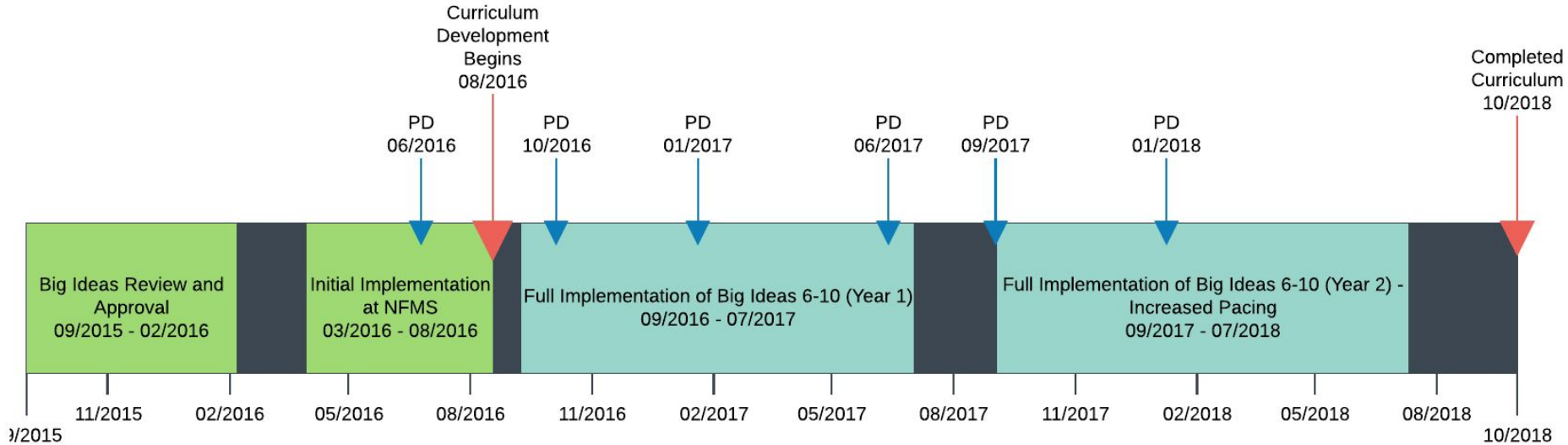# Secondary Mathematics Curriculum
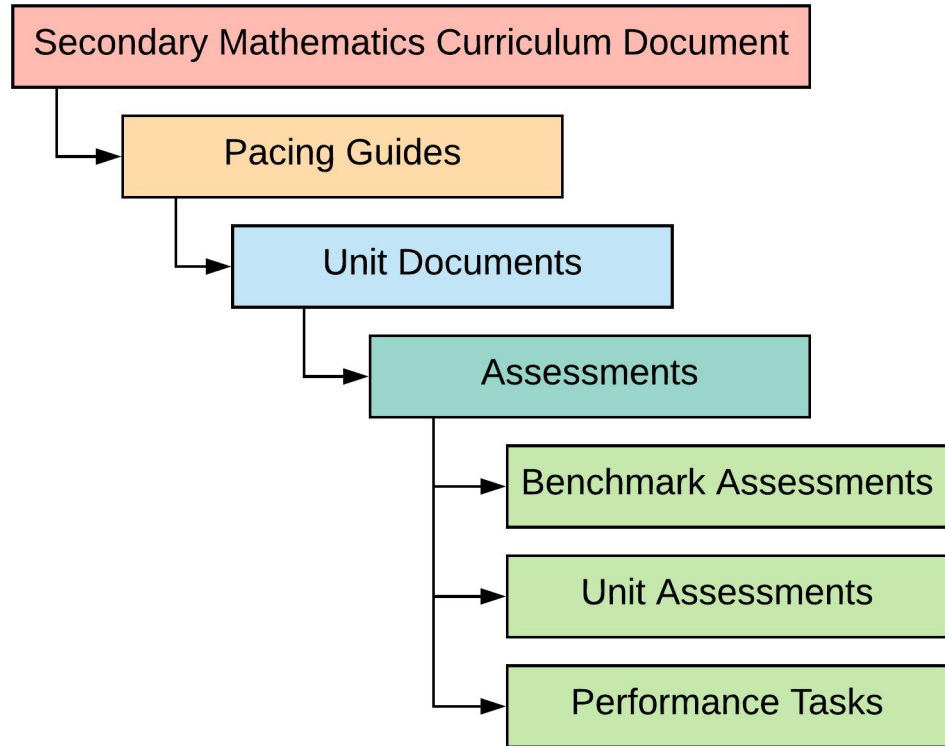
Keegan Finlayson

Grade 6 through Algebra 2
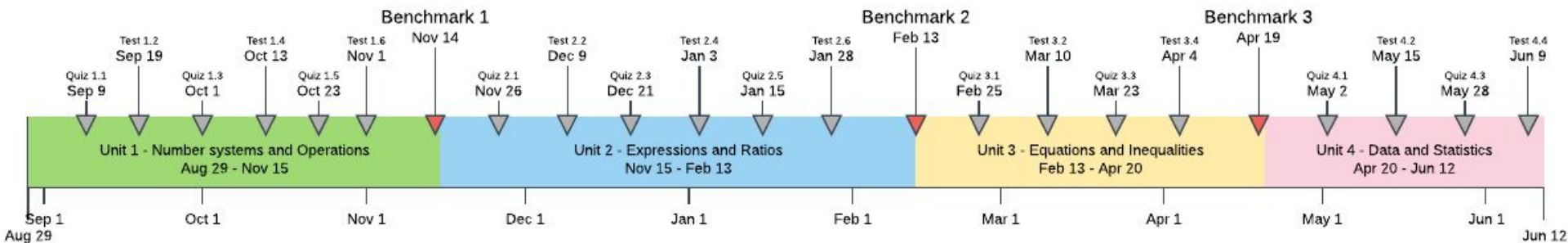
Implementation Timeline

Curriculum Development Begins 08/2016

Completed Curriculum 10/2018

PD 06/2016

PD 10/2016

PD 01/2017

PD 06/2017

PD 09/2017

PD 01/2018

Big Ideas Review and Approval
09/2015 - 02/2016

Initial Implementation at NFMS
03/2016 - 08/2016

Full Implementation of Big Ideas 6-10 (Year 1)
09/2016 - 07/2017

Full Implementation of Big Ideas 6-10 (Year 2) - Increased Pacing
09/2017 - 07/2018

9/2015
11/2015
02/2016
05/2016
08/2016
11/2016
02/2017
05/2017
08/2017
11/2017
02/2018
05/2018
08/2018
10/2018

Structure of Curriculum

Secondary Mathematics Curriculum Document

Pacing Guides

Unit Documents

Assessments

Benchmark Assessments

Unit Assessments

Performance Tasks

Course and Assessment Timelines

Benchmark 1 Nov 14
Benchmark 2 Feb 13
Benchmark 3 Apr 19

Quiz 1.1 Sep 9
Test 1.2 Sep 19
Quiz 1.3 Oct 1
Test 1.4 Oct 13
Quiz 1.5 Oct 23
Test 1.6 Nov 1

Quiz 2.1 Nov 26
Test 2.2 Dec 9
Quiz 2.3 Dec 21
Test 2.4 Jan 3
Quiz 2.5 Jan 15
Test 2.6 Jan 28

Quiz 3.1 Feb 25
Test 3.2 Mar 10
Quiz 3.3 Mar 23
Test 3.4 Apr 4

Quiz 4.1 May 2
Test 4.2 May 15
Quiz 4.3 May 28
Test 4.4 Jun 9

Unit 1 - Number systems and Operations Aug 29 - Nov 15
Unit 2 - Expressions and Ratios Nov 15 - Feb 13
Unit 3 - Equations and Inequalities Feb 13 - Apr 20
Unit 4 - Data and Statistics Apr 20 - Jun 12

Sep 1
Aug 29
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jun 12

Curriculum Contents

Middle School Algebra Readiness

| Grade 5	Grade 6	Grade 7	Grade 8
Understand the place value system	Apply and extend previous understandings of multiplication and division to divide fractions by fractions		
Perform operations with multi-digit whole numbers and decimals to hundredths	Apply and extend previous understandings of numbers to the system of rational numbers	Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers	Work with radical and integer exponents
Use equivalent fractions as a strategy to add and subtract fractions	Understand ratio concepts and use ratio reasoning to solve problems	Analyze proportional relationships and use them to solve real-world and mathematical problems	Understand the connections between proportional relationships, lines, and linear equations
Apply and extend previous understandings of multiplication and division to multiply and divide fractions	Apply and extend previous understandings of arithmetic to algebraic expressions	Use properties of operations to generate equivalent expressions	Analyze and solve linear equations and pairs of simultaneous linear equations
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition	Reason about and solve one-variable equations and inequalities	Solve real-life and mathematical problems using numerical and algebraic expressions and equations	Define, evaluate, and compare functions
Graph points in the coordinate plane to solve real-world and mathematical problems	Represent and analyze quantitative relationships between dependent and independent variables		

Middle School Math Progressions
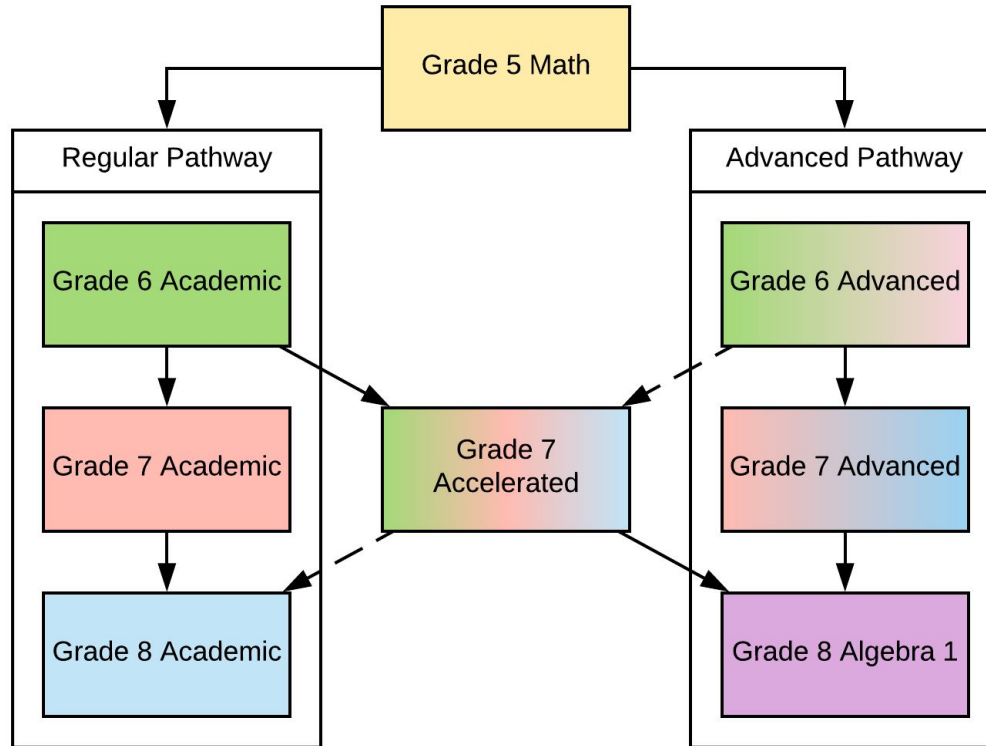
Middle School Math Units

	Grade 6 Academic	Grade 6 Advanced	Grade 7 Academic	Grade 7 Advanced	Grade 7 Accelerated	Grade 8 Academic	Grade 8 Algebra 1
Unit 1	Number Systems and Operations	Number Systems and Operations	Real Numbers	Pre-Algebra	Real Numbers	Equations	Linear Equations and Functions
Unit 2	Expressions	Algebraic Expressions and Applications	Pre-Algebra	Geometry	Pre-Algebra	Geometric Transformations	Linear Inequalities
Unit 3	Ratios and Percents	Equations and Inequalities	Ratios, Proportions, and Percents	Transformations and Congruence	Ratios, Proportions, and Percents	Linear Equations and Functions	Systems of Linear Equations and Inequalities
Unit 4	Equations and Inequalities	Data and Statistics	Geometry	Linear Equations and Functions	Geometry	Statistics	Linear and Exponential Functions
Unit 5	Data and Statistics	Proportions and Percents	Probability and Statistics	Pythagorean Theorem and Applications	Surface Area and Volume	Systems of Linear Equations	Square Roots and the Pythagorean Theorem
Unit 6		Real Numbers		Probability and Statistics	Probability and Statistics	The Pythagorean Theorem and Applications	Polynomials and Quadratic Functions
Unit 7		Expressions and Equations		Exponents and Scientific Notation	Transformations and Congruence	Exponents and Scientific Notation	Data Analysis and Displays
Unit 8					Linear Equations and Functions	Lines, Angles, and Triangles	Rational Equations and Functions
Unit 9					Roots, Exponents, and the Pythagorean Theorem		

High School Math Progressions
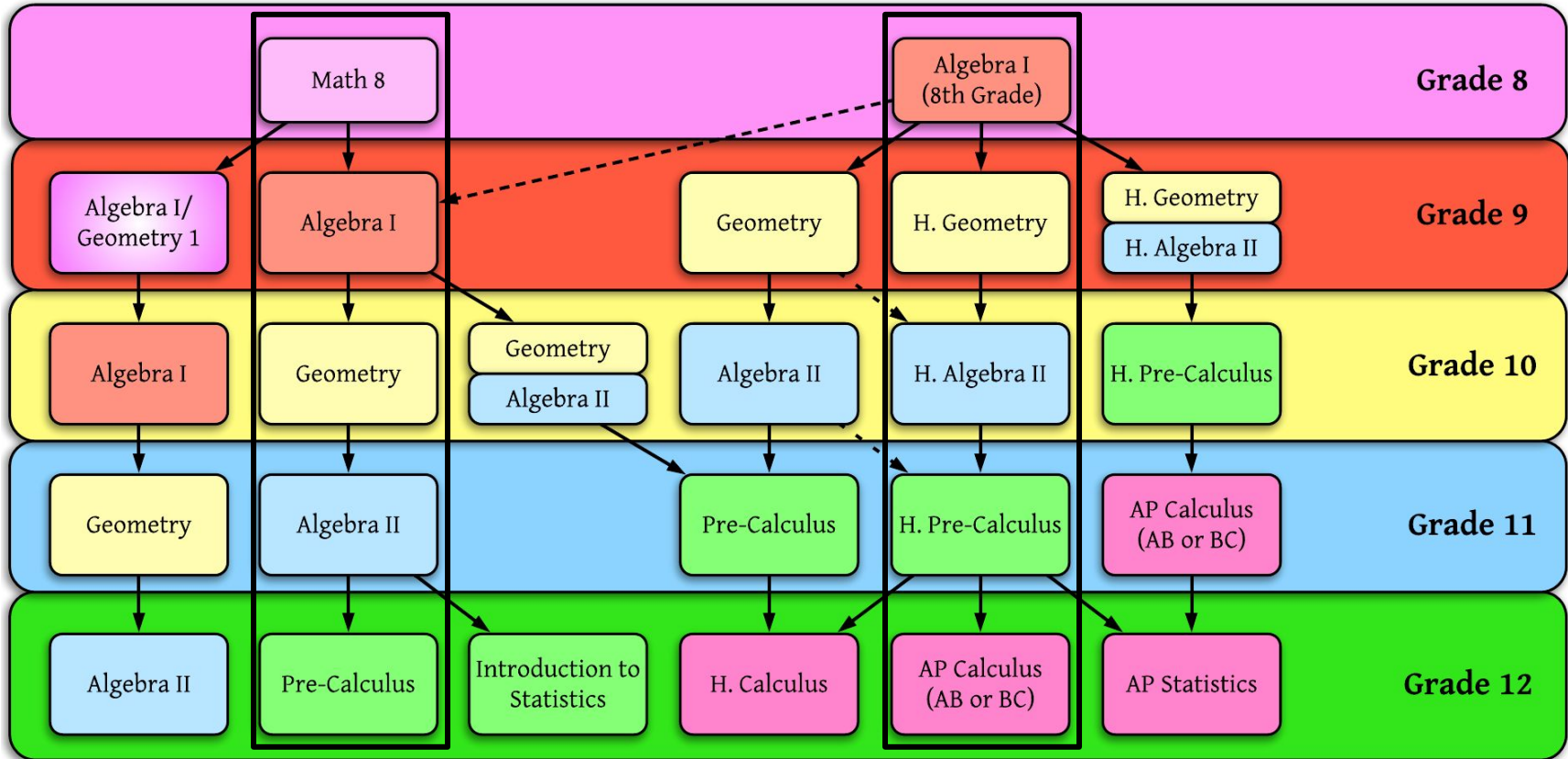
High School Math Units

	Algebra 1	**Geometry**	**Algebra 2**
Unit 1	Linear Equations and Inequalities	Geometry Basics and Proofs	Function Transformations
Unit 2	Functions	Lines and Transformations	Quadratic Functions
Unit 3	Data and Statistics	Triangles	Polynomial Functions
Unit 4	Systems of Linear Equations and Inequalities	Quadrilaterals	Radical, Exponential, and Logarithmic Functions
Unit 5	Polynomial Equations and Factoring	Similarity and Trigonometry	Probability and Statistics
Unit 6	Graphing and Solving Quadratic Functions	Circles and Measurement	Rational Functions
Unit 7	Exponential and Radical Functions		Sequences and Series

Secondary Mathematics Curriculum Document

Link

Special Education Considerations

Special Education Considerations

Special education use of the mathematics curriculum is based on each student's IEP. Common accommodations and modifications used in the mathematics classroom, that are supported by the curriculum documents include:

1. Dynamic grouping based on student needs.
2. Co-teaching with a regular education teacher and either a math interventionist or a special education teacher.
3. Working with the mathematics interventionist within and outside the mathematics class.
4. Modified assessments based on IEPs and established mathematics progressions.

Every Big Ideas Section Contains:

Common Core Progression

4th Grade

- Find the area and perimeter of a rectangle using formulas.
- Draw points, line segments, parallel lines, and perpendicular lines.
- Classify two-dimensional figures based on angles, parallel lines, and perpendicular lines.

5th Grade

- Find the area of a rectangle with fractional side lengths.
- Classify two-dimensional figures into categories based on properties.
- Generate numerical patterns given rule, identify the relationship, and form ordered pairs.
- Plot points in the first quadrant of the coordinate plane.

6th Grade

- Find areas of triangles, special quadrilaterals, and polygons.
- Find the distance between points with the same x- or y-coordinate.
- Draw polygons in the coordinate plane given vertices and find lengths of sides.

Every Big Ideas Section Contains:

Math Background Notes

Vocabulary Review

- Area
- Coordinate Plane
- x-axis
- y-axis
- Origin
- Ordered Pair
- x-coordinate
- y-coordinate

Finding Areas of Squares and Rectangles

- Remind students that the exponent means to multiply the base by itself. 15^2 is 15×15 and not 15×2.
- ❓ "What type of units do you use to measure area?" square units

Every Big Ideas Section Contains:

Common Errors

- **Exercises 3–13** Students may use the formula for perimeter instead of the formula for area. Tell students to write the formula and then identify the value of each variable before substituting.
- **Exercises 14–16** Students may forget to subtract the area of the white rectangle or parallelogram when finding the area of the shaded region. Draw the parallelogram on a piece of paper and cut out the part that the students must subtract to find the area.
- **Exercises 14–16** Some students may try to break the shaded region into smaller regions and then find the area of each smaller region. This is much more difficult.

Every Big Ideas Section Contains:

Assignment Guide and Homework Check

Level	Day 1 Activity Assignment	Day 2 Lesson Assignment	Homework Check
Basic	3–5, 21–24	1, 2, 6–13, 15	8, 11, 13, 15
Average	3–5, 21–24	1, 2, 6–14, 16, 18, 19	8, 11, 14, 16
Advanced	3–5, 21–24	1, 2, 6–9, 12–14, 16, 17, 19, 20	8, 12, 14, 19

Next Steps

Next Steps

1. Create and align performance tasks.
2. Write pre-calculus curriculum.
3. Document existing AP curricula using appropriate templates.
4. Continuously refine written curriculum based on student needs and outcomes.
5. Continue professional development opportunities.
6. Clearly define lesson components

Acknowledgements

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