Write and solve two-step equations and inequalities
- Graph and interpret solution sets of an inequality

#### *Geometry & Measurement*

- Calculate the circumference and area of circles
- Calculate surface area and volume of prisms
- Determine properties and angle relationships of triangles based on given measurements

#### *Data, Probability, & Statistics*

- Identify strengths and weaknesses to determine bias in the data collection process
- Draw conclusions about a population based on a sample
- Understand and apply basic concepts of probability

### EXAMPLES OF CLASSROOM LEARNING

- Determining the amount of money in a bank account after deposits and withdrawals

- Comparing a runner's speed during multiple races
- Finding the amount of tax charged on a purchase
- Determining the distance a car can go based on the amount of gasoline
- Writing and solving equations with two steps

- Calculating the area and circumference of different sizes of circles
- Calculating the amount of water needed to fill a space
- Determining the angles needed to complete a certain triangular design

- Determining the probability of picking a certain card from a deck, or rolling a number on a dice
- Comparing the average

### HOW CAN YOU HELP AT HOME?

- Encourage continual practice to improve fact fluency
- Discuss positive and negative numbers and how they apply to daily life (temperature, balancing a bank account, etc.)
- Calculate and compare rates in daily life (grocery shopping)
- Calculate miles per gallon when filling gas
- Discuss the relevancy of graphs, tables, and statistics in real life (sports stats)
- Calculate tip amount and sale prices when eating out or shopping

# Family & Community Guide

## EIGHTH GRADE MATH

### KEY CONCEPTS & SKILLS

#### ***Numbers & Operations***

- Demonstrate computational fluency with rational numbers, including square and cube roots
- Compare rational and irrational numbers (scientific notation)

#### ***Algebraic Reasoning***

- Apply properties of exponents to generate equivalent expressions
- Solve simple square root, cube root, and absolute value equations
- Solve linear equations and inequalities in one-variable
- Analyze and represent linear relationships using tables, equations, inequalities, graphs, and descriptions
- Compare functions using qualitative features and create their graphs
- Create and use tables, graphs, and equations to model and interpret linear functions

#### ***Geometry & Measurement***

- Calculate the volume of cones, cylinders, and spheres
- Describe and perform transformations on geometric figures
- Solve for unknown lengths and angles using geometric relationships for lines and triangles

#### ***Data, Probability, & Statistics***

- answer questions by collecting, organizing, and displaying bivariate data on scatter plots and two-way tables, drawing conclusions and making predictions

### EXAMPLES OF CLASSROOM LEARNING

- Finding the side length of a cube given its volume/side length of a square given its area
- Representing rational and irrational numbers on a number line
- Using graphs and tables to determine if the number of miles driven versus the number of gallons of gas used is a function
- Comparing the pay rates of two individuals
- Solving a variety of algebraic equations and inequalities for "X"
- Rewriting expressions with exponents
- Calculating the amount of cement needed to create a cylindrical pillar
- Using transformations to design a tiled floor pattern
- Determining angle measurements on a map of city streets
- Creating a scatter plot of study times versus test scores of students to show their relationship

### HOW CAN YOU HELP AT HOME?

- Encourage continual practice to improve fact and computational fluency
- Calculate and compare rates in daily life (grocery shopping)
- Recognize transformations in the real world (tile patterns)
- Discuss a correlation (e.g., number of hours on cell phone vs. amount of time sleeping)
- Show ways to apply volume in real life (the amount of dirt needed to fill a garden bed)

# Family & Community Guide

**GRADES 9-12 MATH** (page 1)

## KEY CONCEPTS & SKILLS

### ***Numbers & Operations***

- Apply the rule of exponents to work with complex numbers
- Think carefully about quantities and use measurements to solve problems
- Perform calculations, create graphs, and represent complex numbers in various forms
- Understand and apply the Fundamental Theorem of Algebra
- Use complex numbers in polynomial equations and identities
- Perform calculations with vectors and use them to create models and representations
- Perform calculations with matrices and apply them in various situations

### ***Algebraic Reasoning***

- Understand and explain the parts of mathematical expressions
- Rewrite expressions and equations in different ways to make solving problems easier
- Perform arithmetic operations on polynomials
- Understand the relationship between zeros and factors of polynomials
- Rewrite fractions involving polynomials in simpler forms
- Create equations that describe numbers or relationships
- See solving equations as a logical process and explain the steps
- Solve equations and inequalities with one or more variables
- Solve systems of equations using multiple methods
- Represent and solve equations and inequalities graphically

### ***Functions***

- Perform operations on functions, combine them in different ways, and make new forms of the same function
- Analyze functions using different representations
- Create a function that models a relationship between two quantities
- Perform transformations on functions and find inverse functions
- Construct and compare mathematical models
- Extend the domain of trigonometric functions using the unit circle
- Prove and apply trigonometric identities

## EXAMPLES OF CLASSROOM LEARNING

- Deciding to use specific units when carpeting a room
- Selecting precise ruler measurements for accuracy
- Organizing information into a matrix to compare items, and using operations on matrices to solve problems
- Calculating the flight path of a pilot using operations on vectors
- Determining the location of a satellite whose path oscillates north and south of the equator
- Calculating voltage and current in an electrical circuit using complex numbers

- Representing the cost of renting a car graphically and with an equation
- Showing the steps in solving a linear equation, and justifying each step
- Comparing two simple-interest investments to determine the principal amount invested at each rate
- Determining the possible outcomes when selling multiple items with a goal of maximizing profits
- Representing margin-of-error situations using absolute value
- Representing the depreciation of a vehicle with an equation
- Representing the maximum volume of a box and determining appropriate dimensions

- Explaining the meaning of the y-intercept, zeros, and maximum
- Describing the inverse relationship when given a situation modeling cost as a function of months
- Determining the equation modeling the number of bacteria after a specific time given the growth rate factor
- Determining the age of a fossil using carbon-14 dating
- Determining the equation modeling the tide of an ocean

# Family & Community Guide

**GRADES 9-12 MATH** (page 2)

## KEY CONCEPTS & SKILLS

### ***Geometry & Measurement***

- Experiment with transformations in the plane
- Prove geometric theorems
- Make precise geometric drawings and constructions
- Understand how shapes are similar through transformations
- Prove theorems involving similarity
- Define trigonometric ratios and solve problems with right triangles
- Use trigonometry with all types of triangles
- Understand and use theorems about circles
- Find arc lengths and areas of sectors of circles
- Translate between general and standard form equations of a conic section
- Use coordinates to prove simple geometric theorems algebraically
- Explain volume formulas and use them to solve problems
- Visualize how two-dimensional and three-dimensional objects relate to each other
- Apply geometric concepts in modeling situations

### ***Data, Probability, & Statistics***

- Summarize, represent, and interpret data on a single count of measurement
- Summarize, show, and interpret data for two different categories or quantities
- Apply and interpret linear models
- Identify distinctions, make inferences, and justify conclusions amongst sample surveys, experiments, and observational studies; describe how randomization applies to each
- Apply independence and conditional probability appropriately to interpret data
- Use probability rules to calculate the chances of multiple events happening and to evaluate outcomes of decisions
- Calculate expected values and use them to solve problems

## EXAMPLES OF CLASSROOM LEARNING

- Making geometric constructions to model and building design
- Determining similarity and congruence in scaled drawings
- Constructing blueprints and plans using geometric principles
- Designing roads, bridges, tunnels, and other infrastructure using geometry and constraints
- Using transformations and other geometric concepts to animate objects digitally
- Using area and volume to determine material needs in a project
- Using geometry to create illusions of depth and space in drawings and paintings
- Calculating angles and trajectories
- Developing logical arguments using geometric theorems and proofs

- Determining the chance of winning a game given parameters
- Predicting the spread of diseases using statistical models and probability
- Evaluating the likelihood of different outcomes when collecting data
- Determining the number of possible outcomes in a puzzle
- Making decisions about game strategies when collecting data on performance
- Determining whether there is bias in a graph or in the data collection process
- Determining whether a data set is normally distributed
- Using percentiles to describe data on a normal distribution curve
- Calculating and using the measures of center and spread to compare data sets in context

# Family & Community Guide

**GRADES 9-12 MATH** (page 3)

## HOW CAN YOU HELP AT HOME?

There are numerous resources available to help with secondary mathematics at home. These include online platforms, apps, and websites offering tutorials, practice problems, and interactive tools. Your child's school may offer other paid resources as well. Here are some recommended free resources:

### ONLINE PLATFORMS & WEBSITES

- **Khan Academy:** Offers comprehensive lessons on a wide range of math topics from basic algebra to calculus. The videos are supplemented with practice exercises and quizzes.
- **Mathway:** An online problem-solver provides step-by-step solutions to a wide range of math problems.
- **Purplemath:** Offers free resources including lessons, worksheets, and forums where students can ask questions.
- **Wolfram Alpha:** A computational engine that can solve a wide range of math problems and show detailed steps.
- **MetaMetrics Quantile Hub:** A convenient online platform that provides easy access to more than a dozen new and enhanced reading and math tools.

### APPS

- **Desmos:** A powerful graphing calculator app that can help with understanding functions, plotting graphs, and more. (iOS and Android)
- **Geogebra:** A dynamic, open-source mathematics software program that provides tools for interactive learning and exam experience.
- **Socractic by Google:** Uses AI to help students with math problems by providing explanations, videos, and step-by-step solutions. (iOS and Android)

### ADDITIONAL TIPS

- **Practice and Consistency:** Regular practice is key to mastering math. Setting aside a specific time each day for math practice can be very beneficial.
- **Real-World Application:** Focus on learning situations that are relevant and applicable (many of which can be found on websites such as Illuminations, Illustrative Mathematics, and Math Medic).