

Unit #1: Rational Number Operations

Overview:

Students will use number lines to observe and identify the relationship between integers. Students will learn and use the properties needed to perform the four main operations on integers. Students will learn and use properties of rational numbers to perform the four operations on all rational numbers.

Length of Unit: 6-7 weeks

Suggested Books/Resources:

Standards/Performance Expectations Assessed with Corresponding Level of Proficiency:

Proficient 7.NS.A.1
Proficient 7.NS.A.1a
Proficient 7.NS.A.1b
Proficient 7.NS.A.1c
Proficient 7.NS.A.1d
Proficient 7.NS.A.2
Developing 7.NS.A.2a
Proficient 7.NS.A.2b
Proficient 7.NS.A.2c
Proficient 7.NS.A.2d
Developing 7.NS.A.3
Introductory 8.NS.A.1

Knowledge Acquisition

Students will know...

- Integers and their opposites
- Rational number operations
- Absolute value to be distance on a number line

Students will be skilled at...

- Adding, subtracting, multiplying, and dividing integers
- Adding, subtracting, multiplying, and dividing rational numbers

Vertical Alignment

Prerequisite Knowledge/Skills/Standards

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Future Knowledge/Skills/Standards

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Unit #2: Analyze and Use Proportional Relationships

Overview:

Students will make connections between ratios, rates, and unit rates. Students will identify unit rates from positive rational number relationships. Students will learn the concept of proportionality and direct/indirect relationships, including graphically. Students will create and use graphs, tables, and lists to display/analyze proportional relationships.

Length of Unit: 4-5 weeks

Suggested Books/Resources:

Standards/Performance Expectations Assessed with Corresponding Level of Proficiency:

Proficient 6.RP.A.2
Proficient 6.RP.A.3
Proficient 6.RP.A.3a
Developing 6.RP.A.3d
Developing 7.RP.A.1
Developing 7.RP.A.2
Proficient 7.RP.A.2a
Proficient 7.RP.A.2b
Developing 7.RP.A.2c
Proficient 7.RP.A.2d
Introductory 8.EE.B.5

Knowledge Acquisition

Students will know...

- Ratios, rates, and unit rates
- Proportional Relationships
- Equivalent ratios

Students will be skilled at...

- Assess the proportionality of a relationship
- Determine unit rate/price
- Interpret tables of proportional relationships
- Use a known proportional relationship to create an ordered pair with only one known value
- Interpret graphs of proportional relationships ($y=kx$)
- Identify a constant of proportionality from a proportional relationship displayed in ordered pairs, on a graph, in a table, in a word problem.

Vertical Alignment

Prerequisite Knowledge/Skills/Standards

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Future Knowledge/Skills/Standards

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Unit #3: Analyze and Solve Percent Problems

Overview:

Students will know the concept of a percent as a relationship out of one hundred, including making the connection between proportion and percent, and understand that there are percents greater than one hundred and less than one. Students will use the percent equation and percent proportions to solve percent problems. Students will use knowledge of percent operations to analyze percent increase and decrease, percent error, markups, discounts, tax, tip, etc. Students will understand simple interest and use the simple interest formula to make calculations.

Length of Unit: 6-7 weeks

Suggested Books/Resources:

Standards/Performance Expectations Assessed with Corresponding Level of Proficiency:

Proficient 6.RP.A.3c

Proficient 7.RP.A.3

Knowledge Acquisition

Students will know...

- The concept of percents as a relationship of a number compared to 100
- Percent equation/proportion
- Markups, discounts, tax, tip, etc. as a net positive or negative change to an original value
- The concept of net positive and negative interest, interest rates, principal, and account balances.
- The simple interest formula

Students will be skilled at...

- Finding a percent of a number
- Using the percent equation/percent proportion to identify a missing variable of a percent relationship.
- Identify the value of a percent change(markups, discounts, etc.) and apply it in the appropriately positive or negative direction
- Identify the percent by which two numbers differ(increase and decrease)
- Identify the percent of error in calculations/predictions
- Use the simple interest formula to identify the accumulation of interest or other missing pieces of the simple interest formula(time, rate, principal)

Vertical Alignment

Prerequisite Knowledge/Skills/Standards

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Future Knowledge/Skills/Standards

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Unit #4: Generate Equivalent Expressions

Overview:

Students will write and evaluate algebraic expressions, with and without real-life context. Students will learn different methods to express algebraic expressions, including combining like terms, expanding expressions(distributive property), and adding and subtracting full expressions. Students will factor linear expressions and understand the relationship between expanding and factoring.

Length of Unit: 5-6 weeks

Suggested Books/Resources:

Standards/Performance Expectations Assessed with Corresponding Level of Proficiency:

Proficient 6.EE.A.2
Developing 6.EE.A.2b
Proficient 6.EE.A.3
Proficient 6.EE.A.4
Developing 7.EE.A.1
Proficient 7.EE.A.2

Knowledge Acquisition

Students will know...

- The terms: (like) term, expression, variable, constant
- The Distributive Property

Students will be skilled at...

- Use properties of operations to write and evaluate algebraic expressions
- Reorder and group like terms
- Generate equivalent expressions using properties of operations, including the Distributive Property
- Adding and subtracting linear expressions

Vertical Alignment

Prerequisite Knowledge/Skills/Standards

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Future Knowledge/Skills/Standards

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Unit #5: Solve Problems Using Equations and Inequalities

Overview:

Students will write and evaluate one and two-step linear equations and inequalities to solve for a missing variable.

Length of Unit: 5-6 weeks

Suggested Books/Resources:

Standards/Performance Expectations Assessed with Corresponding Level of Proficiency:

Proficient 6.EE.B.7
Proficient 6.EE.B.8
Developing 7.EE.B.4
Proficient 7.EE.B.4a
Proficient 7.EE.B.4b

Knowledge Acquisition

Students will know...

- How to use inverse operations to isolate a variable to determine its value or values.

Students will be skilled at...

- Using manipulatives/bar diagrams to model equations
- Writing 2-step equation and inequality models from word problems
- Solving for a variable in two-step equations and inequalities

Vertical Alignment

Prerequisite Knowledge/Skills/Standards

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Future Knowledge/Skills/Standards

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Unit #6: Use Samples to Draw Inferences About Populations

Overview:

Length of Unit: 2-3 weeks	Suggested Books/Resources:	
Standards/Performance Expectations Assessed with Corresponding Level of Proficiency: Proficient 6.SP.A.2 Developing 6.SP.A.3 Proficient 6.SP.B.5c Proficient 6.SP.B.5d Proficient 7.SP.A.1 Proficient 7.SP.A.2 Developing 7.SP.B.3 Developing 7.SP.B.4	Knowledge Acquisition	
	Students will know...	Students will be skilled at...
	• The difference between population and sample • What makes a sample random • How to take a sample from a population and ensure randomness	• Sampling a population • Making informal inferences from data • Use measures of central tendency(mean, median, mode, range) to define data and compare multiple sets of data
	Vertical Alignment	
	Prerequisite Knowledge/Skills/Standards	Future Knowledge/Skills/Standards
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Unit #7: Probability

Overview:

Students will look at simple and compound probability events and calculate the probability of certain events occurring.

Length of Unit: 2-3 weeks

Suggested Books/Resources:

Standards/Performance Expectations Assessed with Corresponding Level of Proficiency:

Proficient 7.SP.C.5
Proficient 7.SP.C.6
Developing 7.SP.C.7a
Introductory 7.SP.C.7b
Proficient 7.SP.C.8a
Developing 7.SP.C.8b
Proficient 7.SP.C.8c

Knowledge Acquisition

Students will know...

- The difference between theoretical and experimental probability
- The difference between simple and compound probability

Students will be skilled at...

- Calculating the probability of an event occurring from both simple and compound probability.
- Simulate compound probability and compare the theoretical results to the experimental results.

Vertical Alignment

Prerequisite Knowledge/Skills/Standards

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Future Knowledge/Skills/Standards

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Unit #8: Solve Problems Involving Geometry

Overview:

Students will analyze and draw scale drawings. Students will calculate the area and circumference of circles. Students will calculate the surface area and volume of prisms. Students will use geometric tools to draw figures, with an emphasis on triangles. Students will identify angle/side relationships of triangles, and use the relationships to find missing variables.

Length of Unit: 5-6 weeks

Suggested Books/Resources:

Standards/Performance Expectations Assessed with Corresponding Level of Proficiency:

Proficient 7.G.B.4
Proficient 7.G.B.5
Proficient 7.G.B.6
Proficient 7.G.A.1
Introductory 7.G.A.3

Knowledge Acquisition

Students will know...

- The following terms: scale, circumference, radius, surface area, volume
- The formulas for circumference and area of circles
- The relationship between angles and sides of triangles

Students will be skilled at...

- Creating scale drawings
- Using knowledge of angle and side relationships of triangles identify missing variables.
- Using rulers and protractors to draw triangles with given conditions
- Use various formulas to find the surface area and volume of three-dimensional figures

Vertical Alignment

Prerequisite Knowledge/Skills/Standards

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Future Knowledge/Skills/Standards

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