# HSA-Alt Mathematics

# Grades 3-8 and 11

# Test Design and Blueprints

Hawaiʻi State Alternate Assessments in Mathematics (HSA-Alt Math) are intended to provide all students with a fair, valid, and reliable test of their mathematics knowledge and skills. Items are based upon the [HSA-Alt Mathematics Range Performance Level Descriptors](#).

## Test Design

Each student's test will consist of 40 operational items, which contribute to student scores, and 10-20 field test items. The field test items do not impact student scores. Students will see a variety of subject domains throughout their test. In elementary school (grades 3-5) students will be presented items from the following domains: Operations and Algebraic Thinking, Number and Operations in Base Ten, Numbers and Operations – Fractions, Measurement and Data, and Geometry. In middle school (grades 6 and 7) students will be presented items from the following domains: Number System, Expressions and Equations, Ratios and Proportional Reasoning, Geometry, and Statistics and Probability. In middle school (grade 8) students will be presented items from the following domains: Functions, Statistics and Probability, Number System, Expressions and Equations, and Geometry. In high school (grade 11) students will be presented items from the following domains: Functions, Statistics and Probability, Number and Quantity, Algebra, and Geometry domains.

The tests will be presented in an adaptive manner for all online assessments; therefore, the items are selected one at a time based on the blueprint and how the student answers previous items. This means that tests will be uniquely adaptive for each student, maximizing the information obtained from student responses for students at all ability levels. The test will be one segment and will have field test items embedded.

## Test Blueprints

| Grade 3 Math | | |
|---|---|---|
| | # of Items Per Domain | % of Items Per Domain |
| Operations and Algebraic Thinking & Number and Operations in Base Ten | 16-18 | 40%-45% |
| Numbers and Operations - Fractions | 8-9 | 20%-23% |
| Measurement and Data & Geometry | 12-14 | 30%-35% |
| # Operational Items | 40 | |
| # Embedded Field Test Items | 10-20 | |
| Total # of Items | 50-60 | |

| Grade 4 Math | | |
|---|---|---|
| | **# of Items Per Domain** | **% of Items Per Domain** |
| **Operations and Algebraic Thinking & Number and Operations in Base Ten** | 16-18 | 40%-45% |
| **Numbers and Operations - Fractions** | 14-16 | 35%-40% |
| **Measurement and Data & Geometry** | 8-10 | 20%-25% |
| **# Operational Items** | **40** | |
| **# Embedded Field Test Items** | **10-20** | |
| **Total # of Items** | **50-60** | |

| Grade 5 Math | | |
|---|---|---|
| | **# of Items Per Domain** | **% of Items Per Domain** |
| **Operations and Algebraic Thinking & Number and Operations in Base Ten** | 14-16 | 35%-40% |
| **Numbers and Operations - Fractions** | 12-14 | 30%-35% |
| **Measurement and Data & Geometry** | 10-12 | 25%-30% |
| **# Operational Items** | **40** | |
| **# Embedded Field Test Items** | **10-20** | |
| **Total # of Items** | **50-60** | |

| Grade 6 Math | | |
|---|---|---|
| | **# of Items Per Domain** | **% of Items Per Domain** |
| **The Number System & Expressions and Equations** | 18-20 | 45%-50% |
| **Ratios and Proportional Reasoning & Geometry** | 12-14 | 30%-35% |
| **Statistics and Probability** | 8-10 | 20%-25% |
| **# Operational Items** | **40** | |
| **# Embedded Field Test Items** | **10-20** | |
| **Total # of Items** | **50-60** | |

| Grade 7 Math | | |
|---|---|---|
| | **# of Items Per Domain** | **% of Items Per Domain** |
| **The Number System & Expressions and Equations** | 16-18 | 40%-45% |
| **Ratios and Proportional Reasoning & Geometry** | 14-16 | 35%-40% |
| **Statistics and Probability** | 8-10 | 20%-25% |
| **# Operational Items** | **40** | |
| **# Embedded Field Test Items** | **10-20** | |
| **Total # of Items** | **50-60** | |

| Grade 8 Math | | |
|---|---|---|
| | **# of Items Per Domain** | **% of Items Per Domain** |
| **Functions & Statistics and Probability** | 10-12 | 25%-30% |
| **The Number System & Expressions and Equations** | 14-16 | 35%-40% |
| **Geometry** | 12-14 | 30%-35% |
| **# Operational Items** | **40** | |
| **# Embedded Field Test Items** | **10-20** | |
| **Total # of Items** | **50-60** | |

| Grade 11 Math | | |
|---|---|---|
| | # of Items Per Domain | % of Items Per Domain |
| Functions & Statistics and Probability | 11-13 | 28%-33% |
| Number and Quantity & Algebra | 19-23 | 48%-58% |
| Geometry | 9-11 | 23%-28% |
| # Operational Items | 40 | |
| # Embedded Field Test Items | 10-20 | |
| Total # of Items | 50-60 | |