**Instructional Focus Areas**

**High School**

| **Algebra I** | **Geometry** | **Algebra II** |
| --- | --- | --- |
| Relationships between quantities and reasoning with equations. | Congruence, proof and construction. | Polynomial, rational, and radical relationships. |
| Linear and exponential relationships. | Similarity, proof and trigonometry. | Trigonometric functions. |
| Descriptive Statistics | Extending to three dimensions. | Modeling with functions. |
| Expressions and equations. | Connecting algebra and geometry through coordinates. | Inferences and conclusions from data. |
| Quadratic functions and modeling. | Circles with and without coordinates. |  |
|  | Application of probability. |  |

**Instructional Focus and Course Clusters**

**Worksheet**

| There are *five* instructional focus areas for **Algebra I.** | **Course Clusters** | How does this content compare to the course you currently teach? In general, how much alike or different is this from the course you teach now? (Green: similar, Yellow: could be easily added, Red: new and I would need support) |
| --- | --- | --- |
| Relationships between quantities and reasoning with equations. | * Reason quantitatively and use units to solve problems.
* Interpret the structure of expressions.
* Create equations and inequalities that describe numbers and relationships.
* Understand solving equations as a process of reasoning and explain the reasoning.
* Solve equations and inequalities in one variable.
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| Linear and exponential relationships. | * Extend the properties of exponents to rational exponents.
* Solve systems of equations.
* Represent and solve equations and inequalities graphically.
* Understand the concept of a function and use function notation.
* Interpret functions that arise in applications in terms of context.
* Analyze functions using different representations.
* Build a function that models a relationship between two quantities.
* Build new functions from existing functions.
* Construct and compare linear quadratic and exponential models to solve problems.
* Interpret expressions for functions in terms of the situation model
 |  |
| Descriptive Statistics | * Summarize, represent, and interpret data on a single count or measurement variable.
* Summarize, represent, and interpret data on two categorical and quantitative variables.
* Interpret linear models.
 |  |
| Expressions and equations. | * Interpret structure of expressions.
* Write expressions in equivalent forms to solve problems.
* Perform arithmetic operations on polynomials.
* Create equations that describe numbers or relationships.
* Solve equations and inequalities in one variable.
* Solve systems of equations.
 |  |
| Quadratic functions and modeling. | * Use properties of rational and irrational numbers.
* Interpret functions that arise in applications in terms of a context.
* Analyze functions using different representations.
* Build a function that models a relationship between two quantities.
* Build new functions from existing functions.
* Construct and compare linear, quadratic and exponential models and solve problems.
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**Instructional Focus and Course Clusters**

**Worksheet**

| There are *six* instructional focus areas for **Geometry.** | **Course Clusters** | How does this content compare to the course you currently teach? In general, how much alike or different is this from the course you teach now? (Green: similar, Yellow: could be easily added, Red: new and I would need support) |
| --- | --- | --- |
| Congruence, proof and construction. | * Experiment with transformation in the plane.
* Understand congruence in terms of rigid motions.
* Prove geometric theorems.
* Make geometric constructions.
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| Similarity, proof and trigonometry. | * Understand similarity in terms of similarity transformations.
* Prove theorems involving similarity.
* Define trigonometric ratios and solve problems involving right triangles.
* Apply geometric concepts in modeling situations.
* Apply trigonometry to general triangles.
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| Extending to three dimensions. | * Explain volume formulas and use them to solve problems.
* Visualize the relation between two-dimensional and three dimensional objects.
* Apply geometric concepts in modeling situations.
 |  |
| Connecting algebra and geometry through coordinates. | * Use coordinates to prove simple geometric theorems algebraically.
* Translate between the geometric description and the equation for a conic section.
 |  |
| Circles with and without coordinates. | * Understand and apply theorems about circles.
* Find arc lengths and areas of sectors of circles.
* Translate between the geometric description and the equations for a conic section.
* Use coordinates to prove simple theorem algebraically.
* Apply geometric concepts in modeling situations.
 |  |
| Application of probability. | * Understand independence conditional probability and use them to interpret data.
* Use the rules of probability to compute probabilities of compound events in a uniform probability model.
* Use probability to evaluate outcomes of decisions.
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**Instructional Focus and Course Clusters**

**Worksheet**

| There are *four* instructional focus areas for **Algebra II.** | **Course Clusters** | How does this content compare to the course you currently teach? In general, how much alike or different is this from the course you teach now? (Green: similar, Yellow: could be easily added, Red: new and I would need support) |
| --- | --- | --- |
| Polynomial, rational, and radical relationships. | * Perform arithmetic operations with complex numbers.
* Use complex numbers in polynomial identities and equations.
* Interpret the structure of expressions.
* Write expressions in equivalent forms to solve problems.
* Perform arithmetic operation on polynomials.
* Understand solving equations as a process of reasoning and explain the reasoning.
* Use polynomial identities to solve problems.
* Rewrite rational expressions.
* Represent and solve equations and inequalities graphically.
* Analyze functions using different representations.
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| Trigonometric functions. | * Extend the domain of trigonometric functions using the unit circle.
* Model periodic phenomena with trigonometric functions.
* Prove and apply trigonometric identities.
 |  |
| Modeling with functions. | * Create equations and inequalities that describe numbers or relationships.
* Interpret functions that arise in applications in terms of context.
* Analyze functions using different representations.
* Build a function that models a relationship between two quantities.
* Build new functions from existing functions.
* Construct and compare linear, quadratic and exponential models and solve problems.
 |  |
| Inferences and conclusions from data. | * Summarize, represent, and interpret data on single count or measurement variables.
* Understand and evaluate random processes underlying statistical experiments.
* Make inferences and justify conclusions from sample surveys, experiments and observational studies.
* Use probability to evaluate outcomes of decisions.
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