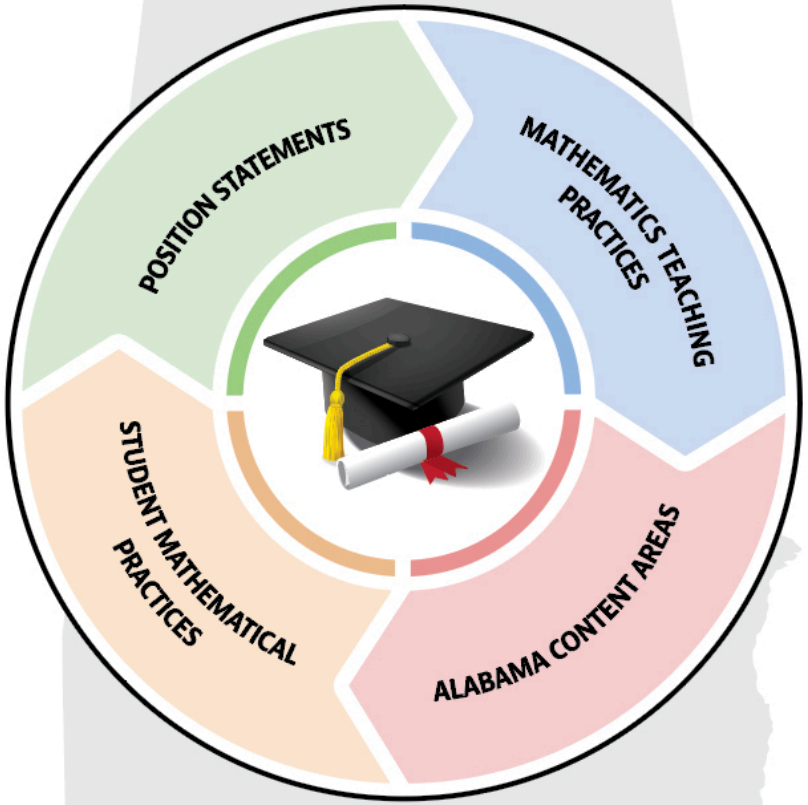
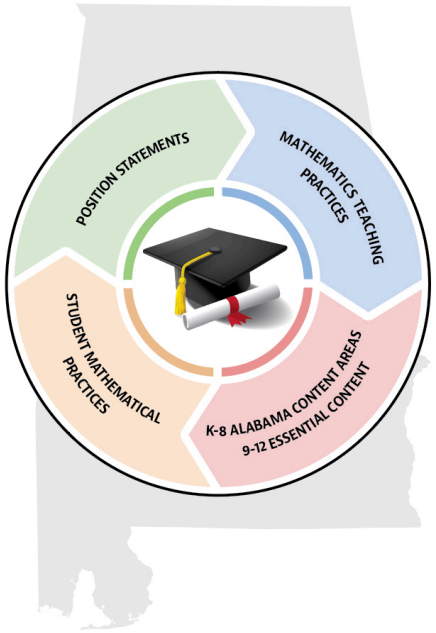
2019 Draft Alabama Course of Study

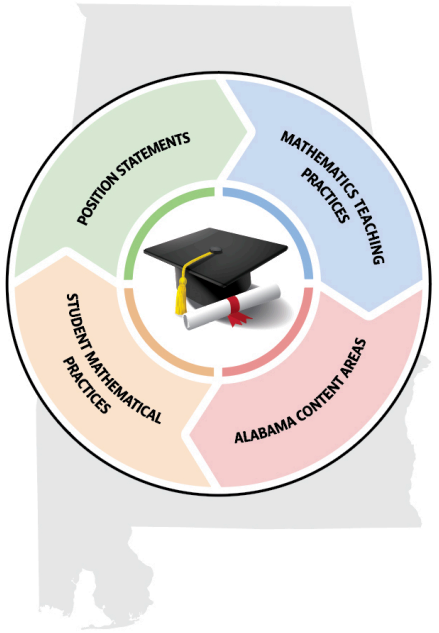
Mathematics



Conceptual Framework

OLD



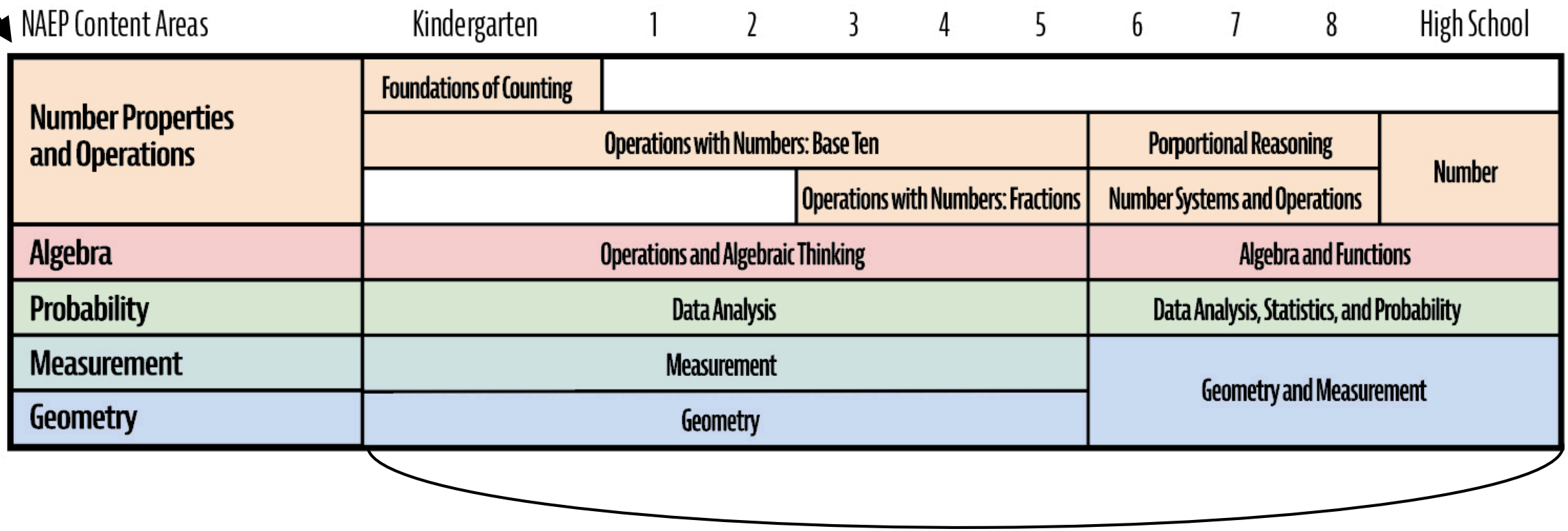


Committee vote on October 15-16

Alabama Content Areas

2025 NAEP Framework Draft

Overview of Alabama Mathematics Content Areas



Document Alignment

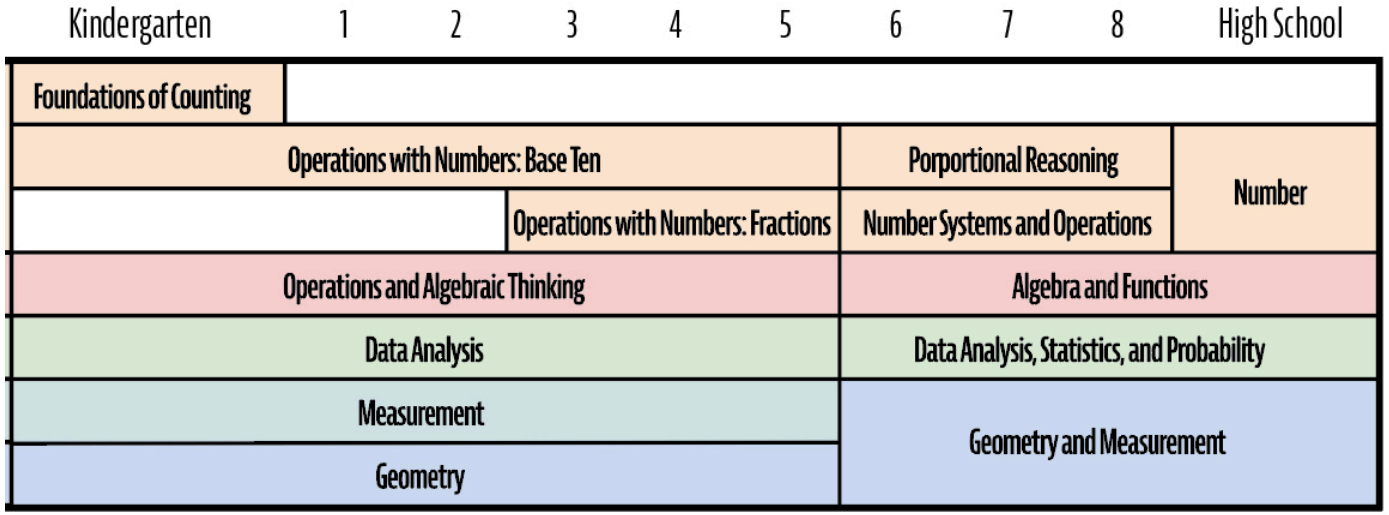
Domains (K-8)

K	1	2	3	4	5
Counting and Cardinality					
Number and Operations in Base Ten					
			Number and Operations – Fractions		
Operations and Algebraic Thinking					
Geometry					
Measurement and Data					
Standards for Mathematical Practice*					

OLD

*The *2019 Alabama Course of Study: Mathematics* also refers to these practices as Student Mathematics Practices.

Alabama Content Areas (K-12)



Organization of Standards: Old

Grade 2 Overview

Domains	Operations and Algebraic Thinking (OA)	Number and Operations in Base Ten (NBT)	Measurement and Data (MD)	Geometry (G)
Clusters	• Represent and solve problems involving addition and subtraction. • Add and subtract within 20. • Work with equal groups of objects to gain foundations for multiplication. • Understand simple patterns.	• Understand place value. • Use place value understanding and properties of operations to add and subtract.	• Measure and estimate lengths in standard units. • Relate addition and subtraction to length. • Work with time and money. • Represent and interpret data.	• Reason with shapes and their attributes.
Standards for Mathematical Practice	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.	7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.

Organization of Standards: New

Grade 4 Overview

Content Areas	Operations and Algebraic Thinking	Number and Operations: Base Ten	Number and Operations: Fractions	Data Analysis	Measurement	Geometry
Clusters	• Gain familiarity with factors and multiples. • Solve problems with whole numbers using the four operations. • Generate and analyze patterns.	• Generalize place value understanding for multi-digit whole numbers. • Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers.	• Extend understanding of fraction equivalence and ordering. • Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. • Understand	• Represent and interpret data.	• Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.. • Geometric measurement: understand concepts of angles and	• Draw and identify lines and angles, and identify shapes by properties of their lines and angles.

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

Example of Standards: Old

Emphasis of Content

Grade 6

Apply and extend previous understandings of numbers to the system of rational numbers. *(Green represents major grade-level cluster)*

Content Identifier

8. **[6.NS.5.]** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts explaining the meaning of 0 in each situation. Sample problems may include temperature above/below zero, elevation above/below sea level, and credits/debits.

9. **[6.NS.6.]** Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.
   - **a.** Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself and that 0 is its own opposite.
     Example: -(-3) = 3
   - **b.** Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.
   - **c.** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
     Example: Place the following numbers on a number line: 1½, -4.9, 8, 15/2, -8/4, 6.2, -15/2.
     Based on number line placement, arrange the numbers in numerical order.

Example of Standards: New

Grade 6

Alabama Content Area

Number Systems and Operations	
Apply knowledge of the number system to represent and use rational numbers in a variety of forms.	7. Locate integers and other rational numbers on a horizontal or vertical line diagram. 8. Define opposites as numbers located on opposite sides of 0 and the same distance from 0 on a number line. 9. Identify quadrant locations of ordered pairs on the coordinate plane based on the signs of the x and y coordinates. a. Identify (a,b) and $(a,-b)$ as reflections across the x-axis. b. Identify (a,b) and $(-a,b)$ as reflections across the y-axis.

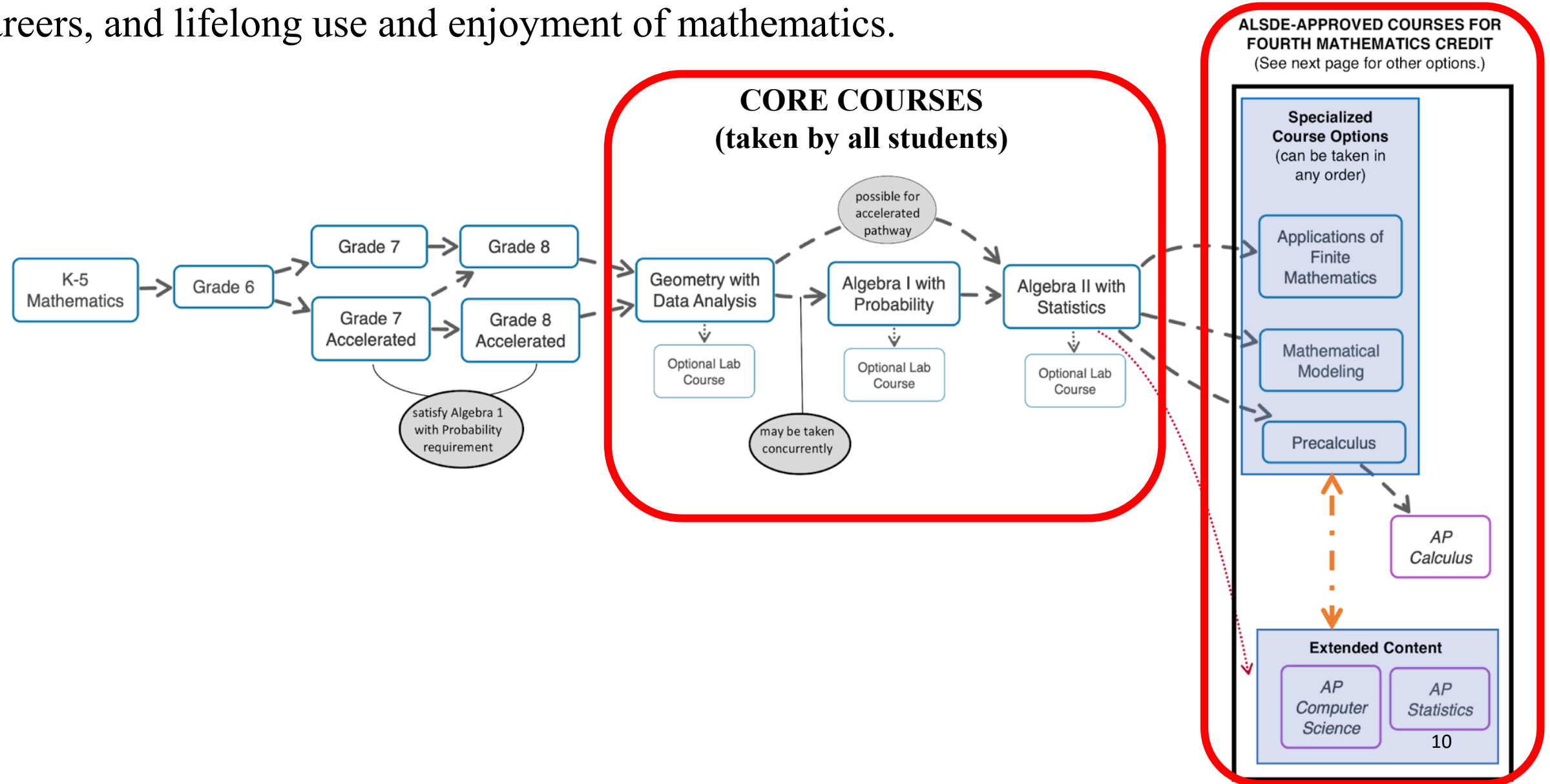
Content Cluster

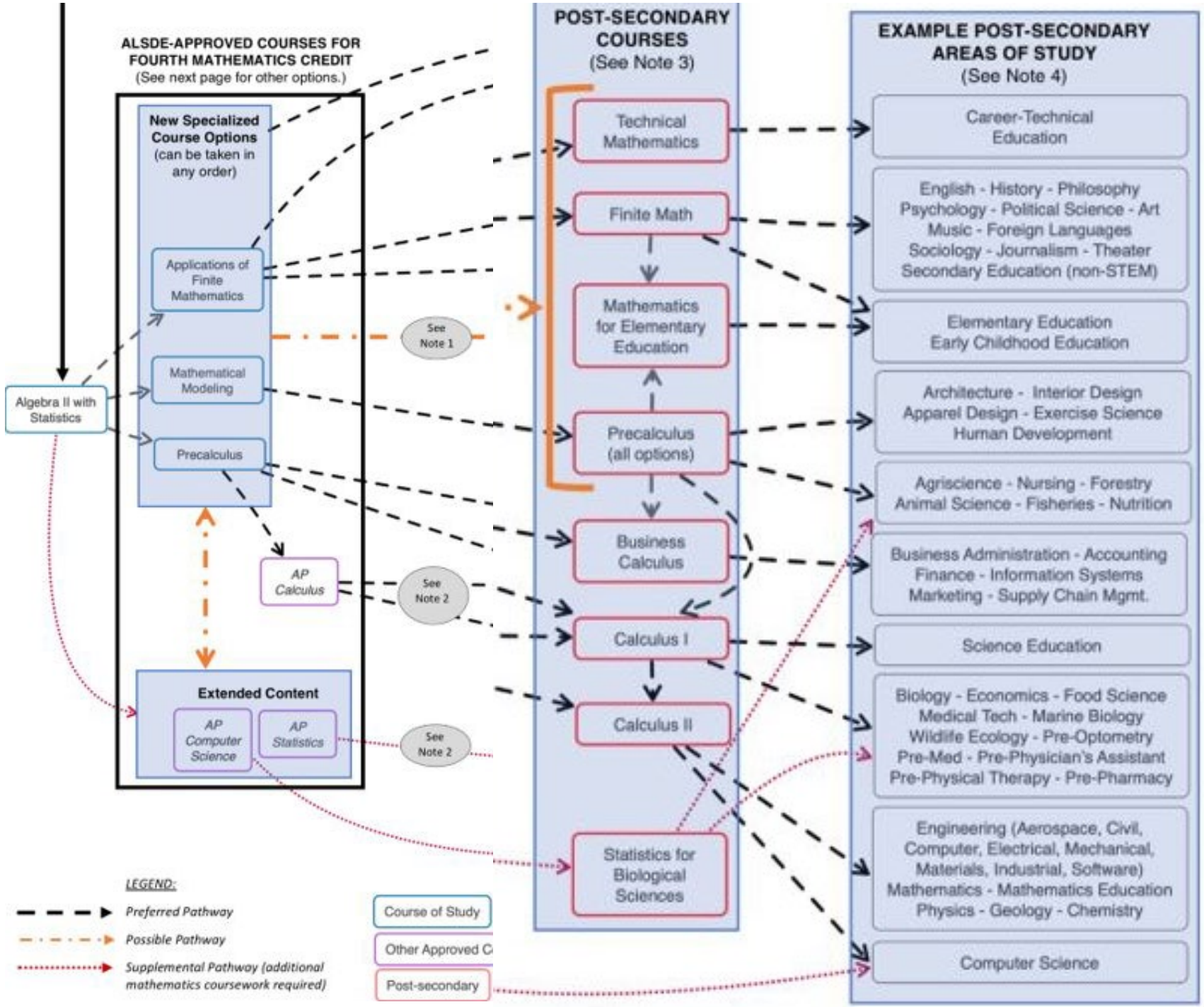
High School Course Names

Previous Draft	New Draft
Geometry with Descriptive Statistics	**Geometry with Data Analysis**
Algebra I with Probability	**Algebra I with Probability**
Algebra II with Inferential Statistics	**Algebra II with Statistics**

Grades 9 – 12 OVERVIEW

Pathways to Student Success: including the postsecondary study of mathematics, careers, and lifelong use and enjoyment of mathematics.




ALSDE-APPROVED COURSES FOR FOURTH MATHEMATICS CREDIT
(See next page for other options.)
New Specialized Course Options
(can be taken in any order)
Applications of Finite Mathematics
Mathematical Modeling
Precalculus
AP Calculus
Extended Content
AP Computer Science
AP Statistics
Algebra II with Statistics
See Note 1
See Note 2
See Note 2
POST-SECONDARY COURSES
(See Note 3)
Technical Mathematics
Finite Math
Mathematics for Elementary Education
Precalculus (all options)
Business Calculus
Calculus I
Calculus II
Statistics for Biological Sciences
EXAMPLE POST-SECONDARY AREAS OF STUDY
(See Note 4)
Career-Technical Education
English - History - Philosophy
Psychology - Political Science - Art
Music - Foreign Languages
Sociology - Journalism - Theater
Secondary Education (non-STEM)
Elementary Education
Early Childhood Education
Architecture - Interior Design
Apparel Design - Exercise Science
Human Development
Agriscience - Nursing - Forestry
Animal Science - Fisheries - Nutrition
Business Administration - Accounting
Finance - Information Systems
Marketing - Supply Chain Mgmt.
Science Education
Biology - Economics - Food Science
Medical Tech - Marine Biology
Wildlife Ecology - Pre-Optometry
Pre-Med - Pre-Physician's Assistant
Pre-Physical Therapy - Pre-Pharmacy
Engineering (Aerospace, Civil, Computer, Electrical, Mechanical, Materials, Industrial, Software)
Mathematics - Mathematics Education
Physics - Geology - Chemistry
Computer Science
LEGEND:
Preferred Pathway
Possible Pathway
Supplemental Pathway (additional mathematics coursework required)
Course of Study
Other Approved C
Post-secondary

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