



Kansas Assessment Program

Interim Blueprint Mathematics

Spring 2024

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ABOUT KAP MATHEMATICS INTERIM ASSESSMENTS

The Kansas Assessment Program (KAP) interim assessments allow educators to evaluate students' knowledge and skills in a subject area and are designed to inform decisions at the classroom level and beyond (e.g., at the school and district level).

Mathematics interim assessments are given twice during the school year for grades 3–8 and 10. Each interim assessment covers a subset of content standards. This document describes how the [2017 Kansas Mathematics Standards](#) are measured by each interim assessment.

SUGGESTED USES

Educators can use this document to

- better understand each assessment and the standards measured by each assessment.
- ensure that the sequence of instructional plans matches the major emphases of the standards across the year on both interim assessments.
- check the alignment of curriculum and learning activities.
- develop learning goals for students to achieve proficiency.
- build a greater understanding of student, grade-level, school, and district results, and plan for future learning activities accordingly.

ASSESSMENT BLUEPRINTS

The assessment blueprints provide general information related to the development and frequency of items on the interim assessments. The content emphases of the interim assessments reflect the instructional emphases outlined in the Kansas State Department of Education standards documents.

The 2017 Kansas Mathematics Standards serve as the foundation of the assessments. These standards are grouped into domains and clusters. Domains are larger categories and consist of clusters. Clusters are smaller categories and fall within domains. The grade 10 mathematics assessment measures 11 domains, compared to 3–5 domains measured in other grades. Therefore, the domains are grouped into conceptual categories for grade 10 mathematics.

- Grades 3–8 domains
 - Operations and Algebraic Thinking
 - Number and Operations in Base Ten
 - Number and Operations – Fractions
 - Measurement and Data
 - Geometry
 - Ratios and Proportional Relationships
 - The Number System
 - Expressions and Equations
 - Statistics and Probability
 - Functions
- Grade 10 conceptual categories
 - Number and Quantity
 - Algebra
 - Functions
 - Geometry
 - Statistics and Probability

Items on the assessments align to standards that follow the same groupings. The following assessment blueprints provide detail at the cluster level for grades 3–8 and at the domain level for grade 10.

| GRADE 3 MATHEMATICS INTERIM ASSESSMENT BLUEPRINT | | | | | | | | |
|--|---------|--|--|--|-----------|-----------|-----------|--|
| Domain | Cluster | Standard | Description | Cluster Point Range | | | | |
| | | | | Interim 1 | | Interim 2 | | |
| | | | | Min | Max | Min | Max | |
| Operations and Algebraic Thinking | 3.OA.A | | Represent and solve problems involving multiplication and division. | 11 | 13 | — | — | |
| | 3.OA.B | | Understand properties of multiplication and the relationship between multiplication and division. | 1 | 3 | 3 | 5 | |
| | | 3.OA.5 | | Apply properties of operations as strategies to multiply and divide. | — | | X | |
| | | 3.OA.6 | | Understand division as an unknown-factor problem. | X | | — | |
| | 3.OA.C | | Multiply and divide within 100 (basic facts up to 10 x 10). | 3 | 5 | — | — | |
| 3.OA.D | | Solve problems involving the four operations, and identify and explain patterns in arithmetic. | — | — | 5 | 7 | | |
| Number and Operations in Base Ten | 3.NBT.A | | Use place value understanding and properties of operations to perform multi-digit arithmetic. | 5 | 7 | 1 | 3 | |
| | | 3.NBT.1 | Use place value understanding to round whole numbers to the nearest 10 or 100. | | X | | — | |
| | | 3.NBT.2 | Fluently add and subtract within 1000 using strategies | | X | | | |
| | | 3.NBT.3 | Multiply one-digit whole numbers by multiples of 10 in the range 10 to 90 | | — | | X | |
| Number and Operations – Fractions | 3.NF.A | | Develop understanding of fractions as numbers. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.) | — | — | 5 | 7 | |
| Measurement and Data | 3.MD.A | | Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. | 7 | 9 | — | — | |
| | 3.MD.C | | Geometric measurement: understand concepts of area and relate area to multiplication and to addition. | — | — | 11 | 13 | |
| Total Points | | | | 27 | 37 | 25 | 35 | |

GRADE 4 MATHEMATICS INTERIM ASSESSMENT BLUEPRINT

| Domain | Cluster | Standard | Description | Cluster Point Range | | | |
|-----------------------------------|---------|----------|---|---------------------|-----|-----------|-----|
| | | | | Interim 1 | | Interim 2 | |
| | | | | Min | Max | Min | Max |
| Operations and Algebraic Thinking | 4.OA.A | | Use the four operations with whole numbers to solve problems. | 8 | 10 | — | — |
| | 4.OA.B | | Gain familiarity with factors and multiples. | — | — | 3 | 5 |
| | 4.OA.C | | Generate and analyze patterns. | 2 | 4 | — | — |
| Number and Operations in Base Ten | 4.NBT.A | | Generalize place value understanding for multi-digit whole numbers. | 5 | 7 | — | — |
| | 4.NBT.B | | Use place value understanding and properties of operations to perform multi-digit arithmetic. | 7 | 9 | 3 | 5 |
| | | 4.NBT.4 | Fluently add and subtract multi-digit whole numbers using an efficient algorithm, based on place value understanding and the properties of operations. | | X | | — |
| | | 4.NBT.5 | Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | | X | | — |
| | | 4.NBT.6 | Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | | | | X |
| | | | | | | | |
| Number and Operations – Fractions | 4.NF.A | | Extend understanding of fraction equivalence and ordering. | 5 | 6 | — | — |
| | 4.NF.B | | Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. | — | — | 11 | 13 |
| Measurement and Data | 4.MD.A | | Solve problems involving measurement and conversions of measurements from larger units to smaller units. | — | — | 7 | 8 |
| | 4.MD.B | | Represent and interpret data. | — | — | 3 | 5 |

| | | | | | | |
|---------------------|-------|--|-----------|-----------|-----------|-----------|
| Geometry | 4.G.A | Draw and identify lines and angles, and classify shapes by properties of their lines and angles. | 1 | 3 | — | — |
| Total Points | | | 28 | 39 | 27 | 36 |

| GRADE 5 MATHEMATICS INTERIM ASSESSMENT BLUEPRINT | | | | | | |
|--|---------|---|---------------------|-----------|-----------|-----------|
| Domain | Cluster | Cluster Description | Cluster Point Range | | | |
| | | | Interim 1 | | Interim 2 | |
| | | | Min | Max | Min | Max |
| Operations and Algebraic Thinking | 5.OA.A | Write and interpret numerical expressions. | 5 | 6 | — | — |
| Number and Operations in Base Ten | 5.NBT.A | Understand the place value system. | 10 | 12 | — | — |
| | 5.NBT.5 | Perform operations with multi-digit whole numbers and with decimals to hundredths. | 13 | 15 | — | — |
| Number and Operations – Fractions | 5.NF.A | Use equivalent fractions as a strategy to add and subtract fractions. | — | — | 6 | 9 |
| | 5.NF.B | Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | — | — | 15 | 18 |
| Measurement and Data | 5.MD.A | Convert like measurement units within a given measurement system. | 1 | 3 | — | — |
| Geometry | 5.G.A | Graph points on the coordinate plane to solve real world and mathematical problems. | — | — | 2 | 4 |
| | 5.G.B | Classify two-dimensional figures into categories based on their properties. | 1 | 3 | — | — |
| Total Points | | | 30 | 39 | 23 | 31 |

| GRADE 6 MATHEMATICS INTERIM ASSESSMENT BLUEPRINT | | | | | | | |
|--|---------|----------|---|---------------------|-----|-----------|-----|
| Domain | Cluster | Standard | Description | Cluster Point Range | | | |
| | | | | Interim 1 | | Interim 2 | |
| | | | | Min | Max | Min | Max |
| Ratios and Proportional Relationships | 6.RP.A | | Understand ratio concepts and use ratio reasoning to solve problems. | 8 | 10 | — | — |
| | 6.NS.A | | Apply and extend previous understandings of multiplication and division to divide fractions by fractions. | 2 | 4 | — | — |
| The Number System | 6.NS.B | | Compute fluently (efficiently, accurately, and flexibly) with multi-digit numbers and find common factors and multiples. | 10 | 12 | — | — |
| | 6.NS.C | | Apply and extend previous understandings of numbers to the system of rational numbers. | 8 | 10 | 6 | 8 |
| | | 6.NS.5 | Understand positive and negative numbers to describe quantities having opposite directions or values. | | X | | — |
| | | 6.NS.6 | Understand a rational number as a point on the number line and a coordinate pair as a location on a coordinate plane. | | X | | — |
| | | 6.NS.7 | Understand ordering and absolute value of rational numbers. | | X | | X |
| | | 6.NS.7a | Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. | | — | | X |
| | | 6.NS.7b | Write, interpret, and explain statements of order for rational numbers in real-world contexts. | | — | | X |
| | | 6.NS.7c | Explain the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. | | X | | — |
| | | 6.NS.7d | Distinguish comparisons of absolute value from statements about order. | | X | | — |
| | | 6.NS.8 | Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. | | — | | X |

| | | | | | | |
|---------------------------|--------|---|-----------|-----------|-----------|-----------|
| Expressions and Equations | 6.EE.A | Apply and extend previous understandings of arithmetic to algebraic expressions. | — | — | 6 | 8 |
| | 6.EE.B | Reason about and solve one-variable equations and inequalities. | — | — | 13 | 15 |
| | 6.EE.C | Represent and analyze quantitative relationships between dependent and independent variables. | — | — | 5 | 6 |
| Total Points | | | 28 | 36 | 30 | 37 |

GRADE 7 MATHEMATICS INTERIM ASSESSMENT BLUEPRINT

| Domain | Cluster | Standard | Description | Cluster Point Range | | | |
|---------------------------------------|---------|----------|--|---------------------|-----------|-----------|-----------|
| | | | | Interim 1 | | Interim 2 | |
| | | | | Min | Max | Min | Max |
| Ratios and Proportional Relationships | 7.RP.A | | Analyze proportional relationships and use them to solve real-world and mathematical problems. | 11 | 13 | — | — |
| The Number System | 7.NS.A | | Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. | 11 | 13 | 5 | 6 |
| | | 7.NS.1 | Represent addition and subtraction on a horizontal or vertical number line diagram. | | X | | |
| | | 7.NS.2 | Apply and extend previous understandings of multiplication and division of positive rational numbers to multiply and divide all rational numbers. | | X | | |
| | | 7.NS.3 | Solve and interpret real-world and mathematical problems involving the four operations with rational numbers. | | | | X |
| Expressions and Equations | 7.EE.A | | Use properties of operations to generate equivalent expressions. | — | — | 5 | 7 |
| | 7.EE.B | | Solve real-life and mathematical problems using numerical and algebraic expressions and equations. | 5 | 7 | 2 | 4 |
| | | 7.EE.3 | Solve multi-step real-life and mathematical problems with rational numbers. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. | | — | | X |
| | | 7.EE.4 | Use variables to represent quantities in a real-world or mathematical problem, and construct two-step equations and inequalities to solve problems by reasoning about the quantities | | X | | — |
| Geometry | 7.G.B | | Solve real-life and mathematical problems involving area, surface area, and volume. | — | — | 2 | 4 |
| Statistics and Probability | 7.SP.C | | Investigate chance processes and develop, use, and evaluate probability models. | — | — | 10 | 12 |
| Total Points | | | | 27 | 33 | 24 | 33 |

| GRADE 8 MATHEMATICS INTERIM ASSESSMENT BLUEPRINT | | | | | | | |
|--|---------|----------|---|---|-----------|-----------|-----------|
| Domain | Cluster | Standard | Description | Cluster Point Range | | | |
| | | | | Interim 1 | | Interim 2 | |
| | | | | Min | Max | Min | Max |
| The Number System | 8.NS.A | | Know that there are numbers that are not rational, and approximate them by rational numbers. | — | — | 5 | 6 |
| Expressions and Equations | 8.EE.A | | Work with radicals and integer exponents. | 2 | 4 | 5 | 6 |
| | | 8.EE.1 | Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of whole number perfect squares with solutions between 0 and 15 and cube roots of whole number perfect cubes with solutions between 0 and 5. Know that $\sqrt{2}$ is irrational. | | X | | |
| | | 8.EE.2 | Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. | | | | X |
| | | 8.EE.3 | Read and write numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology. | | | | X |
| | | 8.EE.B | | Understand the connections between proportional relationships, lines, and linear equations. | 12 | 14 | — |
| | 8.EE.C | | Analyze and solve linear equations and inequalities. | 5 | 6 | — | — |
| Functions | 8.F.A | | Define, evaluate, and compare functions. | 8 | 10 | — | — |
| Geometry | 8.G.A | | Geometric measurement: understand concepts of angle and measure angles. | — | — | 16 | 18 |
| | 8.G.B | | Understand and apply the Pythagorean Theorem. | — | — | 1 | 3 |
| Total Points | | | | 27 | 34 | 27 | 33 |

GRADE 10 MATHEMATICS INTERIM ASSESSMENT BLUEPRINT

| Conceptual Category | Domain | Cluster | Description | Domain Point Range | | | |
|----------------------------|--------|--|--|--------------------|-----------|-----------|-----------|
| | | | | Interim 1 | | Interim 2 | |
| | | | | Min | Max | Min | Max |
| Number and Quantity | N.RN | The Real Number System | | — | — | 0 | 1 |
| | N.Q | Quantities | | 1 | 3 | — | — |
| Algebra | A.SSE | Seeing Structure in Expressions | | — | — | 2 | 4 |
| | A.APR | Arithmetic with Polynomials and Rational Expressions | | — | — | 0 | 1 |
| | A.CED | Creating Equations | | — | — | 1 | 3 |
| | A.REI | Reasoning with Equations and Inequalities | | 13 | 15 | — | — |
| Functions | F.IF | Interpreting Functions | | 1 | 2 | 16 | 17 |
| | | F.IF.A | Understand the concept of a function and use function notation | | X | | — |
| | | F.IF.B | Interpret functions that arise in applications in terms of the context | | — | | X |
| | | F.IF.C | Analyze functions using different representations | | — | | X |
| | | F.BF | Building Functions | | — | — | 2 |
| Geometry | G.CO | Congruence | | 6 | 7 | — | — |
| | G.SRT | Similarity, Right Triangles, and Trigonometry | | — | — | 7 | 8 |
| Statistics and Probability | S.ID | Interpreting Categorical and Quantitative Data | | 8 | 9 | — | — |
| Total Points | | | | 29 | 36 | 28 | 37 |