

Grade 3 Mathematics

The Mathematics Curriculum Framework represents the commitment of the Hinsdale School District to the Common Core State Standards and the ideas of Grant Wiggins and Jay McTighe in their principles of *Understanding by Design*. The Mathematics Curriculum Revision Committee (2015-16) believes that this document provides the necessary framework for teachers to develop mathematical units and lessons based on best practices in curriculum, instruction and assessment.

The Common Core State Standards for Mathematics requires that students develop a conceptual understanding of key concepts, procedural skills and fluency and the ability to use their knowledge to solve real world problems. Teachers are expected to develop lessons that meet these requirements by using a variety of instructional techniques and resources to meet individual student needs.

More information about the Common Core State Standards can be found at:

www.corestandards.org

Grade 3 Mathematics	
<p>Standard 3.OA: Operations and Algebraic Thinking</p> <p>Represent and solve problems involving multiplication and division. Understand properties of multiplication and the relationship between multiplication and division. Multiply and divide within 100. Solve problems involving the four operations, and identify and explain patterns in arithmetic.</p>	
<p>21st Century Learning Expectations</p> <p>Hinsdale students will be able to solve problems. Hinsdale students will communicate through various means. Hinsdale students will take responsibility for their own learning.</p>	
<p>Enduring Understandings</p> <p>Multiplication and division are inverse operations. There are patterns in arithmetic and the larger world. Mathematical explanations can be given using words, pictures, numbers, or symbols.</p>	
Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none"> • interpret and solve word problems with products and quotients of whole numbers using different mathematical tools. • understand the inverse relationship of addition, subtraction, multiplication and division. • appropriately apply the associative, commutative, and distributive properties of operations as a strategy to multiply and divide. • demonstrate understanding of multiplication and division tables 0-9. • demonstrate understanding and the ability to solve two-step word problems including an unknown quantity. Show logical thinking of answers through estimation and computation. • demonstrate the ability to identify patterns on addition and multiplication tables, and explain how they work. 	<ul style="list-style-type: none"> • How can we use our knowledge of multiplication and division to solve problems or answer questions? • How do you write a good mathematical explanation? • What patterns can be found in multiplication tables?

Grade 3 Mathematics

Standard 3.NBT: Number and Operations Base Ten

Use place value understanding and properties of operations to perform multi-digit arithmetic.

21st Century Learning Expectations

Hinsdale students will be able to solve problems.

Hinsdale students will communicate through various means.

Hinsdale students will take responsibility for their own learning.

Enduring Understandings

Every number in a multi digit number has a value based on its location.

Each place value implies 10 units.

Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none">• use place value understanding to round whole numbers to the nearest 10 or 100.• fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.• multiply one-digit whole numbers by multiples of 10 in the range 10–90 using strategies based on place value and properties of operations.	<ul style="list-style-type: none">• How does place value support addition and subtraction?• What does it mean when a number is rounded?• What is the relationship between multiplying by ten and place value?• In what situations would rounding numbers be useful?

Grade 3 Mathematics	
Standard 3.NF: Number and Operations –Fractions Develop understanding of fractions as numbers.	
21st Century Learning Expectations Hinsdale students will be able to solve problems. Hinsdale students will communicate through various means.	
Enduring Understandings Fractions represent equal parts of a whole or set. Fractions, like whole numbers, have a place on the number line. Size of a fraction is relative to the size of the whole. Different but equivalent fractions can be used to represent the same amount.	
Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none"> • understand fractions have equal parts and show parts of a whole or a set • understand the what the numerator and denominator represent • place and label fractions on a number line from 0 to 1. • demonstrate knowledge of ordering and comparing fractions. • identify equivalent fractions by size and location on a number line. • use a fraction model, to identify and create simple equivalent fractions. • identify that when the numerator and denominator is the same number, the fraction is equal to 1 whole. • use the symbols $>$, $=$, or $<$ to compare fractions 	<ul style="list-style-type: none"> • How can fractions show part of a whole or set? • Describe how models help in the understanding of fractions. • How do we compare fractions by size? • How do you know if two fractions are equivalent?

Grade 3 Mathematics

Standard 3.MD: Measurement and Data

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

Represent and interpret data.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

21st Century Learning Expectations

Hinsdale students will be able to solve problems.

Hinsdale students will communicate through various means.

Hinsdale students will take responsibility for their own learning.

Enduring Understandings

Elapsed time is length of time that passes between a beginning and ending time.

Units give meaning to real world problems.

Different representations of data aid in interpretation.

Plane figures have inherent properties of area and perimeter.

Learning Competencies

Students will be able to

- tell and write time to the minute and solve word problems involving time using addition and subtraction
- measure and estimate liquid volumes and masses of objects with the metric system.
- use the four mathematical operations to solve word problems involving masses or volumes when the units are the same.
- represent a data set with a scaled picture or bar graph and solve problems using the information presented in graphs.
- create a data set on a horizontal scale by marking whole numbers, halves, or quarters.
- understand a unit square is used to find area
- find the perimeter of polygons in the real world and mathematical
- understand that polygons can have equal perimeters but different areas.

Essential Questions

- Why do we analyze data?
- Describe when using a graph would be meaningful.
- What is the meaning of area and what is its connection to perimeter?
- Why use units?

Grade 3 Mathematics	
Standard 3.G: Geometry Reason with shapes and their attributes.	
21st Century Learning Expectations Hinsdale students will be able to solve problems. Hinsdale students will communicate through various means. Hinsdale students will take responsibility for their own learning.	
Enduring Understandings Shapes are all around us. Attributes of shapes help us to understand objects and compose new shapes.	
Learning Competencies	Essential Questions
<p><i>Students will be able to</i></p> <ul style="list-style-type: none"> • sort different shapes by their attributes and recognize that shared attributes can define a larger category. • equally divide a whole shape and name its individual parts as a fraction. 	<ul style="list-style-type: none"> • What are ways we can categorize shapes? • In what ways can you break up a shape into equal parts?