Idaho Extended Standards Draft
Extended Content Indicators
Grade 10
Mathematics

Standard 1: Number and Operation - Students in Grade 10 deepen their understanding of real numbers by applying properties of rational numbers and exponents and by identifying exact and approximate roots without simplification. Students use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation. Students use the proper order of operations and perform operations with rational numbers. Students apply number sense to everyday situations and judge reasonableness of answers.

**Extended Standard 1: Students in Grade 10 deepen their knowledge about the properties of real numbers and exponents. Students use simple positive and negative numbers, absolute value, fractions, decimals, percentages, with or without manipulatives. With or without calculators or manipulatives, students use the proper order of operations and perform operations with rational numbers. Students use number sense in everyday situations and judge reasonableness.**

| Topic | GR | Goals | Objectives | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.1.1 | Understand and use numbers. | 10.M.1.1.1 Apply properties of rational numbers. (347.01.b) | | 10.M.1.1.1 A<br>Compare magnitudes and relative magnitudes of whole numbers, decimals, fractions, and percents. |
| | | | 10.M.1.1.2 Use positive and negative numbers, absolute value, fractions, decimals, percentages, and scientific notation, including application in real world situations. (347.01.a) | | 10.M.1.1.2 A<br>Use positive and negative numbers, fractions, decimals, percentages, and ratios in real world situations. |
| | | | 10.M.1.1.3 Apply properties of exponents. (347.01.c) | | 10.M.1.1.3 A<br>Recognize exponents as a representation of a very large number. |
| | | | 10.M.1.1.4 Identify exact and approximate roots without simplification. | | 10.M.1.1.4 A |
| | | | 10.M.1.1.5 Solve problems using number theory concepts (factors, multiples, primes). (347.01.d) | | 10.M.1.1.5 A<br>Solve problems using repeated addition in multiplication with prime numbers, factors and multiples |
| | | | 10.M.1.1.6 Use appropriate vocabulary. | | 10.M.1.1.6 A<br>Use appropriate vocabulary. |

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**Extended Standard 1: Students in Grade 10 deepen their knowledge about the properties of real numbers and exponents. Students use simple positive and negative numbers, absolute value, fractions, decimals, percentages, with or without manipulatives. With or without calculators or manipulatives, students use the proper order of operations and perform operations with rational numbers. Students use number sense in everyday situations and judge reasonableness.**

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|---|---|---|---|---|---|
| | 10.M.1.2 | Perform computations accurately. | 10.M.1.2.1 Use the order of operations and perform operations with rational numbers. (347.02.a) | | 10.M.1.2.1 A<br>Solve single digit addition, subtraction and multiplication problems with rational numbers, using an order of operations, with or without calculator or manipulatives. |

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**Extended Standard 1: Students in Grade 10 deepen their knowledge about the properties of real numbers and exponents. Students use simple positive and negative numbers, absolute value, fractions, decimals, percentages, with or without manipulatives. With or without calculators or manipulatives, students use the proper order of operations and perform operations with rational numbers. Students use number sense in everyday situations and judge reasonableness.**

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|---|---|---|---|---|---|
| | 10.M.1.3 | Estimate and judge reasonableness of results. | 10.M.1.3.1 Apply number sense to everyday situations and judge reasonableness of results. (347.03.a) | | 10.M.1.3.1 A<br>Identify daily activities where estimation is appropriate. |
| | | | 10.M.1.3.2 Identify that error accumulates in a computation when there is rounding. (349.05.b) | | 10.M.1.3.2 A<br>Explore over and under estimation through daily living activities. |

Standard 2: Concepts and Principles of Measurement - Students in Grade 10, given relative formulas, determine length, distance, area, surface area, capacity, and weight, with appropriate unit labels. Students formulate and use proportions, ratios, and scaling. Students apply concepts of rates and direct and indirect measurements. Students evaluate given measurement formulas for two- and three- dimensional objects.

**Extended Standard 2: Students in grade 10, given simple formulas, determine length, distance, area, or weight with appropriate unit labels. Students identify and use proportions and ratios. Students apply concepts of rates. Students compare similarities and differences as it relates to size variations in two- and three- dimensional objects.**

| Topic | Gr | Goal | Objectives | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.2.1 | Understand and use U.S. customary and metric measurements. | 10.M.2.1.1 Given the formulas, find the circumference, perimeter, or area of triangles, circles, and quadrilaterals, the volume of spheres, non-oblique prisms, cylinders, and cones, and the surface area of spheres, non-oblique prisms, cylinders, and right square-based pyramids. (349.01.a) | | 10.M.2.1.1 A<br>Compare area and perimeter of real world surfaces, e.g around the room, around the city, around a box or ball |
| | | | 10.M.2.1.2 Solve problems involving circumference, perimeter, or area of triangles, circles, and rectangles. | | 10.M.2.1.2 A<br>Solve problems involving perimeter and area of triangles or rectangles. |

Standard 2: Concepts and Principles of Measurement - Students in Grade 10, given relative formulas, determine length, distance, area, surface area, capacity, and weight, with appropriate unit labels. Students formulate and use proportions, ratios, and scaling. Students apply concepts of rates and direct and indirect measurements. Students evaluate given measurement formulas for two- and three- dimensional objects.

**Extended Standard 2: Students in grade 10, given simple formulas, determine length, distance, area, or weight with appropriate unit labels. Students identify and use proportions and ratios. Students apply concepts of rates. Students compare similarities and differences as it relates to size variations in two- and three- dimensional objects.**

| Topic | Gr | Goal | Objectives | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.2.2 | Apply the concepts of rates, ratios, and proportions. | 10.M.2.2.1 Use rates, ratios, proportions, map scales, and scale factors (one- and two-dimensional) in problem-solving situations. (349.03.a) | | 10.M.2.2.1A<br>Recognize rates, ratios, or proportions, in real world situations. |
| | | | 10.M.2.2.2 Apply concepts of rates and direct and indirect measurements. | | 10.M.2.2.2 A<br>Apply rates, ratios, or proportion to real world situations. |
| | | | 10.M.2.2.3 Construct equivalent units, comparable units, and conversions. (349.02.a) | | 10.M.2.2.3 A<br>Identify equivalent units, comparable units, or conversions. |

Standard 2: Concepts and Principles of Measurement - Students in Grade 10, given relative formulas, determine length, distance, area, surface area, capacity, and weight, with appropriate unit labels. Students formulate and use proportions, ratios, and scaling. Students apply concepts of rates and direct and indirect measurements. Students evaluate given measurement formulas for two- and three- dimensional objects.

**Extended Standard 2: Students in grade 10, given simple formulas, determine length, distance, area, or weight with appropriate unit labels. Students identify and use proportions and ratios. Students apply concepts of rates. Students compare similarities and differences as it relates to size variations in two- and three- dimensional objects.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.2.3 | Apply dimensional analysis. | 10.M.2.3.1 Use customary and metric units and their relationship to one another and to real world applications involving length, area, capacity, weight, time, and temperature. (349.04.a) | | 10.M.2.3.1 A<br>Apply simple measurement units to dimensions in real world applications involving length, area, capacity, weight, time, and temperature. |

Standard 2: Concepts and Principles of Measurement - Students in Grade 10, given relative formulas, determine length, distance, area, surface area, capacity, and weight, with appropriate unit labels. Students formulate and use proportions, ratios, and scaling. Students apply concepts of rates and direct and indirect measurements. Students evaluate given measurement formulas for two- and three- dimensional objects.

**Extended Standard 2: Students in grade 10, given simple formulas, determine length, distance, area, or weight with appropriate unit labels. Students identify and use proportions and ratios. Students apply concepts of rates. Students compare similarities and differences as it relates to size variations in two- and three- dimensional objects.**

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|---|---|---|---|---|---|
| | 10.M.2.4 | Apply appropriate techniques and tools to determine measurements. | 10.M.2.4.1 Determine and use appropriate units. (349.01.a) | | 10.M.2.4.1 A<br>Select and use an appropriate measurement tool correctly. |
| | | | 10.M.2.4.2 Approximate error in measurement situations. | | 10.M.2.4.2 A<br>Identify errors in measurement situations, i.e. gallons are measured instead of cups, feet instead of inches. |

Standard 3: Concepts and Language of Algebra and Functions - Students in Grade 10 use appropriate procedures for manipulating and simplifying algebraic expressions involving variables, integers, rational numbers, and for solving multi-step, first-degree equations and inequalities. Students understand the concept and applications of functions and mathematical models. Given graphs, charts, ordered pairs, mappings, or equations, students determine whether a relation is a function. Students evaluate functions written in functional notation and, given a function, students identify domain and range.

**Extended Standard 3: Students in Grade 10 use procedures to solve simple algebraic expressions, involving multi-steps. Students understand the concept of a variable in equations and inequalities.**

| Topic | Gr | Goal | Objectives | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.3.1 | Use algebraic symbolism as a tool to represent mathematical relationships. | 10.M.3.1.1 Represent mathematical relationships using variables, expressions, linear equations and inequalities. (350.01.a) | | 10.M.3.1.1A<br>Use the idea of an unknown quantity as a variable in, expressions, linear equations and inequalities. |

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|---|---|---|---|---|---|
| | 10.M.3.2 | Evaluate algebraic expressions. | 10.M.3.2.1 Use appropriate procedures for manipulating and simplifying algebraic expressions involving variables, integers, and rational numbers. (350.02.a) | | 10.M.3.2.1 A<br>Use appropriate procedures to solve a simple algebraic expression involving variables, integers, or rational numbers. |

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**Extended Standard 3: Students in Grade 10 use procedures to solve simple algebraic expressions, involving multi-steps. Students understand the concept of a variable in equations and inequalities.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.3.3 | Solve algebraic equations and inequalities. | 10.M.3.3.1 Use appropriate procedures to solve multi-step, first-degree equations and inequalities; such as $3(2x - 5) = 5x + 7$ or $3(2x - 5) > 5x + 7$. (350.03.a) | | 10.M.3.3.1 A<br>Use appropriate procedures to solve multi-step equations and inequalities; such as (1+2) = (5-3) or (2+2) does not equal (2+3) |
| | | | 10.M.3.3.2 Differentiate between linear and non-linear equations and graphs. | | 10.M.3.3.2 A<br>Match a math problem with a graphical representation. |

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**Extended Standard 3: Students in Grade 10 use procedures to solve simple algebraic expressions, involving multi-steps. Students understand the concept of a variable in equations and inequalities.**

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|---|---|---|---|---|---|
| | 10.M.3.4 | Solve simple linear systems of equations. | 10.M.3.4.1 Use appropriate procedures to solve linear systems of equations involving two variables; such as $x + y = 7$ and $2x + 3y = 21$. (350.04.a) | | 10.M.3.4.1.A<br>Use appropriate procedures to solve a simple linear equation involving two variables; such as $x + y = 7$ |

Standard 3: Concepts and Language of Algebra and Functions - Students in Grade 10 use appropriate procedures for manipulating and simplifying algebraic expressions involving variables, integers, rational numbers, and for solving multi-step, first-degree equations and inequalities. Students understand the concept and applications of functions and mathematical models. Given graphs, charts, ordered pairs, mappings, or equations, students determine whether a relation is a function. Students evaluate functions written in functional notation and, given a function, students identify domain and range.

**Extended Standard 3: Students in Grade 10 use procedures to solve simple algebraic expressions, involving multi-steps. Students understand the concept of a variable in equations and inequalities.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.3.5 | Understand the concept of functions. | 10.M.3.5.1 Given graphs, charts, ordered pairs, mappings, or equations, determine whether a relation is a function. | | 10.M.3.5.1 A |
| | | | 10.M.3.5.2 Evaluate functions written in functional notation. | | 10.M.3.5.2 A |
| | | | 10.M.3.5.3 Given a function, identify domain and range. | | 10.M.3.5.3 A |

Standard 3: Concepts and Language of Algebra and Functions - Students in Grade 10 use appropriate procedures for manipulating and simplifying algebraic expressions involving variables, integers, rational numbers, and for solving multi-step, first-degree equations and inequalities. Students understand the concept and applications of functions and mathematical models. Given graphs, charts, ordered pairs, mappings, or equations, students determine whether a relation is a function. Students evaluate functions written in functional notation and, given a function, students identify domain and range.

**Extended Standard 3: Students in Grade 10 use procedures to solve simple algebraic expressions, involving multi-steps. Students understand the concept of a variable in equations and inequalities.**

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|---|---|---|---|---|---|
| | 10.M.3.6 | Apply functions to a variety of problems | 10.M.3.6.1 Model and solve real-world phenomena using multi-step, first degree, single variable equations and inequalities, linear equations, and two-variable linear systems of equations. (353.01.a) | | 10.M.3.6.1 A |
| | | | 10.M.3.6.2 Use graphs and sequences to represent and solve problems. (347.02.b) | | 10.M.3.6.2 A |

Standard 4: Concepts and Principles of Geometry - Students in Grade 10 recognize congruency and similarity of two-dimensional figures. Students identify and use similarity as it relates to size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students calculate missing side lengths of right triangles without simplifying radicals. Students represent linear relationships using tables, graphs, and mathematical symbols. Students interpret attributes of linear relationships such as slope, rate of change, and intercepts. Students use logic to make and evaluate mathematical arguments.

**Extended Standard 4: Students in Grade 10 recognize congruency and similarities of shapes. Students compare size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students identify the hypotenuse and the right angle. Students represent and interpret simple tables and graphs. Students identify attributes of linear relationships such as slope, rate of change, or intercepts.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.4.1 | Apply concepts of size, shape, and spatial relationships. | 10.M.4.1.1 Recognize and apply congruency and similarity of two-dimensional figures. (351.01.a) | | 10.M.4.1.1.A<br>Arrange shapes to show congruence, similarities, and line symmetry of shapes. |
| | | | 10.M.4.1.2 Recognize and use similarity as it relates to size variations in two- and three- dimensional objects. (351.01.b) | | 10.M.4.1.2.A<br>Compare similarity as it relates to size variations in two- and three- dimensional objects. |

Standard 4: concepts and Principles of Geometry - Students in Grade 10 recognize congruency and similarity of two-dimensional figures. Students identify and use similarity as it relates to size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students calculate missing side lengths of right triangles without simplifying radicals. Students represent linear relationships using tables, graphs, and mathematical symbols. Students interpret attributes of linear relationships such as slope, rate of change, and intercepts. Students use logic to make and evaluate mathematical arguments.

**Extended Standard 4: Students in Grade 10 recognize congruency and similarities of shapes. Students compare size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students identify the hypotenuse and the right angle. Students represent and interpret simple tables and graphs. Students identify attributes of linear relationships such as slope, rate of change, or intercepts.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.4.2 | Apply the geometry of right triangles. | 10.M.4.2.1 Given the Pythagorean Theorem, calculate missing side lengths of right triangles without simplifying radicals. (351.02.c) | | 10. M.4.2.1 A<br>Given the Pythagorean Theorem, identify the hypotenuse and the right angle. |

Standard 4: Concepts and Principles of Geometry - Students in Grade 10 recognize congruency and similarity of two-dimensional figures. Students identify and use similarity as it relates to size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students calculate missing side lengths of right triangles without simplifying radicals. Students represent linear relationships using tables, graphs, and mathematical symbols. Students interpret attributes of linear relationships such as slope, rate of change, and intercepts. Students use logic to make and evaluate mathematical arguments.

**Extended Standard 4: Students in Grade 10 recognize congruency and similarities of shapes. Students compare size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students identify the hypotenuse and the right angle. Students represent and interpret simple tables and graphs. Students identify attributes of linear relationships such as slope, rate of change, or intercepts.**

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|---|---|---|---|---|---|
| | 10.M.4.3 | Apply graphing in two dimensions. | 10.M.4.3.1 Identify attributes of the Cartesian Coordinate System, such as quadrants, origin, and axes. (351.03.a) | | 10.M.4.3.1.A<br>Locate quadrants, origin or axes on the Cartesian Coordinate System. |
| | | | 10.M.4.3.2 Graph scatter plots and identify informal trend lines (e.g., eyeball fit lines). | | 10.M.4.3.2.A<br>Identify the trend with a given scatter plot. |
| | | | 10.M.4.3.3 Identify positive and negative correlations. | | 10.M.4.3.3.A<br>Identify positive or negative slope lines in the first quadrant of a grid. |

Standard 4: Concepts and Principles of Geometry - Students in Grade 10 recognize congruency and similarity of two-dimensional figures. Students identify and use similarity as it relates to size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students calculate missing side lengths of right triangles without simplifying radicals. Students represent linear relationships using tables, graphs, and mathematical symbols. Students interpret attributes of linear relationships such as slope, rate of change, and intercepts. Students use logic to make and evaluate mathematical arguments.

**Extended Standard 4: Students in Grade 10 recognize congruency and similarities of shapes. Students compare size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students identify the hypotenuse and the right angle. Students represent and interpret simple tables and graphs. Students identify attributes of linear relationships such as slope, rate of change, or intercepts.**

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|---|---|---|---|---|---|
| | 10.M.4.4 | Represent and graph linear relationships | 10.M.4.4.1 Create graphs and equations for linear relationships. | | 10.M.4.4.1 A<br>Create a graph and plot 2 ordered pairs. |
| | | | 10.M.4.4.2 Represent linear relationships using tables, graphs, and mathematical symbols. | | 10.M.4.4.2 A<br>Interpret a simple table or graph. |
| | | | 10.M.4.4.3 Interpret attributes of linear relationships such as slope, rate of change, and intercepts. | | 10.M.4.4.3 A<br>Identify an attribute of a slope or rate of change. |

Standard 4: Concepts and Principles of Geometry - Students in Grade 10 recognize congruency and similarity of two-dimensional figures. Students identify and use similarity as it relates to size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students calculate missing side lengths of right triangles without simplifying radicals. Students represent linear relationships using tables, graphs, and mathematical symbols. Students interpret attributes of linear relationships such as slope, rate of change, and intercepts. Students use logic to make and evaluate mathematical arguments.

**Extended Standard 4: Students in Grade 10 recognize congruency and similarities of shapes. Students compare size variations in two- and three- dimensional objects. Given the Pythagorean Theorem, students identify the hypotenuse and the right angle. Students represent and interpret simple tables and graphs. Students identify attributes of linear relationships such as slope, rate of change, or intercepts.**

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|---|---|---|---|---|---|
| | 10.M.4.5 | Use reasoning skills | 10.M.4.5.1 Use logic to make and evaluate mathematical arguments. (348.02.b) | | 10.M.4.5.1.A<br>Identify the elements of a story problem to solve a mathematical equation. |

Standard 5: Data Analysis, Probability, and Statistics - Students in Grade 10 read, interpret, and use tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. Students interpret and use basic statistical concepts including mean, median, mode, range, and distribution of data, including outliers. Students make predictions and draw conclusions based on statistical measures and students make predictions based on randomness, chance, equally likely events, and probability. Students find probabilities based on dependent, independent, and compound events and students make predictions based on randomness, chance, equally likely events, and probability.

**Extended Standard 5: Students in Grade 10 read and interpret tables, charts, and graphs, Students identify basic statistical concepts including mean, median, mode, range or distribution of data. Students make predications and draw conclusions based on chance, equally likely events, and simple probability.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.5.1 | Understand data analysis. | 10.M.5.1.1 Analyze and interpret tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. (352.01.a) | | 10. M.5.1.1.A<br>Read and interpret tables, charts, and graphs, including line graphs, bar graphs, frequency tables, or circle graphs. |

Standard 5: Data Analysis, Probability, and Statistics - Students in Grade 10 read, interpret, and use tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. Students interpret and use basic statistical concepts including mean, median, mode, range, and distribution of data, including outliers. Students make predictions and draw conclusions based on statistical measures and students make predictions based on randomness, chance, equally likely events, and probability. Students find probabilities based on dependent, independent, and compound events and students make predictions based on randomness, chance, equally likely events, and probability.

**Extended Standard 5: Students in Grade 10 read and interpret tables, charts, and graphs, Students identify basic statistical concepts including mean, median, mode, range or distribution of data. Students make predications and draw conclusions based on chance, equally likely events, and simple probability.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.5.2 | Collect, organize, and display data. | 10.M.5.2.1 Collect, organize, and display data in tables, charts, and graphs. (352.02.a) | | 10. M.5.2.1.A<br>Collect, organize, and display data in tables, charts, or graphs |

Standard 5: Data Analysis, Probability, and Statistics - Students in Grade 10 read, interpret, and use tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. Students interpret and use basic statistical concepts including mean, median, mode, range, and distribution of data, including outliers. Students make predictions and draw conclusions based on statistical measures and students make predictions based on randomness, chance, equally likely events, and probability. Students find probabilities based on dependent, independent, and compound events and students make predictions based on randomness, chance, equally likely events, and probability.

**Extended Standard 5: Students in Grade 10 read and interpret tables, charts, and graphs, Students identify basic statistical concepts including mean, median, mode, range or distribution of data. Students make predications and draw conclusions based on chance, equally likely events, and simple probability.**

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|---|---|---|---|---|---|
| | 10.M.5.3 | Apply simple statistical measurements. | 10.M.5.3.1 Interpret and use basic statistical concepts, including mean, median, mode, range, and distribution of data, including outliers. (352.03.a) | | 10.M.5.3.1.A<br>Use basic statistical concepts, including mean, median, mode or range. |
| | | | 10.M.5.3.2 Make predictions and draw conclusions based on statistical measures. (352.05.a) | | 10.M.5.3.2.A<br>Make predictions and draw conclusions based on a simple set of data and its statistical measures. |

Standard 5: Data Analysis, Probability, and Statistics - Students in Grade 10 read, interpret, and use tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. Students interpret and use basic statistical concepts including mean, median, mode, range, and distribution of data, including outliers. Students make predictions and draw conclusions based on statistical measures and students make predictions based on randomness, chance, equally likely events, and probability. Students find probabilities based on dependent, independent, and compound events and students make predictions based on randomness, chance, equally likely events, and probability.

**Extended Standard 5: Students in Grade 10 read and interpret tables, charts, and graphs, Students identify basic statistical concepts including mean, median, mode, range or distribution of data. Students make predications and draw conclusions based on chance, equally likely events, and simple probability.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.5.4 | Understand basic concepts of probability. | 10.M.5.4.1 Find probabilities based on dependent, independent, and compound events. | | 10.M.5.4.1.A<br>Find probability based on a dependent event (Deal or No Deal). |
| | | | 10.M.5.4.2 Contrast experimental and theoretical probability. (352.04.a) | | 10.M.5.4.2.A<br>Recognize the difference between experimental (large number of trials) and theoretical (mathematical formula) probability. |

Standard 5: Data Analysis, Probability, and Statistics - Students in Grade 10 read, interpret, and use tables, charts, and graphs, including scatter plots, multiple broken line graphs, and box-and-whisker plots. Students interpret and use basic statistical concepts including mean, median, mode, range, and distribution of data, including outliers. Students make predictions and draw conclusions based on statistical measures and students make predictions based on randomness, chance, equally likely events, and probability. Students find probabilities based on dependent, independent, and compound events and students make predictions based on randomness, chance, equally likely events, and probability.

**Extended Standard 5: Students in Grade 10 read and interpret tables, charts, and graphs, Students identify basic statistical concepts including mean, median, mode, range or distribution of data. Students make predications and draw conclusions based on chance, equally likely events, and simple probability.**

| Topic | Gr | Goal | Objective | Essence | Extended Content Indicators |
|---|---|---|---|---|---|
| | 10.M.5.5 | Make predictions or decisions based on data. | 10.M.5.5.1 Make predictions based on randomness, chance, equally likely events, and probability. (352.04.c) | | 10.M.5.5.1A<br>Make predictions based on randomness, chance, equally likely events, or probability. |
| | | | 10.M.5.5.2 Use appropriate tools/technology to conduct simulations and employ graphical models to make predictions or decisions based on data. (352.05.a) | | 10.M.5.5.2.A<br>Conduct statistical experiments and use tables, charts, or graphs to make predictions or decisions based on data. |
| | | | 10.M.5.5.3 Design, conduct, and interpret results of statistical experiments. (352.05.b) | | 10.M.5.5.3.A<br>Conduct and interpret results of statistical experiments. |