

SWALLOW SCHOOL DISTRICT CURRICULUM GUIDE

Curriculum Area: **Math**

Course Length: Full Year

Grade: **7th**

Date Last Approved: June 2015

Stage 1: Desired Results

Course Description and Purpose:

The goals of this class are to solidify the arithmetic the students already know and prepare them for algebra, statistics, probability and geometry. Main areas of instruction include developing understanding of applying proportional relationships, understanding operations with rational numbers, involving scale drawing and informal geometric constructions, working with two and three dimensional shapes to solve problems involving area, surface area and volume, draw inferences about situations based on samples of data. Students will recognize, understand and appreciate mathematics around them.

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. Students can analyze proportional relationships, develop and evaluate probability models to solve real-world mathematical problems. (skill)
2. Students can extend prior knowledge of operations with rational and irrational numbers.(skill)
3. Students can develop problem solving strategies to persevere in solving real-world mathematical problems. (skill)
4. Students can choose appropriate formulas to solve geometric problems and perform basic transformations.(skill)
5. Students can formulate and evaluate numerical and algebraic expressions and equations. (product)

Stage 2: Learning Plan

Semester One (time periods are approximate)

I. Rational Numbers

- A. Write, read and use positive and negative numbers
- B. Order of operations
- C. Plotting points on coordinate graphs

Standards: CCSS: 7.RP, 7.NS

Learning Targets Addressed:

Target 2

- D. Scientific notation with large and small numbers
- E. Power of ten and our number system

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: CCSS: 7.RP, 7.NS, 7.EE

Learning Targets Addressed:

- Target 4
- Target 5

Assessment Map:

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

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: CCSS: 7.NS, 7.SP

Learning Targets Addressed:

- Target 1

Assessment Map:

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

IV. Representing sets of numbers and shapes

- A. Proof of a situation is something, always or never true
- B. Properties of numbers
- C. Intersections and union of sets
- D. Classify shapes and numbers

Standards: CCSS: 7.NS, 7.SP

Learning Targets Addressed:

- Target 3
- Target 4

Assessment Map:

Type	Level	Assessment Detail
Practice	Knowledge	Daily classwork and Homework

	Formative	Skill	Worksheet Packets
	Summative	Product	Chapter Quiz and Test

Semester Two
V. 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: CCSS: 7.NS, 7.EE
Learning Targets Addressed:
 Target 1
 Target 5
Assessment Map:

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

VI. 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:CCSS: 7.EE, 7.RP, 7.NS
Learning Targets Addressed:
 Target 4
Assessment Map:

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

VII. Multiplication in Algebra
 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

Standards:CCSS: 7.RP, 7.NS, 7.EE, 7.SP
Learning Targets Addressed:
 Target 2
 Target 5
Assessment Map:

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

VIII . Patterns Leading to Division

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

Standards:CCSS: 7.RP, 7.NS, 7.EE**Learning Targets Addressed:**

- Target 1
- Target 5

Assessment Map:

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

IX: Linear Equations and Inequalities

- A. Solving linear equations by graphing and algebra
- B. Solving equations and inequalities with unknowns on both sides.

Standards:CCSS: 7.EE**Learning Targets Addressed:**

- Target 5

Assessment Map:

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

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:CCSS: 7.EE, 7.RP, 7.NS**Learning Targets Addressed:**

- Target 3
- Target 4

Assessment Map:

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

There will be mini units given throughout the school year on different problem solving strategies. Target 3

Assessment Map:

Type	Level	Assessment Detail
Practice	Knowledge	Daily classwork and Homework

	Formative	Skill	Worksheet Packets
	Summative	Product	Quiz