Arizona Mathematic Standards

Mathematics Curriculum Map

Sixth Grade

ARIZONA DEPARTMENT OF EDUCATION
HIGH ACADEMIC STANDARDS

Chandler Unified School District Standards
Sixth Grade – At a Glance

Curriculum Map											
Semester 1 **The Number System (NS)** **Ratio and Proportion (RP)**					**Semester 2** **Expressions and Equations (EE)** **Geometry (G)** **Statistics and Probability (SP)**						
Chapter 1 Ratios and Rates	**Chapter 2** Fractions, Decimals and Percents	**Chapter 3** Compute with Multi-Digit Numbers	**Chapter 4** Multiply and Divide Fraction	**Chapter 5** Integers and the coordinate Plane	**Chapter 6** Expressions	**Chapter 7** Equations	**Chapter 8** Functions and Inequalities	**Chapter 9** Area	**Chapter 10** Volume and Surface Area	**Chapter 11** Statistical Measures	**Chapter 12** Statistical Displays
6.NS.B.4a 6.NS.B.4b 6.NS.B.4c 6.RP.A.1 6.RP.A.2 6.RP.A.3a 6.RP.A.3b 6.RP.A.3d	6.RP.A.3a 6.RP.A.3b 6.RP.A.3c 6.RP.A.3d	6.NS.B.2 6.NS.B.3	6.NS.A.1 6.RP.A.3 6.RP.A.3d	6.NS.C.5 6.NS.C.6a 6.NS.C.6b 6.NS.C.6c 6.NS.C.7a 6.NS.C.7b 6.NS.C.7c 6.NS.C.7d 6.NS.C.8	6.EE.A.1 6.EE.A.2a 6.EE.A.2b 6.EE.A.2c 6.EE.A.3 6.EE.A.4 6.EE.B.6 6.NS.B.4	6.EE.B.5 6.EE.B.7 6.RP.A.3	6.EE.A.2 6.EE.A.2c 6.EE.B.5 6.EE.B.6 6.EE.C.8 6.EE.C.9	6.G.A.1 6.G.A.4 6.NS.C.8	6.G.A.2 6.G.A.4	6.SP.A.1 6.SP.A.3 6.SP.B.5 6.SP.B.5b 6.SP.B.5c 6.SP.B.5d	6.SP.A.2 6.SP.B.4 6.SP.B.5a 6.SP.B.5b 6.SP.B.5c 6.SP.B.5d

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.

All chapters will include the Mathematical Practices

NOTE: Mathematical practices are interwoven and should be addressed throughout the year in as many different units and tasks as possible in order to stress the natural connections that exist among mathematical topics.

Grade 6 Key: NS = The Number System, RP = Ratio and Proportional Relationships, EE = Expressions and Equations, G = Geometry, SP = Statistics and Probability

Sixth Grade Overview

Ratios and Proportional Relationships (RP)

- Understand ratio concepts and use ratio reasoning to solve problems.

The Number System (NS)

- Apply and extend previous understanding of multiplication and division to divide fractions by fractions.

- Compute fluently with multi-digit numbers and find common factors and multiples.

- Apply and extend previous understanding of numbers to the system of rational numbers. (*Note: Limit negative rational numbers to integers and fractions with denominators of 2, 3, 4, 5, 10.*)

Expressions and Equations (EE)

- Apply and extend previous understanding of arithmetic to algebraic expressions.

- Reason about and solve one-variable equations and inequalities.

- Represent and analyze quantitative relationships between dependent and independent variables.

Geometry (G)

- Solve mathematical problems and problems in real-world context involving area, surface area, and volume.

Statistics and Probability (SP)

- Develop understanding of statistical variability.

- Summarize and describe distributions.

Standards for Mathematical Practices (MP)

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.

Sixth Grade Content Emphasis

Sixth Grade Content Emphasis	
Ratio and Proportional Relationships (RP)	
🔴	Understand ratio concepts and use ratio reasoning to solve problems.
The Number System (NS)	
🔴	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
🔴	Compute fluently with multi-digit numbers and find common factors and multiples.
🔴	Apply and extend previous understanding of numbers to the system of rational numbers. (Note: Limit negative numbers to integers and fractions with denominators of 2, 3, 4, 5, and 10)
Expressions and Equations (EE)	
🔴	Apply and extend previous understandings of arithmetic to algebraic expressions.
🔴	Reason about and solve one-variable equations and inequalities.
🔴	Represent and analyze quantitative relationships between dependent and independent variables.
Geometry (G)	
🔺	Solve mathematical problems and problems in real-world context involving area, surface area, and volume.
Statistics and Probability (SP)	
🔺	Develop understanding of statistical variability.
🔺	Summarize and describe distributions.
🔴 -Major Content 🔺 -Supporting Content	
Major content (🔴) from the content emphasis section should account for approximately 70% of instructional time.	

Semester 1

Chapter 1: Ratios and Rates
Essential Question(s):

- **How do you use equivalent rates in the real world?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Fractions and Multiples	6.NS.B.4a Find the greatest common factor of two whole numbers less than or equal to 100. 6.NS.B.4b Find the least common multiple of two whole numbers less than or equal to 12. 6.NS.B.4c Use the distributive property to express a sum of two whole numbers 1 to 100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express 36 +8 as 4(9+2).	MP 1 MP 3 MP 4	Glencoe Course 1: 1.1 **Additional Resources:** Illustrative Mathematics 6.NS.B.4 Tasks Robert Kaplinsky Hot Dogs and Buns Georgia Standards Unit 1
Ratios	6.RP.A.1 Understand the concept of a ratio as comparing two quantities multiplicatively or joining/composing the two quantities in a way that preserves a multiplicative relationship. Use ratio language to describe a ratio relationship between two quantities. *For example, "There were 2/3 as many men as women at the concert."* 6.RP.A.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. 6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed. 6.RP.A.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 1.2 Inquiry Lab **Additional Resources:** EngageNY Module 1 Topic A Topic B Illustrative Mathematics 6.RP.A.1 Tasks 6.RP.A.2 Tasks 6.RP.A.3 Tasks Georgia Standards Unit 2 Inside Mathematics

Semester 1

Chapter 1: Ratios and Rates
Essential Question(s):
- **How do you use equivalent rates in the real world?**

Rates	6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio $a : b$ with $b \neq 0$, and use rate language (e.g., for every, for each, for each 1, per) in the context of a ratio relationship. (Complex fraction notation is not an expectation for unit rates in this grade level.) 6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6.RP.A.3b - Solve unit rate problems including those involving unit pricing and constant speed.	MP 1 MP 3 MP 4	Glencoe Course 1: 1.3 Inquiry Lab **Additional Resources:** EngageNY Module 1 Topic C Georgia Standards Unit 2 Inside Mathematics
Ratio Tables	6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6.RP.A.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. 6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed.	MP 1 MP 3 MP 4 MP 7 MP 8	Glencoe Course 1: 1.4 **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics
Graph Ratio Tables	6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6.RP.A.3a Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values.	MP 1 MP 3 MP 4	Glencoe Course 1: 1.5 **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics
Equivalent Ratios	6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed.	MP 1 MP 3 MP 4 MP 6 MP 7	Glencoe Course 1: 1.6 **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics

Semester 1

Chapter 1: Ratios and Rates
Essential Question(s):
- **How do you use equivalent rates in the real world?**

Ratio and Rate Problems	6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6.RP.A.3b Solve unit rate problems including those involving unit pricing and constant speed.	MP 1 MP 3 MP 4 MP 5 MP 7	Glencoe Course 1: 1.7 Inquiry Lab **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics

Semester 1

Chapter 2: Fractions, Decimals, and Percents
Essential Question(s):
- **When is it better to use a fraction, a decimal, or a percent?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Decimals and Fractions	6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 2.1 **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics
Percents and Fractions	6.RP.A.3c - Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 2.2 Inquiry Lab **Additional Resources:** EngageNY Module 1 Topic D Georgia Standards Unit 2 Inside Mathematics
Percents and Decimals	6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity). Solve percent problems with the unknown in all positions of the equation.	MP 1 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 2.3 **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics
Percents Greater than 100% and Percents Less Than 1%	6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity). Solve percent problems with the unknown in all positions of the equation.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 2.4 **Additional Resources**: Georgia Standards Unit 2 Inside Mathematics

Semester 1

Chapter 2: Fractions, Decimals, and Percents
Essential Question(s):
- **When is it better to use a fraction, a decimal, or a percent?**

Compare and Order Fractions, Decimals, and Percents	6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity). Solve percent problems with the unknown in all positions of the equation.	MP 1 MP 2 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 2.5
Estimate with Percents	6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity). Solve percent problems with the unknown in all positions of the equation.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 2.6 **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics
Percent of a Number	6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity). Solve percent problems with the unknown in all positions of the equation.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 2.7 Inquiry Lab **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics
Solve Percent Problems	6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6.RP.A.3c Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity). Solve percent problems with the unknown in all positions of the equation.	MP 1 MP 2 MP 3 MP 4 MP 7	Glencoe Course 1: 2.8 **Additional Resources:** Georgia Standards Unit 2 Inside Mathematics

Semester 1

Chapter 3: Compute with Multi-Digit Numbers
Essential Question(s):
- **How can estimating be helpful?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Add and Subtract Decimals	6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.	MP 1 MP 2 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 3.1 **Additional Resources:** Illustrative Mathematics 6.NS.B.3 Tasks Georgia Standards Unit 1
Estimate Products	6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.	MP 1 MP 2 MP 3 MP 4 MP 5	Glencoe Course 1: 3.2 **Additional Resources:** Illustrative Mathematics 6.NS.B.3 Tasks Georgia Standards Unit 1
Multiply Decimals by Whole Numbers	6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.	MP 1 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 3.3 **Additional Resources:** EngageNY Module 2 Topic B Illustrative Mathematics 6.NS.B.3 Tasks Georgia Standards Unit 1

Semester 1			
Chapter 3: Compute with Multi-Digit Numbers **Essential Question(s):** • **How can estimating be helpful?**			
Multiple Decimals by Decimals	6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.	MP 1 MP 2 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 3.4 Inquiry Lab **Additional Resources:** Illustrative Mathematics 6.NS.B.3 Tasks Georgia Standards Unit 1
Divide Multi-Digit Numbers	6.NS.B.2 Fluently divide multi-digit numbers using a standard algorithm.	MP 1 MP 2 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 3.5 **Additional Resources:** Illustrative Mathematics 6.NS.B.2 TAsks Georgia Standards Unit 1
Estimate Quotients	6.NS.B.2 Fluently divide multi-digit numbers using a standard algorithm.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 3.6 **Additional Resources:** Illustrative Mathematics 6.NS.B.2 Tasks Georgia Standards Unit 1
Divide Decimals by Whole Numbers	6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.	MP 1 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 3.7 **Additional Resources:** EngageNY Module 2 Topic C Illustrative Mathematics 6.NS.B.3 Tasks Georgia Standards Unit 1

Semester 1

Chapter 3: Compute with Multi-Digit Numbers
Essential Question(s):
- **How can estimating be helpful?**

Divide Decimals by Decimals	6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 3.8 **Additional Resources:** Illustrative Mathematics 6.NS.B.3 Tasks Georgia Standards Unit 1

Semester 1

Chapter 4: Multiply and Divide Fractions
Essential Question(s):
- **What does it mean to multiply and divide fractions?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Estimate Products of Fractions	6.NS.A.1 Interpret and compute quotients of fractions to solve mathematical problems and problems in real-world context involving division of fractions by fractions using visual fraction models and equations to represent the problem. *For example, create a story context for 2/3 ÷ 3/4 and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that 2/3 ÷ 3/4 = 8/9 because 3/4 of 8/9 is 2/3. In general, a/b ÷ c/d = ad/bc.*	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 4.1 **Additional Resources:** Illustrative Mathematics 6.NS.A.1 Tasks Georgia Standards Unit 1 Inside Mathematics
Multiply Fractions and Whole Numbers	6.NS.A.1 Interpret and compute quotients of fractions to solve mathematical problems and problems in real-world context involving division of fractions by fractions using visual fraction models and equations to represent the problem. *For example, create a story context for 2/3 ÷ 3/4 and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that 2/3 ÷ 3/4 = 8/9 because 3/4 of 8/9 is 2/3. In general, a/b ÷ c/d = ad/bc.*	MP 1 MP 3 MP 4 MP 7	Glencoe Course 1: 4.2 **Additional Resources:** Illustrative Mathematics 6.NS.A.1 Tasks Georgia Standards Unit 1 Inside Mathematics
Multiply Fractions	6.NS.A.1 Interpret and compute quotients of fractions to solve mathematical problems and problems in real-world context involving division of fractions by fractions using visual fraction models and equations to represent the problem. *For example, create a story context for 2/3 ÷ 3/4 and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that 2/3 ÷ 3/4 = 8/9 because 3/4 of 8/9 is 2/3. In general, a/b ÷ c/d = ad/bc.*	MP 1 MP 3 MP 4 MP 5 MP 7	Glencoe Course 1: 4.3 **Additional Resources:** Illustrative Mathematics 6.NS.A.1 Tasks Georgia Standards Unit 1 Inside Mathematics

Semester 1

Chapter 4: Multiply and Divide Fractions
Essential Question(s):
- **What does it mean to multiply and divide fractions?**

Multiply Mixed Numbers	6.NS.A.1 Interpret and compute quotients of fractions to solve mathematical problems and problems in real-world context involving division of fractions by fractions using visual fraction models and equations to represent the problem. *For example, create a story context for 2/3 ÷ 3/4 and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that 2/3 ÷ 3/4 = 8/9 because 3/4 of 8/9 is 2/3. In general, a/b ÷ c/d = ad/bc.*	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 4.4 **Additional Resources:** Illustrative Mathematics 6.NS.A.1 Tasks Georgia Standards Unit 1 Inside Mathematics
Convert Measurement Units	6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). 6. RP.A.3d - Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	MP 1 MP 3 MP 4 MP 6	Glencoe Course 1: 4.5
Divide Whole Number by Fractions	6.NS.A.1 Interpret and compute quotients of fractions to solve mathematical problems and problems in real-world context involving division of fractions by fractions using visual fraction models and equations to represent the problem. *For example, create a story context for 2/3 ÷ 3/4 and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that 2/3 ÷ 3/4 = 8/9 because 3/4 of 8/9 is 2/3. In general, a/b ÷ c/d = ad/bc.*	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 4.6 Inquiry Lab **Additional Resources:** Georgia Standards Unit 1 Inside Mathematics
Divide Fractions	6.NS.A.1 Interpret and compute quotients of fractions to solve mathematical problems and problems in real-world context involving division of fractions by fractions using visual fraction models and equations to represent the problem. *For example, create a story context for 2/3 ÷ 3/4 and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that 2/3 ÷ 3/4 = 8/9 because 3/4 of 8/9 is 2/3. In general, a/b ÷ c/d = ad/bc.*	MP 1 MP 2 MP 3 MP 4 MP 5 MP 7 MP 8	Glencoe Course 1: 4.7 Inquiry Lab **Additional Resources:** EngageNY Module 2 Topic A Georgia Standards Unit 1 Inside Mathematics

Semester 1			
Chapter 4: Multiply and Divide Fractions **Essential Question(s):** • **What does it mean to multiply and divide fractions?**			
Divide Mixed Numbers	6.NS.A.1 Interpret and compute quotients of fractions to solve mathematical problems and problems in real-world context involving division of fractions by fractions using visual fraction models and equations to represent the problem. *For example, create a story context for 2/3 ÷ 3/4 and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that 2/3 ÷ 3/4 = 8/9 because 3/4 of 8/9 is 2/3. In general, a/b ÷ c/d = ad/bc.*	MP 1 MP 2 MP 3 MP 4 MP 6 MP 7	Glencoe Course 1: 4.8 **Additional Resources:** Georgia Standards Unit 1 Inside Mathematics

Semester 1

Chapter 5: Integers and the Coordinate Plane
Essential Question(s):
- **How are integers and absolute value used in real-world situations?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Integers and Graphing	6.NS.C.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 context, explaining the meaning of 0 in each situation. 6.NS.C.6 Understand a rational number can represented 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. 6.NS.C.6a 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. 6.NS.C.6c 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.	MP 1 MP 3 MP 4 MP 5 MP 7	Glencoe Course 1: 5.1 Inquiry Lab **Additional Resources:** EngageNY Module 3 Topic A Illustrative Mathematics 6.NS.C.5 Tasks 6.NS.C.6 Tasks Georgia Standards Unit 7
Absolute Value	6.NS.C.6 Understand a rational number can represented 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. 6.NS.C.6a 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. 6.NS.C.7 Understand ordering and absolute value of rational numbers. 6.NS.C.7c Understand 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 real-world context. 6.NS.C.7d Distinguish comparisons of absolute value from statements about order in mathematical problems and problems in real-world context.	MP 1 MP 2 MP 3 MP 4	Glencoe Course 1: 5.2 Inquiry Lab **Additional Resources:** EngageNY Module 3 Topic B Illustrative Mathematics 6.NS.C.6 Tasks 6.NS.C.7 Tasks Georgia Standards Unit 7

Semester 1

Chapter 5: Integers and the Coordinate Plane
Essential Question(s):
- **How are integers and absolute value used in real-world situations?**

Compare and Order Integers	6.NS.C.7 Understand ordering and absolute value of rational numbers. 6.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line. 6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real world contexts. 6.NS.C.7d Distinguish comparisons of absolute value from statements about order in mathematical problems and problems in real-world context.	MP 1 MP 2 MP 3 MP 4 MP 5	Glencoe Course 1: 5.3 **Additional Resources:** Illustrative Mathematics 6.NS.C.7 Tasks Georgia Standards Unit 7
Terminating and Repeating Decimals	6.NS.C.6c 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. 6.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line.	MP 1 MP 2 MP 3 MP 4 MP 7 MP 8	Glencoe Course 1: 5.4 Inquiry Lab **Additional Resources:** Illustrative Mathematics 6.NS.C.6 Tasks 6.NS.C.7 Tasks Georgia Standards Unit 7
Compare and Order Rational Numbers	6.NS.C.6 Understand a rational number can represented 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. 6.NS.C.6c 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. 6.NS.C.7 Understand ordering and absolute value of rational numbers. 6.NS.C.7a Interpret statements of inequality as statements about the relative position of two numbers on a number line. 6.NS.C.7b Write, interpret, and explain statements of order for rational numbers in real world contexts	MP 1 MP 2 MP 3 MP 4 MP 5 MP 7	Glencoe Course 1: 5.5 **Additional Resources:** Illustrative Mathematics 6.NS.C.6 Tasks 6.NS.C.7 Tasks Georgia Standards Unit 7

Semester 1

Chapter 5: Integers and the Coordinate Plane
Essential Question(s):
- **How are integers and absolute value used in real-world situations?**

The Coordinate Plane	6.NS.C.6 Understand a rational number can represented 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. 6.NS.C.6b 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. 6.NS.C.6c 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.	MP 1 MP 3 MP 4 MP 5 MP 7	Glencoe Course 1: 5.6 **Additional Resources:** EngageNY Moduel 3 Topic C Illustrative Mathematics 6.NS.C.6 Tasks Georgia Standards Unit 7
Graph on the Coordinate Plane	6.NS.C.6 Understand a rational number can represented 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. 6.NS.C.6b 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. 6.NS.C.6c 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. 6.NS.C.8 Solve mathematical problems and problems in real-world context 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.	MP 1 MP 2 MP 3 MP 4 MP 7	Glencoe Course 1: 5.7 Inquiry Lab **Additional Resources**: Illustrative Mathematics 6.NS.C.8 Tasks Georgia Standards Unit 7

Semester 2

Chapter 6: Expressions
Essential Question(s):
- **How is it helpful to write numbers in different ways?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Powers and Exponents	6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents. 6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.	MP 1 MP 3 MP 4 MP 6 MP 8	Glencoe Course 1: 6.1 Inquiry Lab **Additional Resources:** EngageNY Module 4 Topic A Topic B Georgia Standards Unit 3 Inside Mathematics
Numerical Expressions	6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.	MP 1 MP 2 MP 3 MP 4 MP 5	Glencoe Course 1: 6.2 **Additional Resources:** Illustrative Mathematics 6.EE.A.1 Tasks Georgia Standards Unit 3 Inside Mathematics

Semester 2

Chapter 6: Expressions
Essential Question(s):
- **How is it helpful to write numbers in different ways?**

Algebra: Variables and Expressions	6.EE.A.2 Write, read, and evaluate algebraic expressions. 6.EE.A.2c Evaluate expressions given specific values of their variables. Include expressions that arise from formulas used to solve mathematical problems and problems in real-world context. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). 6.EE.B.6 Use variables to represent numbers and write expressions when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set.	MP 1 MP 2 MP 3 MP 4 MP 6	Glencoe Course 1: 6.3 **Additional Resources:** EngageNY Module 4 Topic C Illustrative Mathematics 6.EE.A.2 Tasks Georgia Standards Unit 3 Inside Mathematics
Algebra: Write Expressions	6.EE.A.2 Write, read, and evaluate algebraic expressions. 6.EE.A.2a Write expressions that record operations with numbers and with letters standing for numbers. 6.EE.A.2c Evaluate expressions given specific values of their variables. Include expressions that arise from formulas used to solve mathematical problems and problems in real-world context. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). 6.EE.B.6 Use variables to represent numbers and write expressions when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set.	MP 1 MP 2 MP 3 MP 4 MP 6	Glencoe Course 1: 6.4 Inquiry Lab **Additional Resources:** EngageNY Module 4 Topic D Illustrative Mathematics 6.EE.B.6 Tasks Georgia Standards Unit 3 Inside Mathematics
Algebra: Properties	6.EE.A.3 Apply the properties of operations to generate equivalent expressions. *For example, apply the Distributive Property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x.*	MP 1 MP 2 MP 3 MP 4 MP 5	Glencoe Course 1: 6.5 **Additional Resources**: Illustrative Mathematics 6.EE.A.3 Tasks Georgia Standards Unit 3

Semester 2

Chapter 6: Expressions
Essential Question(s):
- **How is it helpful to write numbers in different ways?**

The Distributive Property	6.EE.A.3 Apply the properties of operations to generate equivalent expressions. *For example, apply the Distributive Property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x.* 6.NS.B.4 Use previous understanding of factors to find the greatest common factor and least common multiple.	MP 1 MP 3 MP 4 MP 5 MP 6 MP 7 MP 8	Glencoe Course 1: 6.6 Inquiry Lab **Additional Resources:** Illustrative Mathematics 6.EE.A.4 Tasks Georgia Standards Unit 3
Equivalent Expressions	6.EE.A.2 Write, read, and evaluate algebraic expressions. 6.EE.A.2b Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, and coefficient); view one or more parts of an expression as a single entity.	MP 1 MP 3 MP 4 MP 5 MP 7	Glencoe Course 1: 6.7 Inquiry Lab **Additional Resources:** EngaeNY Module 4 Topic E Topic F Georgia Standards Unit 3

Semester 2

Chapter 7: Equations
Essential Question(s):
- **How do you determine if two numbers or expressions are equal?**

	80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.		
Topic	**Arizona Mathematics Standard**	**Mathematical Practices**	**Resources**
Equations	6.EE.B.5 Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	MP 1 MP 2 MP 3 MP 4 MP 7	Glencoe Course 1: 7.1 **Additional Resources:** Illustrative Mathematics 6.EE.B.5 Tasks Robert Kaplinsky 2000 Calories Georgia Standards Unit 4
Solve and Write Addition Equations	6.EE.B.5 Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6.EE.B.7 Solve mathematical problems and problems in real-world context by writing and solving equations of the form $x + p = q$, $x - p = q$, $px = q$, and $x/p = $ q for cases in which p, q and x are all non-negative rational numbers.	MP 1 MP 2 MP 3 MP 4 MP 5	Glencoe Course 1: 7.2 Inquiry Lab **Additional Resources:** EngageNY Module 4 Topic G Illustrative Mathematics 6.EE.B.7 Tasks Georgia Standards Unit 4 Inside Mathematics

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Chapter 7: Equations
Essential Question(s):
• How do you determine if two numbers or expressions are equal?</td></tr>
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Solve and Write Subtractions Equations	6.EE.B.5 Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6.EE.B.7 Solve mathematical problems and problems in real-world context by writing and solving equations of the form $x + p = q$, $x - p = q$, $px = q$, and $x/p = q$ for cases in which p, q and x are all non-negative rational numbers.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 7.3 Inquiry Lab **Additional Resources:** EngageNY Module 4 Topic G Illustrative Mathematics 6.EE.B.7 Tasks Georgia Standards Unit 4 Inside Mathematics
Solve and Write Multiplication Equations	6.EE.B.5 Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6.EE.B.7 Solve mathematical problems and problems in real-world context by writing and solving equations of the form $x + p = q$, $x - p = q$, $px = q$, and $x/p = q$ for cases in which p, q and x are all non-negative rational numbers. 6.RP.A.3 Use ratio and rate reasoning to solve mathematical problems and problems in real-world context (e.g., by reasoning about data collected from measurements, tables of equivalent ratios, tape diagrams, double number line diagrams, or equations).	MP 1 MP 2 MP 3 MP 4 MP 5	Glencoe Course 1: 7.4 Inquiry Lab **Additional Resources:** Georgia Standards Unit 4 Inside Mathematics
Solve and Write Division Equations	6.EE.B.5 Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6.EE.B.7 Solve mathematical problems and problems in real-world context by writing and solving equations of the form $x + p = q$, $x - p = q$, $px = q$, and $x/p = q$ for cases in which p, q and x are all non-negative rational numbers.	MP 1 MP 2 MP 3 MP 4 MP 7	Glencoe Course 1: 7.5 Inquiry Lab **Additional Resources:** Georgia Standards Unit 4 Inside Mathematics

Semester 2

Chapter 8: Functions and Inequalities
Essential Question(s):
- **How are symbols, such as <, >, and =, useful?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Function Tables	6.EE.A.2 Write, read, and evaluate algebraic expressions. 6.EE.A.2c Evaluate expressions given specific values of their variables. Include expressions that arise from formulas used to solve mathematical problems and problems in real-world context. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). 6.EE.C.9 Use variables to represent two quantities that change in relationship to one another to solve mathematical problems and problems in real-world context. Write an equation to express one quantity (the dependent variable) in terms of the other quantity (the independent variable). Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	MP 1 MP 3 MP 4 MP 5	Glencoe Course 1: 8.1
Function Rules	6.EE.A.2 Write, read, and evaluate algebraic expressions. 6.EE.A.2c Evaluate expressions given specific values of their variables. Include expressions that arise from formulas used to solve mathematical problems and problems in real-world context. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). 6.EE.B.6 Use variables to represent numbers and write expressions when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set. 6.EE.C.9 Use variables to represent two quantities that change in relationship to one another to solve mathematical problems and problems in real-world context. Write an equation to express one quantity (the dependent variable) in terms of the other quantity (the independent variable). Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	MP 1 MP 3 MP 4 MP 7	Glencoe Course 1: 8.2

Semester 2

Chapter 8: Functions and Inequalities
Essential Question(s):
- **How are symbols, such as <, >, and =, useful?**

Functions and Equations	6.EE.C.9 Use variables to represent two quantities that change in relationship to one another to solve mathematical problems and problems in real-world context. Write an equation to express one quantity (the dependent variable) in terms of the other quantity (the independent variable). Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	MP 1 MP 3 MP 4 MP 8	Glencoe Course 1: 8.3 **Additional Resources:** Illustrative Mathematics 6.EE.C.9 Tasks
Multiple Representations of Functions	6.EE.C.9 Use variables to represent two quantities that change in relationship to one another to solve mathematical problems and problems in real-world context. Write an equation to express one quantity (the dependent variable) in terms of the other quantity (the independent variable). Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	MP 1 MP 2 MP 3 MP 4	Glencoe Course 1: 8.4
Inequalities	6.EE.B.5 Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6.EE.B.8 Write an inequality of the form $x > c$, $x < c$, $x \geq c$, or $x \leq c$ to represent a constraint or condition to solve mathematical problems and problems in real-world context. Recognize that inequalities have infinitely many solutions; represent solutions of such inequalities on number lines.	MP 1 MP 2 MP 3 MP 4 MP 6 MP 7	Glencoe Course 1: 8.5 Inquiry Lab **Additional Resources:** Illustrative Mathematics 6.EE.B.8 Tasks Georgia Standards Unit 4
Write and Graph Inequalities	6.EE.B.6 Use variables to represent numbers and write expressions when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set. 6.EE.B.8 Write an inequality of the form $x > c$, $x < c$, $x \geq c$, or $x \leq c$ to represent a constraint or condition to solve mathematical problems and problems in real-world context. Recognize that inequalities have infinitely many solutions; represent solutions of such inequalities on number lines.	MP 1 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 8.6 **Additional Resources:** Georgia Standards Unit 4

Semester 2

Chapter 8: Functions and Inequalities
Essential Question(s):
- **How are symbols, such as <, >, and =, useful?**

Solve One-Step Inequalities	6.EE.B.5 Understand solving an equation or inequality as a process of reasoning to find the value(s) of the variables that make that equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. 6.EE.B.6 Use variables to represent numbers and write expressions when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set. 6.EE.B.8 Write an inequality of the form $x > c, x < c, x \geq c, or x \leq c$ to represent a constraint or condition to solve mathematical problems and problems in real-world context. Recognize that inequalities have infinitely many solutions; represent solutions of such inequalities on number lines.	MP 1￼MP 3￼MP 4	Glencoe Course 1: 8.7 Inquiry Lab **Additional Resources:** Georgia Standards Unit 4

Semester 2

Chapter 9: Area
Essential Question(s):
- **How does measurement help you solve problems in everyday life?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Area of Parallelograms	6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques to solve mathematical problems and problems in real-world context.	MP 1 MP 3 MP 4 MP 7	Glencoe Course 1: 9.1 Inquiry Lab **Additional Resources:** EngageNY Module 5 Topic A Illustrative Mathematics 6.G.A.1 Tasks Georgia Standards Unit 5 Inside Mathematics
Area of Triangles	6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques to solve mathematical problems and problems in real-world context.	MP 1 MP 3 MP 4 MP 8	Glencoe Course 1: 9.2 Inquiry Lab **Additional Resources**: EngageNY Module 5 Topic A Illustrative Mathematics 6.G.A.1 Tasks Georgia Standards Unit 5 Inside Mathematics

Semester 2

Chapter 9: Area
Essential Question(s):
- **How does measurement help you solve problems in everyday life?**

Area of Trapezoids	6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques to solve mathematical problems and problems in real-world context.	MP 1 MP 2 MP 3 MP 4 MP 7 MP 8	Glencoe Course 1: 9.3 Inquiry Lab **Additional Resources:** EngageNY Module 5 Topic A Illustrative Mathematics 6.G.A.1 Tasks Georgia Standards Unit 5 Inside Mathematics
Changes in Dimensions	6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques to solve mathematical problems and problems in real-world context.	MP 1 MP 2 MP 3 MP 4 MP 7	Glencoe Course 1: 9.4 **Additional Resources:** Illustrative Mathematics 6.G.A.1 Tasks Georgia Standards Unit 5 Inside Mathematics

Semester 2

Chapter 9: Area
Essential Question(s):
- **How does measurement help you solve problems in everyday life?**

Polygons on the Coordinate Plane	6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques to solve mathematical problems and problems in real-world context. 6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques to solve mathematical problems and problems in a real-world context. 6.NS.C.8 Solve mathematical problems and problems in real-world context 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.	MP 1 MP 2 MP 3 MP 4 MP 5 MP 7	Glencoe Course 1: 9.5 **Additional Resources:** EngageNY Module 5 Topic B Illustrative Mathematics 6.G.A.3 Tasks
Area of Composite Figures	6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques to solve mathematical problems and problems in real-world context.	MP 1 MP 2 MP 3 MP 4 MP 6 MP 7	Glencoe Course 1: 9.6 Inquiry Lab **Additional Resources:** Georgia Standards Unit 5 Inside Mathematics

Semester 2

Chapter 10: Volume and Surface Area
Essential Question(s):
- **How is shape important when measuring a figure?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Volume of Rectangular Prisms	6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Understand and use the formula $V = B \cdot h$, where in this case, B is the area of the base ($B = l \: x \: w$) to find volumes of right rectangular prisms with fractional edge lengths in mathematical problems and problems in real-world context.	MP 1 MP 3 MP 4 MP 5 MP 6 MP 7	Glencoe Course 1: 10.1 Inquiry Lab **Additional Resources:** EngageNY Module 5 Topic C Illustrative Mathematics 6.G.A.2 Tasks Georgia Standards Unit 5 Inside Mathematics
Volume of Triangular Prisms	6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Understand and use the formula $V = B \cdot h$, where in this case, B is the area of the base ($B = l \: x \: w$) to find volumes of right rectangular prisms with fractional edge lengths in mathematical problems and problems in real-world context.	MP 1 MP 3 MP 4 MP 6 MP 8	Glencoe Course 1: 10.2 **Additional Resources:** Illustrative Mathematics 6.G.A.2 Tasks Georgia Standards Unit 5 Inside Mathematics

Semester 2

Chapter 10: Volume and Surface Area
Essential Question(s):
- **How is shape important when measuring a figure?**

Surface Area of Rectangular Prisms	6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques to solve mathematical problems and problems in real-world context.	MP 1 MP 3 MP 4 MP 8	Glencoe Course 1: 10.3 Inquiry Lab **Additional Resources:** EngageNY Module 5 Topic D Illustrative Mathematics 6.G.A.4 Tasks Georgia Standards Unit 5
Surface Area of Triangular Prisms	6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques to solve mathematical problems and problems in real-world context.	MP 1 MP 2 MP 3 MP 4 MP 6	Glencoe Course 1: 10.4 Inquiry Lab **Additional Resources:** Georgia Standards Unit 5
Surface Area of Pyramids	6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques to solve mathematical problems and problems in real-world context.	MP 1 MP 3 MP 4 MP 6 MP 7	Glencoe Course 1: 10.5 Inquiry Lab **Additional Resources:** Illustrative Mathematics 6.G.A.4 Tasks Georgia Standards Unit 5

Semester 2

Chapter 11: Statistical Measures
Essential Question(s):
- **How is it helpful to write numbers in different ways?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Mean	6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for variability in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages. 6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation uses a single number to describe the spread of the data set.	MP 1 MP 2 MP 3 MP 4 MP 6	Glencoe Course 1: 11.1 Inquiry Lab (6.SP.A.1) **Additional Resources:** Georgia Standards Unit 6 Inside Mathematics
Median and Mode	6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation uses a single number to describe the spread of the data set. 6.SP.B.5b Summarize numerical data sets in relation to their context by describing the nature of the attribute under investigation including how it was measured and its units of measurement. 6.SP.B.5c Summarize numerical data sets in relation to their context by giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	MP 1 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 11.2 **Additional Resources:** Georgia Standards Unit 6 Inside Mathematics
Measures of Variation	6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation uses a single number to describe the spread of the data set. 6.SP.B.5c Summarize numerical data sets in relation to their context by giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	MP 1 MP 2 MP 3 MP 4 MP 5	Glencoe Course 1: 11.3 **Additional Resources:** Georgia Standards Unit 6 Inside Mathematics

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Semester 2

Chapter 11: Statistical Measures
Essential Question(s):
- **How is it helpful to write numbers in different ways?**

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Mean Absolute Deviation	6.SP.B.5b Summarize numerical data sets in relation to their context by describing the nature of the attribute under investigation including how it was measured and its units of measurement. 6.SP.B.5c Summarize numerical data sets in relation to their context by giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	MP 1 MP 2 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 11.4 **Additional Resources:** EngageNY Module 6 Topic B Georgia Standards Unit 6 Inside Mathematics
Appropriate Measures	6.SP.B.5c Summarize numerical data sets in relation to their context by giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. 6.SP.B.5d Summarize numerical data sets in relation to their context by relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	MP 1 MP 3 MP 4	Glencoe Course 1: 11.5 **Additional Resources:** EngageNY Module 6 Topic C Georgia Standards Unit 6 Inside Mathematics

Semester 2

Chapter 12: Statistical Displays
Essential Question(s):
- **How is it helpful to write numbers in different ways?**

80% of instructional time should be based on core materials (My Math, Go Math, Saxon); 20% may be based on additional resources.

Topic	Arizona Mathematics Standard	Mathematical Practices	Resources
Line Plots	6.SP.B.4 Display and interpret numerical data by creating plots on a number line including histograms, dot plots, and box plots. 6.SP.B.5a Summarize numerical data sets in relation to their context by reporting the number of observations. 6.SP.B.5b Summarize numerical data sets in relation to their context by describing the nature of the attribute under investigation including how it was measured and its units of measurement. 6.SP.B.5c Summarize numerical data sets in relation to their context by giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	MP 1 MP 3 MP 4	Glencoe Course 1: 12.1 **Additional Resources:** EngageNY Module 6 Topic A Georgia Standards Unit 6 Inside Mathematics
Histograms	6.SP.B.4 Display and interpret numerical data by creating plots on a number line including histograms, dot plots, and box plots. 6.SP.B.5a Summarize numerical data sets in relation to their context by reporting the number of observations. 6.SP.B.5b Summarize numerical data sets in relation to their context by describing the nature of the attribute under investigation including how it was measured and its units of measurement.	MP 1 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 12.2 **Additional Resources:** Georgia Standards Unit 6 Inside Mathematics

Semester 2

Chapter 12: Statistical Displays
Essential Question(s):
- **How is it helpful to write numbers in different ways?**

Box Plots	6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution whose general characteristics can be described by its center, spread, and overall shape. 6.SP.B.4 Display and interpret numerical data by creating plots on a number line including histograms, dot plots, and box plots. 6.SP.B.5b Summarize numerical data sets in relation to their context by describing the nature of the attribute under investigation including how it was measured and its units of measurement. 6.SP.B.5c Summarize numerical data sets in relation to their context by giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	MP 1 MP 2 MP 3 MP 4 MP 7	Glencoe Course 1: 12.3 **Additional Resources:** Georgia Standards Unit 6 Inside Mathematics
Shape of Data Distributions	6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution whose general characteristics can be described by its center, spread, and overall shape. 6.SP.B.5d Summarize numerical data sets in relation to their context by relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	MP 1 MP 3 MP 4 MP 5 MP 7	Glencoe Course 1: 12.4 Inquiry Lab **Additional Resources:** Illustrative Mathematics 6.SP.A.2 Tasks Georgia Standards Unit 6 Inside Mathematics
Interpret Line Graphs	6.SP.B.4 Display and interpret numerical data by creating plots on a number line including histograms, dot plots, and box plots.	MP 1 MP 3 MP 4	Glencoe Course 1: 12.5
Select an Appropriate Display	6.SP.B.4 Display and interpret numerical data by creating plots on a number line including histograms, dot plots, and box plots.	MP 1 MP 3 MP 4 MP 5 MP 6	Glencoe Course 1: 12.6 Inquiry Lab **Additional Resources:** EngageNY Module 6 Topic D Georgia Standards Unit 6

Mathematics Practices		Narratives	Related Questions
Overarching habits of mind of a productive math thinker	**4.MP.1** **Make sense of problems and persevere in solving them**	Mathematically proficient students explain to themselves the meaning of a problem, look for entry points to begin work on the problem, and plan and choose a solution pathway. While engaging in productive struggle to solve a problem, they continually ask themselves, "Does this make sense?" to monitor and evaluate their progress and change course if necessary. Once they have a solution, they look back at the problem to determine if the solution is reasonable and accurate. Mathematically proficient students check their solutions to problems using different methods, approaches, or representations. They also compare and understand different representations of problems and different solution pathways, both their own and those of others.	• How would you describe the problem in your own words? • How would you describe what you are trying to find? • What do you notice about...? • What information is given in the problem? • Describe the relationship between the quantities. • Describe what you have already tried. What might you change? • Talk me through the steps you've used to this point. • What steps in the process are you most confident about? • What are some other strategies you might try? • What are some other problems that are similar to this one? • How might you use one of your previous problems to help you begin? • How else might you organize...represent... show...?
	4.MP.6 **Attend to precision**	Mathematically proficient students clearly communicate to others using appropriate mathematical terminology, and craft explanations that convey their reasoning. When making mathematical arguments about a solution, strategy, or conjecture, they describe mathematical relationships and connect their words clearly to their representations. Mathematically proficient students understand meanings of symbols used in mathematics, calculate accurately and efficiently, label quantities appropriately, and record their work clearly and concisely.	• What mathematical terms apply in this situation? • How did you know your solution was reasonable? • Explain how you might show that your solution answers the problem. • What would be a more efficient strategy? • How are you showing the meaning of the quantities? • What symbols or mathematical notations are important in this problem? • What mathematical language...,definitions..., properties can you use to explain...? • How could you test your solution to see if it answers the problem?

Actions and dispositions from NCSM Summer Leadership Academy, Atlanta, GA • Draft, June 22, 2011)
Most questions from all Grades Common Core State Standards Flip Book

Mathematics Practices		Narratives	Related Questions
Reasoning and Explaining	**4.MP.2 Reason abstractly and quantitatively**	Mathematically proficient students make sense of quantities and their relationships in problem situations. Students can contextualize and decontextualize problems involving quantitative relationships. They contextualize quantities, operations, and expressions by describing a corresponding situation. They decontextualize a situation by representing it symbolically. As they manipulate the symbols, they can pause as needed to access the meaning of the numbers, the units, and the operations that the symbols represent. Mathematically proficient students know and flexibly use different properties of operations, numbers, and geometric objects and when appropriate they interpret their solution in terms of the context.	• What do the numbers used in the problem represent? • What is the relationship of the quantities? • How is _____ related to _____? • What is the relationship between _____ and _____? • What does _____ mean to you? (e.g. symbol, quantity, diagram) • What properties might we use to find a solution? • How did you decide in this task that you needed to use...? • Could we have used another operation or property to solve this task? Why or why not?
	4.MP.3 Construct viable arguments and critique the reasoning of others	Mathematically proficient students construct mathematical arguments (explain the reasoning underlying a strategy, solution, or conjecture) using concrete, pictorial, or symbolic referents. Arguments may also rely on definitions, assumptions, previously established results, properties, or structures. Mathematically proficient students make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. Mathematically proficient students present their arguments in the form of representations, actions on those representations, and explanations in words (oral or written). Students critique others by affirming or questioning the reasoning of others. They can listen to or read the reasoning of others, decide whether it makes sense, ask questions to clarify or improve the reasoning, and validate or build on it. Mathematically proficient students can communicate their arguments, compare them to others, and reconsider their own arguments in response to the critiques of others.	• What mathematical evidence would support your solution? • How can we be sure that...? / How could you prove that...? • Will it still work if...? • What were you considering when...? • How did you decide to try that strategy? • How did you test whether your approach worked? • How did you decide what the problem was asking you to find? • Did you try a method that did not work? Why didn't it work? Could it work? • What is the same and what is different about...? • How could you demonstrate a counter-example?

Actions and dispositions from NCSM Summer Leadership Academy, Atlanta, GA • Draft, June 22, 2011)
Most questions from all Grades Common Core State Standards Flip Book

Mathematics Practices		Narratives	Related Questions
Modeling and Using Tools	**4.MP.4 Model with mathematics**	Mathematically proficient students apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. When given a problem in a contextual situation, they identify the mathematical elements of a situation and create a mathematical model that represents those mathematical elements and the relationships among them. Mathematically proficient students use their model to analyze the relationships and draw conclusions. They interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.	• What number model could you construct to represent the problem? • What are some ways to represent the quantities? • What is an equation or expression that matches the diagram, number line, chart, table, and your actions with the manipulatives? • Where did you see one of the quantities in the task in your equation or expression? What does each number in the equation mean? • How would it help to create a diagram, graph, table...? • What are some ways to visually represent...? • What formula might apply in this situation?
	4.MP.5 Use appropriate tools strategically	Mathematically proficient students consider available tools when solving a mathematical problem. They choose tools that are relevant and useful to the problem at hand. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful; recognizing both the insight to be gained and their limitations. Students deepen their understanding of mathematical concepts when using tools to visualize, explore, compare, communicate, make and test predictions, and understand the thinking of others.	• What mathematical tools can we use to visualize and represent the situation? • Which tool is more efficient? Why do you think so? • What information do you have? • What do you know that is not stated in the problem? • What approach are you considering trying first? • What estimate did you make for the solution? • In this situation would it be helpful to use...a graph..., number line..., ruler..., diagram..., calculator..., manipulative? • Why was it helpful to use...? • What can using a _____ show us that _____may not? • In what situations might it be more informative or helpful to use...?

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Mathematics Practices		Narratives	Related Questions
Seeing structure and generalizing	**4.MP.7 Look for and make use of structure**	Mathematically proficient students use structure and patterns to assist in making connections among mathematical ideas or concepts when making sense of mathematics. Students recognize and apply general mathematical rules to complex situations. They are able to compose and decompose mathematical ideas and notations into familiar relationships. Mathematically proficient students manage their own progress, stepping back for an overview and shifting perspective when needed.	• What observations do you make about...? • What do you notice when...? • What parts of the problem might you eliminate..., simplify...? • What patterns do you find in...? • How do you know if something is a pattern? • What ideas that we have learned before were useful in solving this problem? • What are some other problems that are similar to this one? • How does this relate to...? • In what ways does this problem connect to other mathematical concepts?
	4.MP.8 Look for and express regularity in repeated reasoning	Mathematically proficient students look for and describe regularities as they solve multiple related problems. They formulate conjectures about what they notice and communicate observations with precision. While solving problems, students maintain oversight of the process and continually evaluate the reasonableness of their results. This informs and strengthens their understanding of the structure of mathematics which leads to fluency.	• Explain how this strategy works in other situations? • Is this always true, sometimes true or never true? • How would we prove that...? • What do you notice about...? • What is happening in this situation? • What would happen if...? • Is there a mathematical rule for...? • What predictions or generalizations can this pattern support? • What mathematical consistencies do you notice?

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