

Wilson Area School District Planned Course Guide

Title of planned course: College Math

Subject Area: Mathematics

Grade Level: 12th

Course Description: Employ algebraic symbols and vocabulary to clearly communicate mathematical concepts. Perform arithmetic operations on real numbers and polynomial expressions. Evaluate algebraic expressions and formulas. Solve linear equations and inequalities. Represent a linear function using multiple representations: graph, table, equation, and words. Solve a system of linear equations in two variables. Apply appropriate algebraic principles and techniques to solve problems involving one or two variables.

Time/Credit for this Course: Half Year / 0.5 Credit

Curriculum Writing Committee: BethAyn S. Tarsi

Curriculum Map

August / September: Module 10 – Real Numbers and Algebraic Expressions

September: Module 10 – Real Numbers and Algebraic Expressions
Module 11 – Linear Equations and Inequalities in One Variable

October: Module 12 – Graphs of Linear Equations and Inequalities in Two Variables

November: Module 13 – Systems of Linear Equations and Inequalities
Module 14 – Exponents and Polynomials

December: Module 14 – Exponents and Polynomials

January: Module 14 – Exponents and Polynomials

Wilson Area School District Planned Course Materials

Course Title: College Math

Teacher Resources:

- Teacher created worksheets
- Four function calculators
- Smartboard
- Screen Cast-O-Matic
- Google Meet/Zoom
- Google Classroom

Curriculum Scope & Sequence

Planned Course: College Math

Unit 1: Module 10 – Real Numbers and Algebraic Expressions

Time frame: 5 – 7 class periods

State Standards: M08.A-N.1.1.1-5

Anchor(s) or adopted anchor: A1.1.1.1.1, A1.1.1.1.2, A1.1.2.1.1, A1.1.1.3.1

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

- Identify, classify, compare and graph numbers on the number line
- Add, subtract, multiply and divide real numbers
- Simplify and evaluate expressions using the properties of positive exponents
- Simplify utilizing the order of operations
- Simplify algebraic expressions

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

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

Extensions:

- Work with more challenging problems
- Assign more challenging problems for homework

Remediation:

- Additional exercises
- Less complex problems to work with to build prior knowledge
- Review exercises that revisit concepts and vocabulary
- Teacher / peer tutoring
- Study Island/IXL/Kahn Academy

Instructional Methods:

- Notes on SmartBoard
- Higher order thinking questions
- Warm ups
- Teacher directed examples
- Individual, pair and small group practice
- Visual representations
- Screen Cast-O-Matic Videos

Materials & Resources:

- Warm ups
- Textbook
- SmartBoard
- Notes and examples
- Handouts / worksheets
- Activity supplies
- Four function calculators

Assessments:

- Warm ups
- Teacher observations of student work
- Homework / assignments
- Quizzes / tests
- Progress Checks
- Questioning techniques

Curriculum Scope & Sequence

Planned Course: College Math

Unit 2: Module 11 – Linear Equations and Inequalities in One Variable

Time frame: 5 – 7 class periods

Keystone Standards: A1.2.1.1, A1.2.1.2, A1.2.2.1, A1.2.2.2.1, A1.2.3.2.3, A1.1.3.1, A1.1.1.3.1, A1.1.2.1.2

Anchor(s) or adopted anchor: A.1.3.1, M11.A.2.1.2, M11.C.3.1.2, M11.D.1.1.2, M11.D.1.1.3, M11D.3.2, M11.D.4.1.1, M11.E.4.2, M11.A.1.3.2, M11.A.3.1.1, M11.A.3.2.1, M11.D.2.1.1

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

- Recognize and apply the addition and multiplication properties of equality
- Solve linear equations in one variable
- Utilize geometry formulas to solve geometric situations
- Apply and solve percents to problem situations
- Solve and graph linear inequalities in one variable
- Solve and graph compound inequalities
- Solve absolute value equations

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

- Define key terms relating to algebra and geometry.
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Use visual aids to assist with learning

Extensions:

- Work with more challenging problems
- Assign more challenging problems for homework

Remediation:

- Additional exercises
- Less complex problems to work with to build prior knowledge
- Review exercises that revisit concepts and vocabulary
- Teacher / peer tutoring
- Study Island/IXL/Kahn Academy

Instructional Methods:

- Notes on SmartBoard
- Higher order thinking questions
- Warm ups
- Teacher directed examples
- Individual, pair and small group practice
- Visual representations
- Screen Cast-O-Matic Videos

Materials & Resources:

- Warm ups
- Textbook
- SmartBoard
- Notes and examples
- Handouts / worksheets
- Activity supplies
- Four function calculators

Assessments:

- Warm ups
- Teacher observations of student work
- Homework / assignments
- Quizzes / tests
- Progress Checks
- Questioning techniques

Curriculum Scope & Sequence

Planned Course: College Math

Unit 3: Module 12 – Graphs of Linear Equations and Inequalities in Two Variables

Time frame: 10 - 12 class periods

State Standards: 2.1.HS.F.3, 2.1.HS.F.5, 2.1.HS.C.1, 2.2.HS.C.2, 2.2.HS.C.3, 2.2.HS.C.4, 2.2.HS.C.5, 2.2.HS.C.6, 2.2.HS.D.7, 2.2.HS.D.8, 2.2.HS.D.10, 2.4.HS.B.2, 2.4.HS.B.3

Anchor(s) or adopted anchor: C.3.1.1-2, D.1.1.2-3, D.2.1.2-3, D.2.2.1, D.3.2.1-3, D.4.1.1

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

- Graph points in the rectangular coordinate system
- Graph linear equations in two variables
- Create and apply slope
- Write the equation of a line
- Graph linear inequalities in two variables

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

- Define key terms relating to these specific algebraic concepts
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Use visual aids to assist with learning

Extensions:

- Work with more challenging problems
- Assign more challenging problems for homework

Remediation:

- Additional exercises
- Less complex problems to work with to build prior knowledge
- Review exercises that revisit concepts and vocabulary
- Teacher / peer tutoring
- Study Island/IXL/Kahn Academy

Instructional Methods:

- Notes on SmartBoard
- Higher order thinking questions
- Warm ups
- Teacher directed examples
- Individual, pair and small group practice
- Visual representations
- Screen Cast-O-Matic Videos

Materials & Resources:

- Warm ups
- Textbook
- SmartBoard
- Notes and examples
- Handouts / worksheets
- Activity supplies
- Four function calculators

Assessments:

- Warm ups
- Teacher observations of student work
- Homework / assignments
- Quizzes / tests
- Progress Checks
- Questioning techniques

Curriculum Scope & Sequence

Planned Course: College Math

Unit 3: Module 13 – Systems of Linear Equations and Inequalities

Time frame: 5 - 7 class periods

Keystone Standards: A1.1.2.2.1, A1.1.3.2

Anchor(s) or adopted anchor: M11.D.2.1.2, M11.D.2.1.4

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

- Solve a system of linear equations or inequalities by graphing
- Solve a system of linear equations by substitution
- Solve a system of equations by elimination
- Set up and solve a system of equations as it applies to real world application.

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

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

Extensions:

- Work with more challenging problems
- Assign more challenging problems for class/homework
- Utilize linear programming to set up and solve a system of inequalities

Remediation:

- Additional exercises
- Less complex problems to work with to build prior knowledge
- Review exercises that revisit concepts and vocabulary
- Teacher / peer tutoring
- Study Island/IXL/Kahn Academy

Instructional Methods:

- Notes on SmartBoard
- Higher order thinking questions
- Warm ups
- Teacher directed examples
- Individual, pair and small group practice
- Visual representations
- Screen Cast-O-Matic Videos

Materials & Resources:

- Warm ups
- Textbook
- SmartBoard
- Notes and examples
- Handouts / worksheets
- Activity supplies
- Four function calculators

Assessments:

- Warm ups
- Teacher observations of student work
- Homework / assignments
- Quizzes / tests
- Progress Checks
- Questioning techniques

Curriculum Scope & Sequence

Planned Course: College Math

Unit 4: Module 14 – Exponents and Polynomials

Time frame: 20 – 24 class periods

Keystone Standards: A1.1.1.1.2, A1.1.1.2.1, A1.1.1.3.1, A1.1.1.5.1-3

Anchor(s) or adopted anchor: M11.A.1.2.1, M11.A.2.2.1-2, M11.D.2.2.1-3

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

- Apply the law of exponents to include negative exponents
- Scientific notation
- Add and subtract polynomials
- Multiply polynomials to include special cases
- Factor polynomials
- Divide polynomials to include rational functions

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

- Define key terms relating to these specific algebraic concepts
- Complete examples of problems in class
- Participate in individual, pair, and small group practice of concepts
- Develop a flow chart process of how to factor

Extensions:

- Work with more challenging problems
- Assign more challenging problems for class/homework
- Solve application word problems which require factoring techniques

Remediation:

- Additional exercises
- Less complex problems to work with to build prior knowledge
- Review exercises that revisit concepts and vocabulary
- Teacher / peer tutoring
- Study Island/IXL/Kahn Academy

Instructional Methods:

- Notes on SmartBoard
- Higher order thinking questions
- Warm ups
- Teacher directed examples
- Individual, pair and small group practice
- Visual representations
- Screen Cast-O-Matic Videos

Materials & Resources:

- Warm ups
- Textbook
- SmartBoard
- Notes and examples
- Handouts / worksheets
- Activity supplies
- Four function calculators

Assessments:

- Warm ups
- Teacher observations of student work
- Homework / assignments
- Quizzes / tests
- Progress Checks
- Questioning techniques