

## SWALLOW SCHOOL DISTRICT CURRICULUM GUIDE

**Curriculum Area:** Math

**Course Length:** Full Year

**Grade:** 7th

**Date Last Approved:** September 2023

### Stage 1: Desired Results

#### Course Description and Purpose:

In Grade 7, instructional time focuses on four critical areas: developing understanding of and applying proportional relationships; developing understanding of operations with rational numbers and working with expressions and linear equations; solving problems involving scale drawings and informal geometric constructions, and working with two- and three dimensional shapes to solve problems involving area, surface area, and volume; and drawing inferences about populations based on samples.

#### Enduring Understanding(s):

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision in mathematics
7. Look for and make use of mathematical structures
8. Look for and express regularity in repeated reasoning

#### Essential Question(s):

1. Why are rational numbers used in the world around us? How do we interpret them in everyday life?
2. How does writing a situation as an expression, equation or inequality simplify my life?
3. Why are there so many different ways to represent numbers, and how do you determine when one method is more useful than another?
4. How can we go from inductive reasoning to deductive reasoning with the help of properties, generalizations and geometric figures?
5. What are the relationships among the basic operations and how we use them to make sense of algebra, geometry and statistics?
6. Why is it important to link the concrete study of geometry with more abstract algebra?
7. What are the relationships among tables, graphs and algebra equations? How can we use the appropriate tools to help determine this?
8. How does the study of basic geometric shapes help to understand more complex structure?

#### Learning Targets:

1. Ratios and Proportional Relationships
2. The Number System
3. Expressions and Equations
4. Geometry
5. Statistics and Probability
6. Problem Solving - student uses the mathematical practices in solving problems.

### Stage 2: Learning Plan

#### **I. Rational Numbers**

- A. Write, read and use positive and negative numbers
- B. Order of operations
- C. Plotting points on coordinate graphs
- D. Scientific notation with large and small numbers

**Standards:** Wisconsin Math Standards: M.7.NS.A

#### **Learning Targets Addressed:**

- Target 2**
- Target 6**

### E. Power of ten and our number system

#### Key Unit Resources

- Big Ideas
- IXL

#### Assessment Map:

Type	Level	Assessment Detail
Practice	Knowledge	Daily classwork and Homework
Formative	Skill	Worksheet Packets
Summative	Product	Chapter Quiz and Test

### II. Variables in Mathematics

- A. Real-world patterns using variables
- B. Translation of words in algebraic expressions
- C. Evaluate algebraic expressions
- D. Calculate the value of a variable given in a formula
- E. Graph inequalities

**Standards:** Wisconsin Math Standards: M.7.EE.A, M.7.EE.B

#### Learning Targets Addressed:

Target 3

Target 6

#### Key Unit Resources

- Big Ideas
- IXL

#### Assessment Map:

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Practice	Knowledge	Daily classwork and Homework
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### III. Representing Numbers in many forms

- A. Order and compare decimals and fractions
- B. Show relationships between decimals, fractions and percent
- C. Find the percent of a quantity
- D. Calculate probability involving mutually exclusive events
- E. Estimate and apply square roots

**Standards:** Wisconsin Math Standards: M.7.RP.A, M.7.NS.A

#### Learning Targets Addressed:

Target 1

Target 2

Target 6

#### Key Unit Resources

- Big Ideas
- IXL

#### Assessment Map:

Type	Level	Assessment Detail
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	Practice	Knowledge	Daily classwork and Homework
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**IV. Patterns leading to addition and subtraction**

A. Models for addition and subtraction  
 B. Adding and subtracting positive and negative numbers  
 C. Solve addition and subtraction problems using algebraic approach  
 D. Demonstrate the understanding of the Triangle Inequality Property

**Standards:** Wisconsin Math Standards: M.7.RP.A, M.7.SP.A, M.7.SP.A

**Learning Targets Addressed:**  
 Target 1  
 Target 5

**Key Unit Resources**

- Big Ideas
- IXL

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**V. Geometry**

A. Transformations: Translations, Reflections and Rotations to show congruency  
 B. Geometric and algebraic properties of angles formed by two intersecting lines  
 C. Relationship associated with two parallel lines cut by a transversal  
 D. Properties of a parallelogram  
 E. Triangle-Sum Property  
 F. Area of quadrilaterals and Triangles  
 G. Circles: area and circumference  
 H. Use size change to create expansion and contraction of 2D figures

**Standards:** Wisconsin Math Standards: M.7.EE.A, M.7.EE.B, M.7.G.A, M.7.G.B

**Learning Targets Addressed:**  
 Target 3  
 Target 4  
 Target 6

**Key Unit Resources**

- Big Ideas
- IXL

**Assessment Map:**

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**VII. Multiplication in Algebra**

**Standards:** Wisconsin Math Standards: M.7.RP.A, M.7.NS.A, M.7.EE.A,

A. Multiplication with negative numbers  
 B. Multiplication in percent and probability problems  
 C. Multiplication of reciprocal to solve algebra problems  
 D. Multiplication and the Distributive Property

M.7.EE.B

**Learning Targets Addressed:**

- Target 1
- Target 2
- Target 3
- Target 6

<b>Key Unit Resources</b>
<ul style="list-style-type: none"> <li>• Big Ideas</li> <li>• IXL</li> </ul>

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**VIII . Patterns Leading to Division**

A. Division with fractions and negative numbers  
 B. Division in solving algebra problems  
 C. Proportions

**Standards:** Wisconsin Math Standards: M.7.RP.A, M.7.NS.A, M.7.EE.A, M.7.EE.B

**Learning Targets Addressed:**

- Target 1
- Target 2
- Target 3
- Target 6

<b>Key Unit Resources</b>
<ul style="list-style-type: none"> <li>• Big Ideas</li> <li>• IXL</li> </ul>

**Assessment Map:**

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**IX: Linear Equations and Inequalities**

A. Solving linear equations by graphing and algebra

**Standards:** Wisconsin Math Standards: M.7.EE.A, M.7.EE.B

**Learning Targets Addressed:**  
 Target 3

B. Solving equations and inequalities with unknowns on both sides.

Target 6

**Key Unit Resources**

- Big Ideas
- IXL

**Assessment Map:**

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**X: Geometry with 3 Dimensional Figures**

- A. Prisms and cylinders
- B. Volume and surface area of 3D figures
- C. Change in one dimension affects area and volume of a figure

**Standards:** Wisconsin Math Standards: M.7.G.A, M.7.G.B

**Learning Targets Addressed:**

- Target 4
- Target 6

**Key Unit Resources**

- Big Ideas
- IXL

**Assessment Map:**

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**XI: Samples and Populations**

- A. Understanding difference between samples and populations
- B. Using random sampling to draw inferences about a population.
- C. Draw informal comparative inferences about two populations.

**Standards:** Wisconsin Math Standards: M.7.SP.A, M.7.SP.B, M.7.SP.C

**Learning Targets Addressed:**

- Target 5
- Target 6

**Key Unit Resources**

- Big Ideas
- IXL

**Assessment Map:**

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