Board Approved
October 2015

Planned Course Guide

Title of planned course: Mathematics

Subject Area: Mathematics

Grade Level: 7

Course Description: *Prerequisites: Complete 6th grade math.* The course is the study of Variables, Expressions, and Integers, Solving Equations and Inequalities, Exponents, Rational Numbers and Equations, Ratio, Proportion, and Probability, Percents, Linear Functions, Measurement, Area, Volume, Data Analysis and Probability, Angle Relationships, and Geometric Figures.

Applications of real-world problems will be included. Course requirements include: tests, quizzes, projects, presentations, notebook, daily homework, and usage of calculators. It is highly recommended that each student have a calculator.

Time/Credit for this Course: 1.0

Curriculum Writing Committee: Julia Morrissey

Board Approved
October 2015

Wilson Area School District
Curriculum Map

August: Expressions (8 – 12 days)

September: Expressions (cont.)
Integers (14 – 17 days)

October: Rational Numbers (10 – 13 days)
Equations and Inequalities (18 – 21 days)

November: Equations and Inequalities (cont.)
Proportion and Similarity (18 – 21 days)

December: Proportion and Similarity (cont.)

January: Percents (15 – 18 days)
Volume and Surface Area (15 – 18 days)

February: Volume and Surface Area (cont.)
Polygons and Angle Relationships (18 – 21 days)

March: Polygons and Angle Relationships (cont.)
Probability and Predictions (16 - 19 days)

April: Probability and Predictions (cont.)
Statistical Displays (5 - 10 days)

May: Linear Functions (18 – 21 days)

June: Linear Functions (cont.)

Board Approved
October 2015

Wilson Area School District
Planned Course Materials

Course Title: Mathematics

Textbook: Math Connects Course 2
Glencoe McGraw-Hill © 2012

Supplemental Books: Pre-Algebra
Larson/Houghton Mifflin © 2012

Teacher Resources:

- Textbooks
- Worksheets
- Internet
- Teacher created worksheets
- Additional worksheets and cooperative learning books

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 1: Expressions and Patterns

Time frame: 9 – 12 class periods

State Standards/ Anchor(s) or adopted anchor: M07.A-N.1.1, M07.B-E.2.3, M07.B-E.1.1

Essential content/objectives: At end of the unit, students will be able to:

- Use powers and exponents
- Evaluate expressions using order of operations
- Evaluate simple algebraic expressions
- Use properties to solve problems

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Complete hands-on activity to discover knowledge

Extensions:

- Work with the calculator to be able to enter fractions, exponents, and convert from fractions to decimals an decimals to fractions
- Online problem solving
- Workbook enrichment

Remediation:

- Additional exercises
- Less complex numbers to work with to build prior knowledge
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Higher order thinking questions
- Individual, pair, and small group practice
- Warm ups
- Teacher directed examples
- Mimio presentations

Materials & Resources:

- Warm ups
- Textbook
- Mimio lessons
- Projector
- Notes/examples
- Handouts (worksheets)
- Activity supplies
- Calculators
- Individual white boards

Assessments:

- Warm ups
- Pretests
- Student pair-share and group discussion
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 2: Integers

Time frame: 14 – 17 class periods

State Standards/ Anchor(s) or adopted anchor: M07.A-N.1.1, M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Find the absolute value of the integer
- Read and write integers
- Graph points on a coordinate plane
- Represent addition and subtraction on a horizontal or vertical number line
- Apply properties of operations to add and subtract integers
- Apply properties of operations to multiply and divide integers

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Complete hands-on activity to discover knowledge

Extensions:

- Work with the calculator to be able to enter and understand negative exponents
- Online problem solving
- Workbook enrichment

Remediation:

- Additional exercises
- Less complex numbers to work with to build prior knowledge
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Higher order thinking questions
- Individual, pair, and small group practice
- Warm ups
- Teacher directed examples
- Mimio presentations

Materials & Resources:

- Warm ups
- Textbook
- Mimio lessons
- Projector
- Notes/examples
- Handouts (worksheets)
- Activity supplies
- Calculators
- Individual white boards

Assessments:

- Warm ups
- Pretests
- Student pair-share and group discussion
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 3: Rational Numbers

Time frame: 10 – 13 class periods

State Standards/ Anchor(s) or adopted anchor: M07.A-N.1.1, M07.B-E.2.1, M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Graph rational numbers on the number line
- Convert between fractions and decimals
- Compare and order rational numbers
- Add and subtract fractions
- Add and subtract mixed numbers
- Multiply fractions and mixed numbers
- Divide fractions and mixed numbers

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Complete hands-on activity to organize and study the rules of fractions

Extensions:

- Work with the calculator to be able to enter fractions, exponents, and convert from fractions to decimals an decimals to fractions
- Online problem solving
- Workbook enrichment

Remediation:

- Additional exercises
- Less complex numbers to work with to build prior knowledge
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Higher order thinking questions
- Individual, pair, and small group practice
- Warm ups
- Teacher directed examples
- Calculator instruction
- Mimio presentations

Materials & Resources:

- Warm ups
- Textbook
- Mimio lessons
- Projector
- Notes/examples
- Handouts (worksheets)
- Activity supplies
- Calculators
- Individual white boards

Assessments:

- Warm ups
- Pretests
- Student pair-share and group discussion
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 4: Equations and Inequalities

Time frame: 18 – 21 class periods

State Standards/ Anchor(s) or adopted anchor: M07.B-E.1.1, M07.B-E.2.1, M07.B-E.2.2, M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Write and solve one step equations
- Write and solve two step equations
- Write and solve problems using inequalities
- Write and solve one step inequalities
- Write and solve two step inequalities
- Use the Distributive Property to write equivalent expressions

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Create visual representation in the form of a mobile on balanced equations

Extensions:

- Use less technology to assist in operations with numbers
- Online problem solving
- Workbook enrichment

Remediation:

- Additional exercises
- Use more technology to assist in operations with numbers
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Higher order thinking questions
- Individual, pair, and small group practice
- Warm ups
- Teacher directed examples
- Mimio presentations

Materials & Resources:

- Warm ups
- Textbook
- Mimio lessons
- Projector
- Notes/examples
- Handouts (worksheets)
- Activity supplies
- Calculators
- Individual white boards

Assessments:

- Warm ups
- Pretests
- Student pair-share and group discussion
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 5: Proportions and Similarity

Time frame: 18 – 21 class periods

State Standards/ Anchor(s) or adopted anchor: M07.A-R.1.1, M07.B-E.2.1, M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Find ratios and unit rates
- Calculate unit rates
- Identify proportional and non-proportional relationships
- Write and solve proportions
- Use proportions to solve problems
- Use proportions to estimate populations
- Solve problems by drawing a diagram
- Solve problems involving scale drawings
- Identify similar and congruent figures
- Solve problems involving similar figures

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- “Are We Similar?” project

Extensions:

- Create and solve more challenging problems involving proportion
- Online problem solving
- Workbook enrichment

Remediation:

- Additional exercises
- Use more technology to assist in operations with numbers
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Higher order thinking questions
- Individual, pair, and small group practice
- Warm ups
- Teacher directed examples
- Mimio presentations

Materials & Resources:

- Warm ups
- Textbook
- Mimio lessons
- Projector
- Notes/examples
- Handouts (worksheets)
- Project supplies
- Calculators
- Individual white boards

Assessments:

- Warm ups
- Pretests
- Student pair-share and group discussion
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 6: Percent

Time frame: 15 – 18 class periods

State Standards/ Anchor(s) or adopted anchor: M07.A-R.1.1.6; M07.B-E.2.1; M07.B-E.2.2; M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Convert between fractions, decimals, and percents
- Find the percent of a number
- Estimate percents
- Solve problems involving percents
- Solve problems using the percent equation
- Solve problems by determining reasonable answers
- Find the percent of increase and decrease
- Solve problems involving sales tax and tips
- Solve problems involving discount
- Solve problems involving simple interest

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Complete Cellular Phone project

Extensions:

- Work with problems that have fractional values
- Online problem solving
- Workbook enrichment

Remediation:

- Additional exercises
- Break problems into smaller sections
- Give more instructions on what process to use for particular problems
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Higher order thinking questions
- Individual, pair, and small group practice
- Warm ups
- Teacher directed examples
- Mimio presentations

Materials & Resources:

- Warm ups
- Textbook
- Mimio lessons
- Projector
- Notes/examples
- Handouts (worksheets)
- Project supplies
- Calculators
- Individual white boards

Assessments:

- Warm ups
- Pretests
- Student pair-share and group discussion
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 7: Volume and Surface Area (Chapter 10)

Time frame: 15 – 18 class periods

State Standards/ Anchor(s) or adopted anchor: M07.B-E.2.1, M07.B-E.2.2, M07.B-E.2.3, M07.C-G.1.1.1, M07.C-G.1.1.4, M07.C-G.2.2

Essential content/objectives: At end of the unit, students will be able to:

- Find circumference and area of circles
- Find the surface area of prisms and cylinders
- Describe two-dimensional figures that result from slicing three-dimensional solids
- Find the volume of prisms and cylinders

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Exploratory exercises to develop knowledge
- Work with partners to solve mixed real-world problems
- Work with a group to determine the more efficient package

Extensions:

- Write and solve your own problems that model real-world situations
- Work with more difficult numbers, fractions, and decimals
- Online problem solving
- Workbook enrichment

Remediation:

- Chapter review exercises which revisits concepts and vocabulary
- Give specific instructions for each type of problem and which formula to use
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Higher order thinking questions
- Individual, pair, and small group practice
- Warm ups
- Teacher directed examples
- Mimio presentations

Materials & Resources:

- Warm ups
- Textbook
- Mimio lessons
- Projector
- Notes/examples
- Handouts (worksheets)
- Project supplies
- Calculators
- Individual white boards

Assessments:

- Warm ups
- Pretests
- Student pair-share and group discussion
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 8: Angle Relationships (Chapter 12)

Time frame: 18 – 21 class periods

Anchor(s) or adopted anchor: M07.C-G.1.1.2, M07.C-G.1.1.3, M07.C-G.2.1, M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Classify triangles by sides and angles
- Solve problems involving triangles
- Use and apply the triangle inequality theorem
- State and Identify special pairs of angles
- Identify angles when a transversal intersects lines
- Find the measure of missing angles using special angle pairs

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts

Extensions:

- Workbook Enrichment
- Work with more difficult angle measures including decimals and fractions
- Identify real-life examples and find missing angle measures

Remediation:

- Break problems into smaller sections
- Create flashcards to study concepts and vocabulary
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Teacher directed examples
- Warm ups
- Individual, pair, and whole group practice
- Higher ordering questioning

Materials & Resources:

- Warm Ups
- Textbook
- Mimio lessons
- Projector
- Teacher directed notes
- Handouts (worksheets)
- Calculators
- Individual white boards

Assessments:

- Warm Ups
- Teacher observation of student work
- Student pair-share and group discussion
- Homework assignments
- Test/quizzes
- Questioning techniques

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 9: Probability and Predictions (Chapter 8)

Time frame: 16 – 19 class periods

State Standards/ Anchor(s) or adopted anchor: M07.D-S.1.1; M07.D-S.2.1; M07.D-S.3.1; M07.D-S.3.2, M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Find the probability of a simple event
- Find the sample spaces and probabilities
- Use multiplication to count outcomes and find probabilities
- Find the probability of independent and dependent events
- Find and compare experimental and theoretical probabilities
- Investigate experimental probability by conducting a simulation
- Predict actions of a larger group by using a sample

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Data Collection group Project to understand the sampling methods

Extensions:

- Workbook Enrichment
- Perform experiments and calculate the probability
- Find probabilities of dependent events

Remediation:

- Additional exercises
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Teacher directed examples
- Warm ups
- Individual, pair, and whole group practice
- Higher ordering questioning

Materials & Resources:

- Warm Ups
- Textbook
- Mimio lessons
- Projector
- Teacher directed notes
- Handouts (worksheets)
- Calculators
- Individual white boards

Assessments:

- Warm Ups
- Teacher observation of student work
- Student pair-share and group discussion
- Homework assignments
- Test/quizzes
- Questioning techniques

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 10: Data Analysis

Time frame: 5 – 10 class periods

Anchor(s) or adopted anchor: M07.D-S.1.1; M07.D-S.2.1; M07.D-S.3.1; M07.D-S.3.2, M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Identify populations and sampling methods
- Make conclusions about populations using surveys
- Compare two numerical data distributions using measures of center and variability

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Data Collection group Project to understand the sampling methods

Extensions:

- Workbook enrichment
- Collect and display data in an appropriate graph
- Online problem solving

Remediation:

- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online practice

Instructional Methods:

- Projector notes
- Warm ups
- Teacher directed examples
- Higher order thinking questions
- Individual, pair, and small group practice
- Group project

Materials & Resources:

- Warm Ups
- Textbook
- Projector
- Mimio Presentations
- Teacher directed notes
- Handouts (worksheets)
- Calculators
- Individual white boards

Assessments:

- Warm Ups
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques
- Project Observation

Board Approved
October 2015

Curriculum Scope & Sequence

Planned Course: Mathematics

Unit 11: Linear Functions

Time frame: 18 – 21 class periods

Anchor(s) or adopted anchor: M08.B-E.2.1.1, M08.B-F.1.1.1, M08.B-F.1.1.2, M08.B-F.1.1.3**,** M07.B-E.2.3

Essential content/objectives: At end of the unit, students will be able to:

- Use graphs to represent relations and functions
- Find solutions of equations in two variables
- Understand that functions can be linear or nonlinear
- Use x and y intercepts to graph linear equations
- Find and interpret slopes of lines

Core Activities: Students will complete/participate in the following:

- Define key terms relating to Mathematics
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Complete hands-on activity to discover knowledge
- Complete graphing transfer project

Extensions:

- Workbook enrichment
- Represent situations in an equation and calculate slope

Remediation:

- Additional exercises
- Chapter review exercises which revisits concepts and vocabulary
- Teacher/peer tutoring
- Online Practice

Instructional Methods:

- Projected notes
- Warm ups
- Mimio Presentations
- Teacher directed examples
- Higher order thinking questions
- Individual, pair, and small group practice

Materials & Resources:

- Warm Ups
- Textbook
- Projector
- Teacher directed notes
- Handouts (worksheets)
- Calculators
- Individual white boards
- Project materials

Assessments:

- Warm Ups
- Student pair-share and group discussion
- Teacher observation of student work
- Homework assignments
- Test/quizzes
- Questioning techniques
- Project Rubric