

# **SD38 K-7 Mathematics Essential Learning Standards**

suggestions to support planning, instruction and assessment

# SD38 K-7 Mathematics Essential Learning Standards

All mathematics curricular content and competencies are important and connected, but when having to prioritize learning standards, such as during remote learning, the idea of what is essential, foundational or core has emerged. In this time of remote learning, as we come to the end of the school year we need to be mindful of what mathematics learning is essential for students to continue their learning at the next grade level.

For June 2020 summative assessment and communication of student learning:

- consider the evidence of learning collected to March 2020
- also consider what authentic evidence of learning you have been able to collect during this time of remote learning, focusing on prioritized, essential learning standards
- balance mathematics curricular content and curricular competencies
- synthesize and summarize this evidence to consider indicators of a student's proficiency

*How are we prioritizing and determining what learning standards are essential during this time of remote teaching and learning?*

The following questions can be considered in prioritizing essential learning standards:

What is new curricular content at the grade level?

*Look at the grade levels before to see what curricular content is being introduced at the grade level. For examples, fractions, multiplication and division are all new concepts introduced in grade 3.*

What curricular content is necessary to review, practice and enhance knowledge of, that is essential for next year's mathematics learning?

*Some curricular topics need ongoing review and practice, such as number operations. Other content area knowledge can be enhanced by connecting or applying that mathematics in a project or connected to another area of math.*

What curricular competencies can be developed during this time of remote learning?

*Consider what curricular competencies students can authentically develop at-home, through Zoom meetings or portal posts, or on the phone.*

What curricular competencies are connected to your prioritized curricular content learning standards?

*Is it possible to include one curricular competency from each of the four curricular competency areas?*

What curricular competencies are connected to your core competencies area/s of focus?

*Many teachers have chosen one or two core competencies to focus on during this time of remote learning. What curricular competencies are aligned with that focus?*

**The following pages include suggested essential learning standards for each grade level.**

# Kindergarten

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices
<p>Number concepts to 10</p> <p>Ways to make 5</p> <p>Decomposing numbers to 10</p>	<p>Develop mental math strategies</p> <p>Problem-solving</p> <p>Explain and justify mathematical ideas and decisions</p> <p>Represent mathematical ideas in concrete, pictorial and symbolic forms</p> <p>Connect mathematical ideas to each other, other areas and personal interests</p>	<p>Represent quantities to 10 with materials, pictures and numbers</p> <p>Match sets of materials or pictures to corresponding numerals</p> <p>Count to 10 in sequence and with one-to-one correspondence</p> <p>Subitize to 5 with dot images</p> <p>Build five in many ways (ie. 2 and 3, 4 and 1, 2 and 2 and 1) using concrete materials</p> <p>Compose and decompose numbers to 10 in many ways using materials, pictures and numbers</p>	<p>Number Talks (dot images, rekenreks, ten frames) <i>contributions during number talks and discussions</i></p> <p>Counting Collections <i>task-based interviews including observations while solving problems, engaging in tasks and working with materials</i></p> <p>Math Games <i>conferring – listening and observing</i></p> <p>Open Questions <i>products involving representing mathematical ideas with concrete, pictorial and symbolic forms</i></p>

# Grade 1

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices
<p>Number concepts to 20</p> <p>Ways to make 10</p> <p>Addition and subtraction of numbers to/within 20</p>	<p>Develop mental math strategies</p> <p>Problem-solving</p> <p>Explain and justify mathematical ideas and decisions</p> <p>Represent mathematical ideas in concrete, pictorial and symbolic forms</p> <p>Connect mathematical ideas to each other, other areas and personal interests</p>	<p>Represent, compare, order numbers to 20</p> <p>Demonstrate understanding of teen numbers as ten and ones</p> <p>Count in various ways (by 1s, 2s, 5s, ascending and descending, counting on from a number)</p> <p>Compose and decompose 10 in many ways using concrete, pictorial and symbolic forms (ie 5+5, 5+3+2, 6+3+1)</p> <p>Demonstrate understanding of the processes of addition and subtraction using materials, pictures and numbers/symbols</p> <p>Use more than one strategy to add and subtract (ie. counting all, counting on or back, making and bridging 10, decomposing, using doubles)</p>	<p>Number Talks <i>contributions during number talks and discussions</i></p> <p>Counting Collections <i>task-based interviews including observations while solving problems, engaging in tasks and working with materials</i></p> <p>Math Games <i>conferring – listening and observing</i></p> <p>Open Questions <i>products involving representing mathematical ideas with concrete, pictorial and symbolic forms</i></p>

## Grade 2

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices
Place value understanding to 100	Develop mental math strategies	Represent, compare, order and decompose numbers to 100	Number Talks <i>contributions during number talks and discussions</i>
Developing fluency with +/- facts to 20	Problem-solving	Count in various ways (by 2s, 5s, 10s from different starting points, ascending and descending)	Counting Collections <i>task-based interviews including observations while solving problems, engaging in tasks and working with materials</i>
Addition and subtraction of two-digit numbers	Explain and justify mathematical ideas and decisions	Developing fluency and strategies for addition facts to 20 and related subtraction facts (making and bridging 10, decomposing, using doubles, counting on)	Math Games <i>conferring – listening and observing</i>
	Represent mathematical ideas in concrete, pictorial and symbolic forms	Add and subtract numbers two-digit numbers using decomposing, compensating, finding the difference and regrouping strategies and with using tools such as ten frames, hundred charts and numberlines	Open Questions <i>products involving representing mathematical ideas with concrete, pictorial and symbolic forms</i>

## Grade 3

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices
<p>Place value understanding to 1000</p> <p>Fluency with +/- facts</p> <p>Addition and subtraction of two and three-digit numbers</p> <p>Introduction to multiplication, division and fraction concepts</p>	<p>Develop mental math strategies</p> <p>Problem-solving</p> <p>Explain and justify mathematical ideas and decisions</p> <p>Represent mathematical ideas in concrete, pictorial and symbolic forms</p> <p>Connect mathematical ideas to each other, other areas and personal interests</p>	<p>Represent, compare, order and decompose numbers to 1000 and count in various ways</p> <p>Recall of most addition facts to 20</p> <p>Add and subtract numbers within 1000 using decomposing, compensating and regrouping strategies</p> <p>Demonstrate an understanding of the processes of multiplication and division and what fractions are, using concrete and pictorial forms and symbols</p>	<p>Number Talks <i>contributions during number talks and discussions</i></p> <p>Counting Collections <i>task-based interviews including observations while solving problems, engaging in tasks and working with materials</i></p> <p>Math Games <i>conferring – listening and observing</i></p> <p>Open Questions <i>products involving representing mathematical ideas with concrete, pictorial and symbolic forms</i></p>

## Grade 4

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices
Place value understanding to 10 000	Develop mental math strategies	Represent, compare, order and decompose numbers to 10 000 and count in various ways (by various multiples, starting points, increasing/decreasing)	Number Talks <i>contributions during number talks and discussions</i>
Fluency with +/- and $\times/\div$ facts	Problem-solving	Recall of addition facts and related subtraction facts to 20	Ways to Represent Fractions & Decimals
Addition and subtraction to within 10 000	Explain and justify mathematical ideas and decisions	Recall of 2x, 5x and 10x multiplication facts to 100 with developing fluency of other multiples	<i>task-based interviews including observations engaging in tasks and working with materials</i>
Comparing and ordering fractions	Represent mathematical ideas in concrete, pictorial and symbolic forms	Add and subtract numbers within 10000 using decomposing, compensating and regrouping strategies	Math Games <i>conferring – listening and observing</i>
Introduction to decimals – tenths and hundredths	Connect mathematical ideas to each other, other areas and personal interests	Compare and order fractions with common denominators, using benchmarks of 0, $\frac{1}{2}$ and 1 on a numberline	Open Questions <i>products involving solving problems and representing mathematical ideas with concrete, pictorial and symbolic forms</i>
		Represent decimal tenths and hundredths with concrete materials, pictures and symbols; show equivalence between fraction and decimal notation; add and subtract decimals numbers (tenths and hundredths)	

## Grade 5

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices
Place value understanding to 1 000 000	Develop mental math strategies	Represent, compare, order and decompose numbers to 1 000 000 and count in various ways (by various multiples, starting points, increasing/decreasing)	Number Talks (whole numbers and decimal numbers) <i>contributions during number talks and discussions</i>
Fluency with +/- and x/÷ facts	Problem-solving	Recall of addition facts and related subtraction facts to 20	Ways to Represent Equivalent Fractions <i>task-based interviews including observations engaging in tasks and working with materials</i>
Addition and subtraction within 1 000 000	Explain and justify mathematical ideas and decisions	Recall of many multiplication facts to 100 such as 2s, 3s, 4s, 5s and 10s	Math Games <i>conferring – listening and observing</i>
Multiplication and division with three digits	Represent mathematical ideas in concrete, pictorial and symbolic forms	Add and subtract numbers within 1 000 000 using decomposing, compensating and regrouping strategies	Open Questions <i>products involving solving problems and representing mathematical ideas with concrete, pictorial and symbolic forms</i>
Equivalent fractions	Connect mathematical ideas to each other, other areas and personal interests	Multiply and divide numbers with three digits, using more than one strategy - decomposing, distributive property, commutative property, repeated addition or subtraction (including division with remainders)	
Decimals – to thousandths		Represent equivalent fractions ( $1/2=3/6=5/10$ ) using concrete materials, pictures and symbols	
		Add and subtract decimals numbers to the thousandths using related strategies used for whole numbers	

## Grade 6

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices
Place value understanding from thousandths to billions	Develop mental math strategies	Represent, compare, order and decompose numbers from thousandths to billions and count in various ways (by various multiples, starting points, increasing/decreasing)	Number Talks (whole numbers and decimal numbers) <i>contributions during number talks and discussions</i>
Fluency with $\times$ and $\div$ facts	Problem-solving	Recall of most multiplication facts and related division facts	
Factors and multiples	Explain and justify mathematical ideas and decisions	Identify common factors and multiples	Visual Patterns <i>observations engaging in tasks and working with symbols, pictures and materials</i>
Multiplication and division of decimal numbers	Represent mathematical ideas in concrete, pictorial and symbolic forms	Multiply and divide decimal numbers using related strategies used for whole numbers	
Order of operations		Solve equations including multiple operations and brackets/parentheses, applying order of operations	Math Games <i>conferring – listening and observing</i>
Improper fractions and mixed numbers	Connect mathematical ideas to each other, other areas and personal interests	Use materials, pictures and symbols to compare and order fractions, including improper fractions and mixed numbers, using benchmarks such as 0, $\frac{1}{2}$ and 1 along a numberline	Open Questions <i>products involving solving problems and representing mathematical ideas with concrete, pictorial and symbolic forms</i>
Introduction to ratios and percents		Represent ratios and percents in different forms and relate to fractions and decimal numbers	
Patterns – algebraic relationships		Describe visual patterns with words, numbers, expressions, tables, and graphs	
One-step equations		Solve one-step equations with whole number co-efficients such as $3x=12$ or $x+5=11$	

## Grade 7

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices
Place value understanding and number operations with whole numbers	Develop mental math strategies	Apply place value understanding and fluency with all number operations to problem-solving contexts, numeracy tasks and interdisciplinary projects	Number Talks (whole numbers and decimal numbers)
Fluency with $\times$ and $\div$ facts	Problem-solving	Recall of multiplication facts and related division facts and application of this facts when multiplying and dividing greater numbers	<i>contributions during number talks and discussions</i>
Operations with decimal numbers	Explain and justify mathematical ideas and decisions	Fluency with all operations using decimal numbers, including order of operations	Math Tasks <i>observations engaging in tasks and representing with symbols, pictures and materials</i>
Integers	Represent mathematical ideas in concrete, pictorial and symbolic forms	Represent positive and negative integers using concrete, pictorial and symbolic forms; add, subtract, multiply and divide with integers and represent these processes	Math Games <i>conferring – listening and observing</i>
Relationship between fractions, decimals, ratios and percents	Connect mathematical ideas to each other, other areas and personal interests	Demonstrate understanding of relationship between fractions, decimals, ratios and percents through equivalency; represent in different forms (concrete, pictorial, symbolic)	Open Questions <i>products involving solving problems and representing mathematical ideas with concrete, pictorial and symbolic forms</i>
Two-step equations		Solve two-step equations with whole number co-efficients and constants such as $3x + 4 = 19$	
Cartesian coordinates and graphing		Graph coordinate pairs from an expression on a Cartesian grid and predict and explain the resulting graph	
Circle properties and measurement		Identify and calculate properties of circle (radius, diameter, area and perimeter)	

Grade/s: \_\_\_\_\_

Essential Curricular Content	Essential Curricular Competencies	Indicators of Proficiency	Instructional and Assessment Practices