

Franklin Special School District
Grade 7 Mathematics
2021-2022

Course Syllabus

1st Quarter Standards/Objectives		
7.NS.A.1	The Number System	<ul style="list-style-type: none"> • Understand that the sum of a number and its opposite is zero in mathematical and real world situations. • Understand the relationship between addition and subtraction. • Represent $p + q$ as the number located a distance from p on a number line. • Subtract rational numbers by adding the additive inverse. • Use subtraction and absolute value to find the distance between two numbers on a number line. • Find the distance between two points on a coordinate plane that have either the same x- or y- value. • Add and subtract integers. • Represent addition and subtraction of integers on horizontal and/or vertical number lines. • Apply properties of operations to add and subtract integers. • Connect adding and subtracting positive and negative fractions to what students already know about adding and subtracting fractions and adding and subtracting integers. • Use a number line with easy fractions to connect to a distance model. • Add and subtract positive and negative proper fractions. • Add and subtract positive and negative improper fractions. • Add and subtract positive and negative mixed numbers.
7.NS.A.1a	The Number System	<ul style="list-style-type: none"> • Understand that the sum of a number and its opposite is zero in mathematical and real world situations.

Franklin Special School District
Grade 7 Mathematics
2021-2022

1st Quarter Standards/Objectives		
7.NS.A.1b	The Number System	<ul style="list-style-type: none">• Represent $p + q$ (rational numbers) as the number located a distance q from p on a number line.• Show that a number and its opposite has a sum of zero (additive inverses).• Interpret sums of numbers in real world situations.
7.NS.A.1c	The Number System	<ul style="list-style-type: none">• Subtract rational numbers by adding the additive inverse.• Find the distance between two points on a coordinate plane that have either the same x- or y- value.• Represent addition and subtraction of integers on a horizontal and/or vertical number lines.
7.NS.A.1d	The Number System	<ul style="list-style-type: none">• Add and subtract integers.• Add and subtract positive and negative proper fractions and decimals.

Franklin Special School District
Grade 7 Mathematics
2021-2022

1st Quarter Standards/Objectives		
7.NS.A.2	The Number System	<ul style="list-style-type: none"> • Develop rules for multiplying and dividing integers using patterns. • Identify equivalent numbers to show that $-\left(\frac{p}{q}\right) = \left(\frac{-p}{q}\right) = \left(\frac{p}{-q}\right)$ (using numbers, not variables). • Multiply and divide integers resulting in integer answers. • Convert a positive proper fraction to a terminating decimal. • Convert a positive improper fraction to a whole number decimal using long division. • Convert a positive proper fraction to a repeating decimal; use symbols for repeating decimals. • Convert positive proper and improper fractions to repeating and non-repeating decimals. • Connect multiplying and dividing positive and negative fractions to what students already know about multiplying and dividing fractions and multiplying and dividing integers. • Multiply and divide rational numbers, with a focus on positive and negative proper and improper fractions, but also including multiplying and dividing integers by fractions and fractions by integers. • Interpret products and quotients of rational numbers by describing real-world contexts.
7.NS.A.2a	The Number System	<ul style="list-style-type: none"> • Multiply integers resulting in integer answers. • Connect multiplying positive and negative fractions to what students already know about multiplying fractions and multiplying and dividing integers. • Multiply rational numbers, with a focus on positive and negative proper and improper fractions, but also including multiplying and dividing integers by fractions and fractions by integers.

Franklin Special School District
Grade 7 Mathematics
2021-2022

1st Quarter Standards/Objectives		
7.NS.A.2b	The Number System	<ul style="list-style-type: none"> Identify equivalent numbers to show that $-\left(\frac{p}{q}\right) = \left(\frac{-p}{q}\right) = \left(\frac{p}{-q}\right)$ (using numbers, not variables). Divide integers resulting in integer answers. Connect dividing positive and negative fractions to what students already know about multiplying and dividing fractions and multiplying and dividing integers. Divide rational numbers, with a focus on positive and negative proper and improper fractions, but also including multiplying and dividing integers by fractions and fractions by integers.
7.NS.A.2c	The Number System	<ul style="list-style-type: none"> Interpret products and quotients of rational numbers by describing real-world contexts.
7.NS.A.2d	The Number System	<ul style="list-style-type: none"> Convert a positive proper fraction to a terminating decimal. Convert a positive improper fraction to a whole number decimal using long division. Convert a positive proper fraction to a repeating decimal; use symbols for repeating decimals. Convert positive proper and improper fractions to repeating and non-repeating decimals.
7.NS.A.3	The Number System	<ul style="list-style-type: none"> Solve problems involving negative integers and complex fractions. Use whole-number approximations to estimate, and then compare the estimate to the actual result of computation. Connect previous one-step solving to solving equations with positive and negative fractions. Connect previous equation-solving to solving equations with positive and negative decimals.
7.EE.B.3	Expressions and Equations	<ul style="list-style-type: none"> Solve problems involving rational numbers. Convert among fractions, decimals, and percents as needed to solve the problems. Simplify expressions by applying distributive property using rational numbers.

**Franklin Special School District
Grade 7 Mathematics
2021-2022**

1st Quarter Standards/Objectives		
7.EE.B.3a	Expressions and Equations	<ul style="list-style-type: none"> • Solve problems involving rational numbers. • Convert among fraction, decimals, and percents as needed to solve the problems. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are integers, fractions, or decimals.
Topics covered: <ul style="list-style-type: none"> • Understand Addition of Positive and Negative Integers • Understand Subtraction of Positive and Negative Integers • Add and Subtract Positive and Negative Numbers • Multiply and Divide Positive and Negative Numbers • Terminating and Repeating Decimals • Multiply and Divide Rational 		Major assignments: <ol style="list-style-type: none"> 1) Add Subtract Rational Numbers Assessment 2) Multiply Divide Rational Numbers Assessment
Notes:		

**Franklin Special School District
Grade 7 Mathematics
2021-2022**

2nd Quarter Standards/Objectives:		
7.RP.A.1	Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Compute unit rates involving ratios with a fraction in the denominator. • Compute unit rates involving ratios with a fraction in the numerator. • Compute unit rates involving ratios with fractions in both the numerator and denominator.
7.RP.A.2	Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Determine whether two quantities are in a proportional relationship by looking at values in a table, a line in the coordinate plane, and an equation. (Use equivalent fraction relationships and multiplication/division to find proportional ratios.) • Identify the constant of proportionality (unit rate) in a table and when represented by an equation. • Given a situation, represent proportional relationships by equations.
7.RP.A.2a	Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Determine whether two quantities are in a proportional relationship by looking at values in a table, a line in the coordinate plane, and an equation. (Use equivalent fraction relationships and multiplication/division to find proportional ratios.) • Determine whether two quantities are in a proportional relationship by looking at values in a table, a line in the coordinate plane, and an equation. (Use equivalent fraction relationships and multiplication/division to find proportional ratios.)
7.RP.A.2b	Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Identify the constant of proportionality (unit rate) in a table and when represented by an equation.
7.RP.A.2c	Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Given a situation, represent proportional relationships by equations.

Franklin Special School District
Grade 7 Mathematics
2021-2022

2nd Quarter Standards/Objectives:		
7.RP.A.2d	Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Represent proportional relationships by equations. • Graph proportional equations representing real-world situations on a coordinate grid. • Explain what a given point (x,y) on the graph of the equation of a proportional relationship means in terms of a real-world situation.
7.RP.A.3	Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Set up and solve multi-step simple interest problems. • Set up and solve multi-step simple tax problems. • Set up and solve multi-step problems involving markups and markdowns. • Set up and solve multi-step problems involving gratuities, commissions, and fees. • Set up and solve multi-step problems involving percent increase and decrease. • Set up and solve multi-step problems involving percent error.
7.EE.A.2	Expressions and Equations	<ul style="list-style-type: none"> • Rewrite expressions in different forms to better understand relationships within contexts. For example, a 25% discount can be written as $P = 0.75$ or $P = C - 0.25C$.
7.G.A.1	Geometry	<ul style="list-style-type: none"> • Understand that a scale is a ratio. • Compute actual lengths from a scale drawing involving geometric figures. • Compute actual areas from a scale drawing involving geometric figures. • Reproduce a scale drawing using a different scale. • Determine the scale of a drawing given the ratios of lengths and areas in the drawing and the actual dimensions.

Franklin Special School District
Grade 7 Mathematics
2021-2022

2nd Quarter Standards/Objectives:		
7.SP.C.5	Statistics and Probability	<ul style="list-style-type: none"> • Understand that probability of a chance event is between 0 and 1, with 0 being impossible, close to zero being unlikely, close to $\frac{1}{2}$ being neither unlikely nor likely, near 1 being likely, and 1 being certain. • Represent the likelihood of an event on a number line. • Determine if the probability of an event is closer to 0 or to 1 for a given situation. • Determine if the event is impossible, unlikely, equally likely, very likely, or certain for a given event. • Connect probabilities of 0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and 1 to equivalent decimal and percent representations.
7.SP.C.6	Statistics and Probability	<ul style="list-style-type: none"> • Perform an experiment multiple times (pulling a colored marble out of a bag or rolling a number cube) to gather data for a number of outcomes and calculate the experimental probability. • Calculate the experimental probability of an event using the combined data of many groups then compare this probability to the individual probabilities. • Describe some reasons why the experimental groups might be different. • Describe the probability you would expect for 1,000 outcomes or 10,000 outcomes. (Begin to introduce the idea of theoretical probability informally) • Make a conjecture about the outcome of a similar experiment with different numbers (for example, 50 marble pulls with replacement for 3 green marbles, 6 blue marbles, and 3 blue marbles.) Students try their experiment and compare their predictions to the experimental outcomes to explore and refine conjectures about theoretical probability.

**Franklin Special School District
Grade 7 Mathematics
2021-2022**

2nd Quarter Standards/Objectives:		
7.SP.C.7	Statistics and Probability	<ul style="list-style-type: none"> • Find theoretical probabilities using real-world situations. • Develop a uniform probability model and use the model to determine the probability of events. • Develop a probability model and use the model to determine probabilities of events. • Compare the predicted probabilities to experimental results and explain possible discrepancies.
7.SP.C.7a	Statistics and Probability	<ul style="list-style-type: none"> • Develop a probability model and use the model to determine probabilities of events.
7.SP.C.7b	Statistics and Probability	<ul style="list-style-type: none"> • Develop a uniform probability model and use the model to determine the probability of events. • Compare the predicted probabilities to experimental results and explain possible discrepancies.
Topics covered: <ul style="list-style-type: none"> • Scale Drawings • Ratios Involving Complex Fractions • Understand Proportional Relationships • Equations for Proportional Relationships • Problem Solving with Proportional Relationships • Proportional Relationships • Writing Linear Expressions • Understand Probability Concepts • Experimental Probability • Probability Models 		Major assignments: <ol style="list-style-type: none"> 1) Unit rates, Complex Fractions, and Scale Drawings 2) Proportional Relationships (not percents) Percents

**Franklin Special School District
Grade 7 Mathematics
2021-2022**

2nd Quarter Standards/Objectives:

Notes:

3rd Quarter Standards/Objectives:

7.EE.A.1	Expressions and Equations	<ul style="list-style-type: none">• Add and subtract linear expressions with fractional and decimal coefficients by combining like terms.• Simplify expressions that include the distributive property, multiple variable terms, and negative numbers.• Apply properties of simplifying expressions to contexts such as perimeters and areas of triangles and rectangles.• Determine whether two expressions are equivalent.• Write equivalent expressions for linear expressions.
7.EE.B.3	Expressions and Equations	<ul style="list-style-type: none">• Solve problems involving rational numbers.• Convert among fractions, decimals, and percents as needed to solve the problems.• Simplify expression by applying the distributive property using rational numbers.

Franklin Special School District
Grade 7 Mathematics
2021-2022

3rd Quarter Standards/Objectives:		
7.EE.B.3a	Expressions and Equations	<ul style="list-style-type: none"> • Solve problems involving rational numbers. • Convert among fractions, decimals, and percents as needed to solve the problems. • Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are integers, fractions, or decimals. • Apply the distributive property using rational numbers.
7.EE.B.3b	Expressions and Equations	<ul style="list-style-type: none"> • Determine the reasonableness of answers and estimations.
7.EE.B.4	Expressions and Equations	<ul style="list-style-type: none"> • Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are integers, fractions, or decimals. • Solve using estimates for the fractions and decimals first to get an estimated solution. • Compare and interpret the solution set of an equation. • Write and solve real-life inequalities that lead to the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are integers, fractions, or decimals. • Graph and interpret the solution set of an equation.
7.EE.B.4a	Expressions and Equations	<ul style="list-style-type: none"> • Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are integers, fractions, or decimals. • Graph and interpret the solution set of an equation. • Graph and interpret the solution set of an inequality.
7.EE.B.4b	Expressions and Equations	<ul style="list-style-type: none"> • Solve word problems leading to inequalities of the form $px + q = r$ and • $p(x + q) = r$, where p, q and r are integers, fractions, or decimals • Graph and interpret the solution set of an inequality.

Franklin Special School District
Grade 7 Mathematics
2021-2022

3rd Quarter Standards/Objectives:		
7.GB.4	Geometry	<ul style="list-style-type: none"> • Write equations to find unknown angle measures using properties of supplementary and complementary angles. • Write equations to find unknown angle measures using properties of vertical angles. • Write equations to find unknown angle measures using properties of adjacent angles. • Write equations to find unknown angles in more complex figures combining supplementary, complementary, vertical, and adjacent angles.
Topics covered: <ul style="list-style-type: none"> • Equivalent Linear Expressions • Solve Problems with Equations • Solve Problems with Inequalities • Problem Solving with Angles 		Major assignments: <ol style="list-style-type: none"> 1) Equivalent Expressions 2) Two-Step Equations and Inequalities 3) Multi-Step Equations
Notes:		

4th Quarter Standards/Objectives:		
7.G.A.2	Geometry	<ul style="list-style-type: none"> • Construct triangles given angle measure, side lengths, or congruence. • Determine whether or not it is possible to draw a triangle with given characteristics. If so, draw the triangle. If not, explain why it is not possible. • Determine whether a triangle is unique, if you can draw more than one variety of that triangle, or in no such triangle exists. • Draw a quadrilateral when give a description of side lengths and angle measures.

Franklin Special School District
Grade 7 Mathematics
2021-2022

4th Quarter Standards/Objectives:		
7.G.B.3	Geometry	<ul style="list-style-type: none"> • Understand the relationship between the radius and the diameter of a circle. • Understand that the ration of the circumference of a circle to its diameter can be expressed as pi. • Discover an expression for the area of a circle using the area of a parallelogram. • Solve real-world problems involving the circumference of a circle and the area of a circle.
7.G.B.5	Geometry	<ul style="list-style-type: none"> • Find the areas of two-dimensional objects composed of triangles, quadrilaterals, and polygons. • Apply formulas to solve real-world and mathematical problems. • Find the volumes of cubes and right prisms by multiplying the area of the base by the height. (Focus on $V = Bh$, not $l \times w \times h$.) • Find the volume of cubes and right prisms in real-world situations. • Use two-dimensional formulas to calculate surface areas of cubes and right prisms.
7.SP.A.1	Statistics and Probability	<ul style="list-style-type: none"> • Understand that a representative sample can be used to make predictions about large populations. • Describe different ways of finding a sample and determine which sample is the most representative of a given population. • Create a representative sample and use it to make predictions about a population.
7.SP.A.2	Statistics and Probability	<ul style="list-style-type: none"> • Use data from two samples to write ratios that can be easily used to make an estimate about a population. • Compare estimates made from multiple samples of the same size to gauge the variation in the estimates. • Predict the accuracy of the estimates made by various samples.
7.SP.B.3	Statistics and Probability	<ul style="list-style-type: none"> • Use visual representations, such as dot plots, to compare two real-world numerical sets with similar differing variabilities.

**Franklin Special School District
Grade 7 Mathematics
2021-2022**

4th Quarter Standards/Objectives:		
		<ul style="list-style-type: none"> • Compare data sets and measure the difference between the centers. • Represent the difference between centers of data sets by using the mean. • Describe the variation in data sets.
7.SP.B.4	Statistics and Probability	<ul style="list-style-type: none"> • Use data gathered from two populations to compare the mean, median, and mode. • Describe which measure of center is the best to represent data. • Use data gathered from two populations to compare the measures of variability including range and interquartile range.
7.SP.D.8	Statistics and Probability	<ul style="list-style-type: none"> • Describe data using the mean and median. • Examine the effect of an outlier on the mean and median of a set of data. • Analyze a set of data using the interquartile range. • Solve problems using measures of center and variability.
7.SP.D.8a	Statistics and Probability	<ul style="list-style-type: none"> • Describe data using the mean and median. • Examine the effect of an outlier on the mean and median of a set of data. • Find and compare measures of center (mean/median) and measures of variability (range, interquartile range) between two or more groups of data.
7.SP.D.8b	Statistics and Probability	<ul style="list-style-type: none"> • Analyze a set of data using the interquartile range. • Solve problems using measures of center and variability.

**Franklin Special School District
Grade 7 Mathematics
2021-2022**

4th Quarter Standards/Objectives:

Topics covered:

- Understanding Conditions for Drawing Triangles
- Area and Circumference of a Circle
- Area of Composed Figures
- Volume of Solids
- Surface Area of Solids
- Understand Random Samples
- Making Statistical Inferences
- Find Measure of Center and Variability
- Summarize Data Sets

Major assignments:

- 1) Area and Circumference of Circles
- 2) Area of Composite Figures
- 3) Volume and Surface Area
- 4) Volume and Surface Area of Composed Figures

Notes:

Procedures for Parental Access for Instructional Materials:

- 1) Many instructional materials can be accessed digitally via the FSSD website (fssd.org) using your student's unique username and password.
 - a. Student Resources : FSSD website > Parents & Students > Parent Information > Online Resources > Student
 - b. Parent Resources: FSSD website > Parents & Students > Parent Information > Online Resources > Parent
- 2) If additional information is needed regarding instructional materials, a written request may be submitted to your child's teacher. Instructional material review is included in Board Policy 4.400.