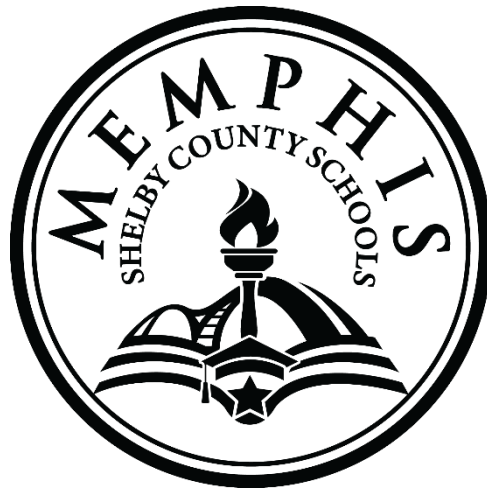


SUMMER SCHOOL TEACHER GUIDE



Math/7th Grade

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Summer School Curriculum Guide

The Elementary and Middle Summer School Program will be for 20 days. Students will have a total of 18 daily lessons and day 19 and 20 will be for reviewing lessons/quizzes and post-test.

- Eighteen (18) days of daily lessons
- One (1) day post-test review and post-test
- One (1) day of reviewing lessons, retake daily post-tests, and makeup missed lessons.

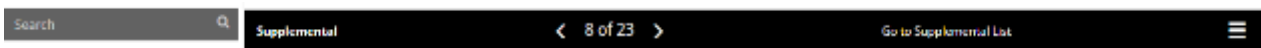
All students and staff will use Grade Results for their summer curriculum. Each lesson will open daily, and students will not be able to work ahead; however, students can work on previously opened lessons. Students can retake a daily post-test 3 times before it locks. If a student needs to retake a daily lesson post-test for a 4th time, then the teacher will have to open the lesson post-test again. Teachers should not delete any prior lesson post-test. Grade Results will post the highest grade from each students' lesson post-test.

Classroom Schedule – Time below is an approximate breakdown of time.

- **Attendance in PowerSchool** – 5 minutes
- **Lesson Introduction (I Do)** – 5 minutes
- **Lesson Activities (We Do)** – 20 minutes
- **Supplemental** – 20 minutes (*BrainPOP, Flocabulary, Nearpod, Learn360, Others, etc.*)
- **Break – 10 Minutes** (*Site Administrator will work with teachers on breaks*)
- **Foundational or Practice Skills** – 30 minutes (Students will breakout for small group instruction.)
- **Teacher Lesson Review** – 5 minutes
- **Independent Work** – Student Lesson Review*/Post-Test (They Do) – 30 minutes
- **Closing/Wrap Up**– 5 minutes
- **Total Time: 2 hours 10 minutes**

***Lesson Review** – Students will review lessons for essential knowledge/information prior to the daily test. The following will be used within **Grade Results**:

- **Lessons** with Content Area, Videos, and Activities
- **Supplemental** Teacher Resources:
 - Click on Supplemental
 - Click on Resource to view (Example: Flocabulary, BrainPOP, Others)
 - The teacher will review with the students the items that need to be completed.
 - Teachers can select additional Supplemental Resources as needed if time permits.
 - To view another resource once you are in a resource, use the Toggle Sidebar in the top right-hand corner. It has three dashes. An example is listed below.



Post-Test – Each lesson will have a daily post-test.

Graded Work – The Post-Test will be the daily graded work. Graded work is automatically calculated by the Grade Results Software.

Anchor Charts – Some subjects may have Anchor Charts available with their lesson.

When there are two lessons, make sure you complete all components of Lesson A before transitioning to Lesson B. Times are estimated.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 1

Topic/Lesson Title & Grade Results #: Rate & Ratio: Lesson 1

Objective(s): Students will be able to do the following:

- Compute a unit rate, involving quantities measured in like or different units.
- Compute a unit rate by converting the units from one to another.

Guiding Question(s):

1. How do you compute unit rates?
2. How do you convert units?

TN Curriculum Standard(s): 7. RP.A.1

Compute unit rates are associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMs meeting (if applicable)

Key Vocabulary/Terms:

Rate: Comparison of two quantities with different units of measure.

Ratio: A comparison of two quantities.

Unit rate: Says how many units of the first quantity correspond to one unit of the second quantity.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Please make sure you go over classroom expectations, procedures, and rules. Also, introduce yourself and allow students to introduce themselves. The teacher will introduce the vocabulary. Then discuss the objective and guiding questions. Review ratios and an example. Use the slide with apples.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes)

Both Teacher and Student will work together reviewing examples and solving problems in the following activities and lessons in Grade Results, slides 1-15.

- Slide 1 student will state the objective.
- Slide 2 the teacher will read the Introduction
- Slide 3 the teacher will review Ratio
- Slide 4 the student will complete Activity - Ratio
- Slide 5 the teacher will review Rate
- Slide 6 the teacher will review Rate
- Slide 7 the student will complete Activity - Unit Rate

- Slide 8 the teacher will review how Finding Unit Rate
- Slide 9 the student and teacher will complete Finding Unit Rate
- Slide 10 the student will complete Finding Unit Rate
- Slide 11 the student will view Video - Finding Unit Rate
- Slide 12 the student will complete Finding Unit Rate
- Slide 13 the student will complete Activity - Finding Unit Rate
- Slide 14 the student will complete Drag and Drop Activity
- Slide 15 the student will complete Drag and Drop Activity

Break – 10 Minutes

Supplemental: Video 1: Math’scool (20 minutes)

In this Math’scool video, students write ratios as fractions in simplest form, determine unit rates, and use proportional reasoning and ratios to represent problem situations.

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 16 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 2

Topic/Lesson Title & Grade Results #: Lesson 2: Proportionality of Functions

Objective(s): Lesson A: Students will be able to do the following:

- Determine whether two quantities are in a proportional relationship by testing for equivalent ratios in a table.
- Determine whether two quantities are in a proportional relationship by graphing on a coordinate plane.

Lesson B: Objectives

At the end of the lesson, the student will be able to do the following:

- Define the constant of proportionality.
- Identify the constant of proportionality using tables, graphs, and equations.

Guiding Question(s):

1. What is the constant of proportionality?
2. How do I know if two quantities are in a proportional relationship?
3. How do you identify the unit rate in tables and graphs?

TN Curriculum Standard(s): 7. RP.A.2. a, 2.b

Recognize and represent proportional relationships between quantities.

- a. Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin).
- b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Discuss the meaning of each word.

- **Direct Variation:** When two variables are related in such a way that the ratio of their values always remains the same.
- **Equivalent Ratio:** A ratio used to describe how two or more quantities are related.
- **Proportion:** An equation showing that two ratios are equal.
- **Ratio:** A comparison of two quantities.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Review Virtual School Expectations. Discuss the objectives, the vocabulary, and the guiding questions. This lesson will highlight how to understand if the increase or decrease in one quantity makes the

other quantity increase or decrease proportionately. We examine tables that illustrate direct variation during the lesson. (Complete all items for Lesson A then transition to Lesson B)

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

Lesson A

- Slide 1 the student will state Objectives.
 - Slide 2 the teacher read Introduction
 - Slide 3 the teacher will review Proportional Relationship
 - Slide 4 the teacher will review Identifying Two Quantities are in a Proportional Relationship
 - Slide 5 the teacher will review Using Equivalent Ratios in a Table
 - Slide 6 the teacher will review Determine Proportional Relationship using Equivalent Ratios in a Table
 - Slide 7 the teacher and student will review Determine Proportional Relationship using Equivalent Ratios in a Table
 - Slide 8 the student will complete Activity - Proportional Relationships
 - Slide 9 the teacher will review Graphing Proportional Relationship on a Coordinate Plane
 - Slide 10 the student will complete the Activity - Graphing Proportional Relationship
 - Slide 11 the teacher will review Determine Proportional Relationship using Graph on a Coordinate Plane
 - Slide 12 the teacher and student will complete Determine Proportional Relationship using Graph on a Coordinate Plane
 - Slide 13 the student will complete Determine Proportional Relationship using Graph on a Coordinate Plane
 - Slide 14 the student will complete Activity 1
 - Slide 15 the student will complete Activity 2
 - Slide 16 the student will complete Activity 3
-
- Lesson B:
 - Slide 1 the student will state Objectives
 - Slide 2 the teacher will read Introduction
 - Slide 3 the teacher will review Ratio
 - Slide 4 the teacher will review Equivalent Ratios (or) Equal Ratios
 - Slide 5 the teacher will review Finding Equal Ratios
 - Slide 6 the students will complete Activity - Finding Equal Ratios
 - Slide 7 the teacher will review Proportions
 - Slide 8 the teacher will review Constant of Proportionality
 - Slide 9 the teacher will review Identifying Constant of Proportionality
 - Slide 10 the teacher will review Constant of Proportionality in Tables
 - Slide 11 the teacher and student will complete Constant of Proportionality in Tables
 - Slide 12 the student will complete Constant of proportionality in Tables.

Break – 10 Minutes

Supplemental: (20 Minutes)

Lesson A: Flocabulary Video: Proportional Relationship (3 mins) and Linear Equations (3 mins.)

In this video, we follow a math-savvy clown as he discovers that the relationship between the hours he works and the money he earns is proportional. Students learn to recognize and represent proportional relationships in tables by graphing

ordered pairs on the coordinate plane, and to determine the constant of proportionality. They also learn to write equations in the form $y = kx$ to represent proportional relationships. After the video, complete the vocab cards and vocab game.

Supplemental: Lesson B: Linear Equations Video: In this video, a line teaches students about the properties of lines and linear equations. The song describes various properties of lines. They do not curve and only cross the x-axis and y-axis once each. The song also explains linear equations, x-intercept and y-intercept, slope, and how to find the slope-intercept form of a linear equation. After the video, complete the Lyric Lab.

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 16 & 20 (Lesson B) Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 3

Topic/Lesson Title & Grade Results #: Lesson 3: Representation of Proportional Relationships by Equations

Objective(s): Students will be able to do the following:

- Decide whether two quantities are in a proportional relationship.
- Identify the constant of proportionality.
- Represent proportional relationships by equations.
- Solve problems on the graph of a proportional relationship.

Guiding Question(s): What is the constant of proportionality? How do you represent proportional relationships with equations? How do you solve problems on a graph that displays a proportional relationship?

TN Curriculum Standard(s): 7. RP.A.2. c. Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms:

Constant of proportionality: The constant value of the ratio of two proportional quantities x and y ; usually written $y = kx$, where k is the factor of proportionality.

Directly Proportional Relationships: For linear equations, those with the form, $y = kx$, where y and x are variables are said to be directly proportional to one another.

Proportional Relationships: A proportional relationship between two quantities is one in which the two quantities vary directly with one and other.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (20 minutes) This lessons the teacher will discuss if the two quantities share a proportional relationship. Recall the definitions on page 2. Explain examples on pages 2 and 3. Guide students through completing activity 1 (true & false activity). Review expectations, procedures, and rules. Discuss objectives, guiding questions and vocabulary words.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes)

Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides

- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Proportional Relationship
- Slide 4 the student will complete True or False Activity
- Slide 5 the teacher will review Proportional Relationship - Example
- Slide 6 the teacher and student will complete Proportional Relationship - Example (contd...)
- Slide 7 the teacher will review Identifying the Constant of Proportionality
- Slide 8 the teacher will review Constant of Proportionality - Example
- Slide 9 the teacher and student will review Constant of Proportionality - Example
- Slide 10 the student will complete Multiple Choice Activity
- Slide 11 the teacher and student will review Identifying Constant of Proportionality in Graphs
- Slide 12 the teacher and student will review identifying Constant of Proportionality in Diagrams
- Slide 13 the teacher will review Verbal Descriptions of Proportional Relationships
- Slide 14 the teacher will review Representing Proportional Relationships by Equations
- Slide 15 the teacher and student will complete Representing Proportional Relationships by Equations -
- Slide 16 the student will complete Drag and Drop Activity
- Slide 17 the teacher will review Identifying Constant of Proportionality Using Graphs
- Slide 18 the student and teacher Constant of Proportionality Using Graphs - Example
- Slide 19 the student will complete Did You Know Activity
- Slide 20 the student will complete Drop and Drag Activity

Break – 10 Minutes

Supplemental: (20 mins.) Video 1: Proportion Application (4 mins.), Video 2 Proportional Relationships (3 mins.)

In this video, we follow a math-savvy clown as he discovers that the relationship between the hours he works and the money he earns is proportional. Students learn to recognize and represent proportional relationships in tables and by graphing ordered pairs on the coordinate plane, and to determine the constant of proportionality. They also learn to write equations in the form $y = kx$ to represent proportional relationships.

If time allows, have students complete the following exercises.

Vocab Cards and Vocab Game.

Additional Teacher Resources: None

Lesson Review: Slide 21 (5 mins) Summarize the lesson with Grade Results.

Independent Work – Posttest (They Do): Complete Posttest (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: 7th/ Math

Day: 4

Topic/Lesson Title & Grade Results #: Lesson 4: Proportional Relationship and Rates

Objective(s): Students will be able to do the following:

- Determine whether the graph of a proportional relation passes through the origin (0, 0).
- Determine the unit rate using the origin (0, 0) and the point (1, r).
- Describe other values of the proportion using unit rates.

Guiding Question(s):

- 1) Does the graph of a proportional relation pass through the origin?
- 2) How do you determine the unit rate using the origin and the point (1, r)?

TN Curriculum Standard(s): 7. RP.A.2. d

Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, r) where r is the unit rate.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMs meeting (if applicable)

Key Vocabulary/Terms:

- **Direct Variation:** When two variables are related in such a way that the ratio of their values always remains the same.
- **Equivalent ratios:** Two ratios with the same value after simplifying.
- **Proportion:** An equation showing that two ratios are equal.
- **Ratio:** A comparison of two quantities.
- **Unit rate:** Says how many units of the first quantity correspond to one unit of the second quantity.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do) (15 minutes) Review expectations, procedures, and rules. Discuss objectives, guiding questions, and vocabulary words.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 mins.) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides

- Slide 1 the student will state the Objectives.
- Slide 2 the teacher will review Ratio
- Slide 3 the teacher will review Proportion
- Slide 4 the student will complete Activity - Proportion
- Slide 5 the teacher will review Proportional Relationship
- Slide 6 the teacher will review Graphing Proportional Relationships
- Slide 7 the teacher and student Graphing Proportional Relationships
- Slide 8 the student will complete Graphing Proportional Relationships

- Slide 9 the student will complete Activity - Proportional Relationship
- Slide 10 the teacher will review Determine the other Points using $(1, r)$ where r is the Unit Rate
- Slide 11 the Finding Unit Rate from the Graph
- Slide 12 the teacher and student will complete Finding Unit Rate from the Graph - Example
- Slide 13 the student will complete Finding Unit Rate from the Graph - Example
- Slide 14 the student will complete Drop and Drag Activity

Break – 10 Minutes

Supplemental: (20 mins.) Video 1: Flocabulary: Rates (3 ½ mins.), Vocab Cards, Vocab Game, Read & Lyric Lab, Lesson 7.4 Worksheet

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 15 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 mins.) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 5

Topic/Lesson Title & Grade Results #: Lesson 5: Ratio and Percent

Objective(s): Students will be able to do the following:

- Convert fractions to percents and vice versa.
- Solve verbal problems involving proportional relationships.
- Find the markup rate and discount rate.
- Solve problems based on tip, percent of increase, percent of decrease, percent of error, simple interest, compound interest, sales tax.

Guiding Question(s):

1. How would you express a ratio in percent form?
2. How do you convert fractions to percents and percents to fractions?
3. How do you find the discount rate or markup rate?
4. What are the steps for finding percent of increase and percent of decrease?
5. How do you compute sales tax?

TN Curriculum Standard(s): 7. RP.A.3. Use proportional relationships to solve multi-step ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms:

- **Compound Interest:** A method of computing interest on both the principal and the accrued interest.
- **Decimal:** A number in base-ten number system.
- **Discount:** A deduction from the usual cost of something.
- **Fraction:** The part of whole, which is represented by, where p and q are integers, and $q \neq 0$.
- **Interest:** The cost of the loan for the use of the money.
- **List Price:** The selling price of something as stated in a catalogue or price list, often subject to discounts.
- **Markdown:** The amount deducted from the cost of a good or service to give a discount.
- **Markup:** The amount added to the cost of a good or service to increase its selling price.
- **Percent of decrease:** Percent of decrease of a value measure how the value changes (decreases) as a percentage of its original value.
- **Percent of increase:** Percent of increase of a value measure how the value changes (increases) as a percentage of its original value.
- **Percentage:** Parts per hundred.

- **Sale Price:** The amount for which a good or service is sold.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 mins.) Review expectations, procedures, and rules. Discuss objectives, guiding questions and vocabulary words. This lesson will discuss how to convert percentages to decimals and fractions as well as fractions to percentages and decimals.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 mins.) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides

- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Ratio
- Slide 3 the teacher will review Proportion
- Slide 4 the student will complete Activity - Proportion
- Slide 5 the teacher will review Proportional Relationship
- Slide 6 the teacher will review Graphing Proportional Relationships
- Slide 7 the teacher will review Graphing Proportional Relationships
- Slide 8 the teacher and students will review Graphing Proportional Relationships
- Slide 9 the student will complete Activity - Proportional Relationship
- Slide 10 the teacher will review Determine the other Points using $(1, r)$ where r is the Unit Rate
- Slide 11 the teacher will review Finding Unit Rate from the Graph
- Slide 12 the teacher and student will review Finding Unit Rate from the Graph - Example
- Slide 13 the student will complete Finding Unit Rate from the Graph - Example (contd...)
- Slide 14 the student will complete Drop and Drag Activity

Break – 10 Minutes

Supplemental: Math'scool Video 1: (20 minutes) (Percent)

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 15 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 mins.) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 6

**Topic/Lesson Title & Grade Results #: Number Sense/ Lesson 6: Lesson A: Situations in Which Opposite Make Zero
Lesson B: Addition, Subtraction, and Absolute Value of Rational Numbers**

Objective(s): Students will be able to do the following:

Lesson A:

- Describe opposite numbers.
- Explain real-life situations in which opposite quantities combine to make 0.

Lesson B

At the end of the lesson, the student will be able to do the following:

- Locate " $p + q$ " at a distance " q " units from " p " in the positive direction if " q " is positive.
- Locate " $p + q$ " at a distance " q " units from " p " in the negative direction if " q " is negative.
- Show that the sum of a number and its opposite is zero.
- Interpret sums of rational numbers by describing real-world contexts.
- Define that subtraction of rational numbers is the sum of a rational number and its additive inverse.
- Show that the distance between two rational numbers on the number line is the absolute value of their difference.
- Apply the distance between rational numbers in real-world contexts.

Guiding Question(s):

1. **What are opposite numbers?**
2. **How can we explain real-life situations in which opposite quantities combine to make zero?**
3. **How do you add integers?**
4. **How do subtract integers?**
5. **How do you add and subtract rational numbers?**

TN Curriculum Standard(s): 7. NS.A.1. a, b, c Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. b. Understand $p + q$ as the number located a distance $|q|$ from p , in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference and apply this principle in real-world contexts.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Additive Inverse, Integers, Negative Numbers, Number Line, Opposite of a Number, Positive Numbers, Zero

Additive Inverse: The number that you add to a given number to get zero. The additive inverse is also called the opposite of a number.

Integers: The set of positive whole numbers {1, 2, 3, ...}, negative whole numbers {-1, -2, -3, ...}, and zero.

Negative Numbers: Numbers which are less than zero. The negative numbers are always written to the left of zero on a number line and the negative numbers are always written with a negative sign.

Number Line: An infinite line that represents ordered real numbers marked at regular intervals.

Opposite of a Number: A number and the opposite of a number are the same distance away from 0 on either side of a number line. Therefore, a number and its opposite have the same absolute value.

Positive Numbers: Numbers which are greater than zero. The positive numbers are always written to the right of zero on the number line and the positive numbers may be written with or without a positive sign.

Zero: A whole number between -1 and 1.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (5 mins.) Review expectations, procedures, and rules. Discuss objectives, guiding questions, and vocabulary. In this lesson, students will become familiar with opposite numbers, real numbers, integers, and absolute value as well as learn how to add and subtract integers.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 mins.) Both Teacher and Student will work together reviewing examples and solving problems in the following activities and lessons in Grade Results

Part A:

- Slide 1 the student will state Objectives.
 - Slide 2 the teacher will review Introduction
 - Slide 3 the teacher Opposite of Numbers
 - Slide 4 the student will complete Activity - Find the Opposite Number
 - Slide 5 Students will view Video - Opposite Quantities
 - Slide 6 the teacher will review Example - Finding Opposite Quantities
 - Slide 7 the teacher and student Example - Finding Opposite Quantities
 - Slide 8 the student will complete Activity - Opposite Quantities
 - Slide 9 the teacher will review Example - Opposite Quantities in Real Life
 - Slide 10 the teacher and student will review Example - Opposite Quantities in Real Life
 - Slide 11 the student will complete Drag and Drop Activity
 - Slide 12 the student will complete Drag and Drop Activity
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- Part B:
 - Slide 1 the student will state Objectives.
 - Slide 2 the teacher will read Introduction
 - Slide 3 the teacher will review Number Line
 - Slide 4 the teacher will review Positive and Negative Numbers
 - Slide 5 the teacher will review Opposites
 - Slide 6 the teachers will review Opposite Numbers (or) Additive Inverse
 - Slide 7 the student will complete Activity - Opposite Numbers
 - Slide 8 the teacher will complete Absolute Value of a Rational Number
 - Slide 9 the student will complete Activity - Absolute Value of a Rational Number
 - Slide 10 the teacher and student will complete Representation of Additive Inverse on a Number Line
 - Slide 11 the student will complete Activity - Finding Additive Inverse
 - Slide 12 the teacher will review Finding Additive Inverse of Rational Numbers on Number Line
 - Slide 13 the teacher will Add Positive and Negative Numbers on the Number Line

- Slide 14 the student will complete Add Positive and Negative Numbers on the Number Line
- Slide 15 the teacher will review Addition of Rational Numbers with the Same Sign
- Slide 16 the teacher will review Addition of Rational Numbers with Different Signs
- Slide 17 the student will complete Activity - Addition of Rational Numbers with Same Sign
- Slide 18 the student will Activity - Addition of Rational Numbers with Different Sign
- Slide 19 the teacher will review Subtraction of Rational Numbers
- Slide 20 the teacher will review Activity - Verbal Problems on Rational Numbers
- Slide 21 the teacher will review Finding Distance between Two Rational Numbers
- Slide 22 the teacher will review Finding Distance between Positive and Negative Rational Numbers
- Slide 23 the teacher will review Finding Distance Between Two Negative Rational Numbers
- Slide 24 the teacher will review Finding Distance Between Two Positive Rational Numbers
- Slide 25 the student will complete Real Life Examples
- Slide 26 the student will complete Real Life Examples

Break – 10 Minutes

Supplemental: (20 mins.) Math'Scool Video 1: 24 mins., Video 2: Flocabulary: The Number Line (3 mins.), Video 3: Flocabulary: Adding Integers

Additional Teacher Resources: None

Lesson Review: Slide 13 & 31 (Lesson B) (5 mins.) Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 mins.) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 7

Topic/Lesson Title & Grade Results #: The Number System/ Lesson 7: Adding and Subtracting Rational Numbers

Objective(s): Students will be able to do the following:

- Apply properties of operations to add and subtract rational numbers.
- Solve real life application problems involving addition and subtraction of rational numbers.

Guiding Question(s):

1. How do you add and subtract rational numbers?
2. How do I find the greatest common factor?
3. How do I reduce fractions to the lowest terms?
4. What are the four properties of operation that can be applied to rational numbers?

TN Curriculum Standard(s): 7. NS.A.1. d

d. Apply properties of operations as strategies to add and subtract rational numbers.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Integers, Rational Numbers, Number Line

Integers: The set of whole numbers and their opposites {...-3, -2, -1, 0, 1, 2, 3...}.

Rational Numbers: The set of numbers that can be written in the form of $\frac{a}{b}$, where a and b are integers and $b \neq 0$.

Number Line: A number line is a picture of a straight line on which every point is assumed to correspond to a real number and every real number to a point.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions, and vocabulary. This lesson describes rational numbers and how to apply the properties to add and subtract rational numbers. In addition, it shows the application of rational numbers in different real-life situations. Students will learn how to find the greatest common factor and reduce fractions to the lowest terms.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Applications of Rational Numbers
- Slide 4 the students will complete Activity - Rational Numbers
- Slide 5 the teacher will review Operations on Rational Numbers
- Slide 6 the student will complete Activity - Operations on Rational Numbers

- Slide 7 the teacher will review Addition of Rational Numbers
- Slide 8 the student will complete Addition of Rational Numbers
- Slide 9 the teacher will review Properties of Operations
- Slide 10 the teacher and student will review Commutative Property of Addition
- Slide 11 the student will complete Commutative Property of Addition
- Slide 12 the teacher will review Associative Property of Addition
- Slide 13 the teacher and student will review Associative Property of Addition
- Slide 14 the teacher will review Additive Identity of Rational Numbers
- Slide 15 the teacher will review Additive Inverse of Rational Numbers
- Slide 16 the teacher will review Subtraction of Rational Numbers
- Slide 17 the teacher will review Commutative Property of Subtraction
- Slide 18 the teacher will review Associative Property of Subtraction
- Slide 19 the teacher will review Real World Applications on Rational Numbers
- Slide 20 the teacher and student will review Real World Applications on Rational Numbers
- Slide 21 the student will Activity - Properties of Operations
- Slide 22 the student will complete Drop and Drag Activity

Break – 10 Minutes

Supplemental: Video: (20 mins.) Adding and Subtracting Fractions (6:43 mins.), Adding and Subtracting Decimals (5:26 mins.), Adding Decimals (2:36 mins.)

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 23 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 8

Topic/Lesson Title & Grade Results #: The Number System/Lesson 8: Multiplication of Fractions & Signed Numbers

Objective(s): Students will be able to do the following:

- Multiply rational numbers.
- Multiply signed rational numbers.
- Interpret real life problems based on multiplication of rational numbers.

Guiding Question(s):

1. How do you multiply rational numbers?
2. How do you multiply signed rational numbers?
3. How do you divide fractions?
4. How do you solve real world word problems involving rational numbers?

TN Curriculum Standard(s): 7. NS.A.2. a

Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: An Operation, Fraction, Multiplication, Rational Number, Signed Number

An operation: A rule according to which two (or more) numbers (or variables) are combined to form another number (or variable). The numbers or variables need not be different.

Fraction: A part of a whole.

Multiplication: The process of adding a number to itself a certain number of times, repeated addition.

Rational number: Any number that can be expressed as the quotient of two integers (the denominator cannot be zero). The rational number includes the integers, all fractions, and terminating or repeating decimals.

Signed Number: A number preceded by a plus sign (+) to indicate a positive quantity or by a minus sign (-) to indicate a negative quantity.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (5 minutes) Review expectations. Discuss objectives, guiding questions and vocabulary. In this lesson, students will learn the difference between fractions and rational numbers. In addition, students will learn the rules for multiplying and dividing positive and negative numbers.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 mins.) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides

- Slide 1 Objectives
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Signed Numbers
- Slide 4. Activity - Signed Numbers
- Slide 5 the teacher will review Difference between Fraction and Rational Number
- Slide 6 the teacher will review Sign Rules for Multiplication
- Slide 7 the teacher will review Multiplying Positive and Negative Integers
- Slide 8. Activity - Multiplying Positive and Negative Integers
- Slide 9 the teacher will review Multiplication of Fractions
- Slide 10 the teacher will review Modeling Multiplication of Fractions
- Slide 11 Multiplying Two Fractions
- Slide 12 the teacher will review Multiplication of Fractions by Cancellation Method
- Slide 13 the teacher will review Multiplying Two Rational Numbers
- Slide 14 the teacher will review Multiplying Integer and a Rational Number
- Slide 15 the teacher will review Multiplying Rational Number and Integer
- Slide 16 the student will complete Activity - Multiplying Rational Numbers
- Slide 17 the teacher will review Distributive Property
- Slide 18 the teacher will review Applying Distributive Property in Multiplication
- Slide 19 the teacher and student will review Applying Distributive Property in Multiplication
- Slide 20 the teacher and students will review Real Life Examples on Multiplication
- Slide 21 the student will review Real Life Examples on Multiplication)
- Slide 22 the student will complete Activity - Real Life Example on Multiplication
- Slide 23 the student will complete Activity - Multiplication of Rational Numbers
- Slide 24 the student will complete Activity - Terminologies

Break – 10 Minutes

Supplemental: (30 mins.) Math’scool Video 27 mins., Multiplication & Division of Integers (10 mins) and 2 mins

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 23 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 9

Topic/Lesson Title & Grade Results #: The Number System/Lesson 9: Understanding the Quotient as A Rational Number

Objective(s): Students will be able to do the following:

- Understand and apply the sign rules for division.
- Describe/explain/model that a fraction is a division problem and that division by zero is undefined.
- Understand and apply the sign rules for division to fractions, that is, for any integers p and q : $-(p/q) = (-p)/q = p/(-q)$.
- Interpret quotients of rational numbers in the contexts of real-world examples.

Guiding Question(s):

1. What are the rules for multiplying and dividing integers?
2. How do you divide fractions?
3. How do you divide signed rational numbers?

TN Curriculum Standard(s): 7. NS.A.2. b

b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Decimal, Dividend, Divisor, Fraction, Integers, Quotient, Rational Number, Whole Numbers

Decimal: A number in base-ten number system.

Dividend: A polynomial that is being divided.

Divisor: A polynomial that is dividing.

Fraction: The part of whole, which is represented by, where p and q are integers, and $q \neq 0$.

Integers: The set of positive whole numbers $\{1, 2, 3, \dots\}$, negative whole numbers $\{-1, -2, -3, \dots\}$, and zero.

Quotient: A result obtained by dividing one quantity by another.

Rational Number: A number that can be written as a/b where a and b are integers, but b is not equal to 0.

Whole numbers: The set of counting numbers along with zero.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (10 minutes) Discuss objectives, guiding questions and vocabulary.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

- Slide 1 the student will state Objectives
- Slide 2 the teacher will review Introduction

- Slide 3 the teacher will review Rational Numbers
- Slide 4 the student will complete Activity - Rational Numbers
- Slide 5 the teacher will review Conversion of a Fraction to a Decimal
- Slide 6 the teacher will review Conversion of a Fraction to a Decimal - Example
- Slide 7 the teacher will review Converting Decimals to Fractions
- Slide 8 the student will complete Activity - Conversion
- Slide 9 the teacher will review Integers can be Divided provided that the Divisor is not Zero
- Slide 10 the teacher will review Integers can be Divided provided that the Divisor is not Zero - Example
- Slide 11 the teacher will review Every Quotient of Integers (with non-zero divisor) is a Rational Number
- Slide 12 the teacher will review Dividing Numbers - Example
- Slide 13 the student will view Video - Dividing Integers
- Slide 14 the student will complete Activity - Finding Quotient
- Slide 15 the teacher will review Sign Rules
- Slide 16 the student will complete Drag and Drop Activity
- Slide 17 the student will complete Drag and Drop Activity
- Slide 18 the teacher will review Dividing Integers
- Slide 19 the teacher will review Dividing Integers - Example
- Slide 20 the teacher and student will review Dividing Integers - Example
- Slide 21 the teacher will review Video - Dividing Integers
- Slide 22 the student will complete Drag and Drop Activity
- Slide 23 the student will complete Drag and Drop Activity
- Slide 24 the student will complete Drag and Drop Activity

Break – 10 Minutes

Supplemental: (15 minutes) Flocabulary Video (Multiplying and Dividing Integers) 4 mins, Vocabulary Cards, Vocabulary Game, Lyric Lab

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 25 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 mins.) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Summarize the lesson with a lesson review in Grade Results. Exit Ticket: What is the difference in dividing fractions and multiplying fractions? Allow students to share their answers if time permits.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 10

Topic/Lesson Title & Grade Results #: The Number System: Lesson 10: Multiplying Rational Numbers / Division of Rational Numbers

Objective(s): Students will be able to do the following:

- Explain the process for multiplying rational numbers using integers.
- Apply the properties of operations, particularly the distributive property, to multiply rational numbers.
- Interpret the products of rational numbers using a real-life situation.

Lesson B Objectives: At the end of the lesson, the student will be able to do the following:

- Apply the properties of operations as strategies to divide rational numbers.
- Solve verbal problems on division of rational numbers in the contexts of real-world examples.

Guiding Question(s):

1. How do you multiply rational numbers using integers?
2. How do you interpret the products of rational numbers using real world situations?
3. What are the steps of the distributive property to multiply rational numbers?

TN Curriculum Standard(s): 7. NS.A.2.c

c. Apply properties of operations as strategies to multiply and divide rational numbers.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMs meeting (if applicable)

Key Vocabulary/Terms: Fraction, Multiplication, Rational Number, Signed Number

Fraction: The part of whole, which is represented by, where p and q are integers, and $q \neq 0$.

Multiplication: A repeated addition.

Rational Number: A number that can be written as a/b where a and b are integers, but b is not equal to 0.

Signed Number: A number preceded by a plus sign (+) to indicate a positive quantity or by a minus sign (–) to indicate a negative quantity.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (10 minutes) Discuss objectives, guiding questions and vocabulary. This lesson explores more operations of rational numbers. Rational numbers can be negative or positive. In addition, students will understand the rules for multiplying and dividing rational numbers. In lesson B, students will view a video that will demonstrate how to divide whole numbers by fractions.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (50 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

- **Lesson A**
- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Rational Numbers
- Slide 4 Multiplication of Rational Numbers
- Slide 5 the teacher will review Multiplication of Rational Numbers
- Slide 6 the teacher will review Activity - Multiplication of Rational Numbers
- Slide 7 the teacher and student will review Example - Multiplication of Rational Numbers
- Slide 8 the student will complete Example - Multiplication of Rational Numbers
- Slide 9 the teacher will review Multiplication of Rational Numbers by Cancellation Method
- Slide 10 the teacher will review Example - Multiplication of Rational Numbers
- Slide 11 the student will complete Activity - Multiplication of Rational Numbers
- Slide 12 the teacher will review Properties of Operations of Rational Numbers
- Slide 13 Commutative Property of Multiplication of Rational Numbers
- Slide 14 the teacher will review Associative Property of Multiplication of Rational Numbers
- Slide 15 the teacher will review Distributive Property of Rational Numbers
- Slide 16 the teacher will review Multiplication of Rational Numbers using Distributive Property
- Slide 17 the student will complete Activity - Distributive Property
- Slide 18 the teacher will review Real Life Examples on Multiplication of Rational Numbers
- Slide 19 the teacher and student will review Real Life Examples on Multiplication of Rational Numbers (contd...)
- Slide 20 the student will complete Drop and Drag Activity

Lesson B

- Slide 1 Student will state Objective.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Division of Rational Numbers
- Slide 4 the teacher will review Activity - Division
- Slide 5 the teacher will review Sign Rules for Division
- Slide 6 the teacher will review Division of Rational Numbers (contd...)
- Slide 7 the student will complete Activity - Division
- Slide 8 the teacher will review Division of Rational Numbers Using Model
- Slide 9 the student will view Video - Division of Whole Number by Fractions
- Slide 10 the teacher will review Division of Two Rational Numbers
- Slide 11 the teacher and student will review Division of Two Rational Numbers
- Slide 12 the teacher will review Division of Mixed Numbers
- Slide 13 the teacher will review Division of Rational Numbers in Real Life
- Slide 14 the teacher and student Division of Rational Numbers in Real Life
- Slide 15 the student will complete Division of Rational Numbers in Real Life
- Slide 16 the student will complete Matching Activity
- Slide 17 the student will complete Drag and Drop Activity

Break – 10 Minutes

Supplemental: (15 mins.) Algebra'scool Video (24 mins.), Video 2 (24 mins.), Video 3: Backyard Bugs: Applying Rational Numbers (11 mins)

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 25 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 11

Topic/Lesson Title & Grade Results #: The Number System/ Lesson 11: Converting Rational Numbers to Decimals

Objective(s): Students will be able to do the following:

- Convert a rational number to a decimal using long division.
- Determine if the decimal form of a rational number terminates or repeats.
- Compare two rational numbers using decimal expansions.

Guiding Question(s):

1. How do you convert a rational number to a decimal using long division?
2. What are the steps to determine if the decimal form of a rational number will terminate or repeat?
3. How do you compare two rational numbers using decimal expansions?

TN Curriculum Standard(s): 7. NS.A.2.d

d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Decimal Expansion, Decimal Number, Decimal Point, Long division, Rational Number, Repeating Decimals

Decimal Expansion: It is the decimal representation of numbers.

Decimal Number: A number that has a whole number part and a fractional part expressed as a series of numbers after the decimal point.

Decimal Point: A point or dot used to separate the whole number part from the fractional part.

Long division: The mathematical process which allows you to perform complicated division by breaking it into simple steps. The number to be divided is called the dividend, the number which is doing the dividing is called the divisor, and the resulting answer is called the quotient.

Rational Number: A number that can be written as a/b where a and b are integers, but b is not equal to 0.

Repeating Decimals: A rational number in which the decimals repeat forever.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions, and vocabulary. This lesson will discuss converting rational numbers to decimals. A number can be expressed in the form of a fraction, percent, or decimal. Rational numbers can be represented as proper, improper, or mixed fractions. Students should be able to give examples of rational numbers.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 mins.) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides

- Slide 1 the students will Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Rational Number
- Slide 4 the student will complete Activity - Rational Number
- Slide 5 the teacher will review Long Division Method
- Slide 6 the student will complete Activity - Long Division Method
- Slide 7 the teacher will review Decimal Expansion of Rational Numbers
- Slide 8 the teacher will review Finding Terminating Decimals
- Slide 9 the teacher and student will review Finding Terminating Decimals
- Slide 10 the student will complete Finding Terminating Decimals
- Slide 11 the student will complete Activity - Terminating Decimals
- Slide 12 the teacher will review Non-terminating Decimal Expansion
- Slide 13 the student and teacher Finding Non-Terminating Decimals
- Slide 14 the teacher will review Finding Non-terminating Decimal Expansion
- Slide 15 the student will complete Activity - Non-terminating Decimal Expansion
- Slide 16 the teacher will review Comparing Rational Numbers
- Slide 17 the student will complete Activity - Decimal Number
- Slide 18 the student will complete Drag and Drop Activity

Break – 10 Minutes

Supplemental: (20 mins) Video 1: Convert a fraction to decimal (3:20 mins), Video 2: Convert the fraction to a decimal (4 mins.), Complete Guided Practice 7.3 Set 1-3 with the students

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 19 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 12

Topic/Lesson Title & Grade Results #: The Number System/ Lesson 12: Real World Problems Involving Rational Numbers

Objective(s): Students will be able to do the following:

- Recall rational numbers.
- Perform arithmetic operations on two or more rational numbers such as integers, decimals, and rational numbers.
- Solve real life mathematical problems involving the four operations with rational numbers.

Guiding Question(s):

1. What are rational numbers?
2. What are the rules for adding and subtracting decimals?
3. What are the rules for adding and subtracting integers?
4. How do you add fractions with like and unlike denominators?
5. How do you solve word problems involving the four operations with rational numbers?

TN Curriculum Standard(s): 7. NS.A.3

Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Equivalent Fractions, Integers, Natural Numbers, Negative Numbers, Positive Numbers, Rational numbers

Equivalent Fractions: Fractions that have the same value.

Integers: The set of whole numbers and their opposites, that is {... -3, -2, -1, 0, 1, 2, 3 ...}.

Natural Numbers: The set of numbers {1, 2, 3, 4 ...}. Natural numbers can also be called counting numbers.

Negative Numbers: The set of numbers less than zero.

Positive Numbers: The set of numbers greater than zero.

Rational numbers: The set of numbers that can be written in the form of $\frac{a}{b}$, where a and b are integers and b is not equal to 0.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions and vocabulary. The lesson will re-emphasize rational numbers and students will solve real-world problems involving rational numbers. Arithmetic operations can be performed on rational numbers such as addition, subtraction, multiplication, and division.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 mins.) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides

- Slide 1 the students will state the Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Rational numbers.
- Slide 4 the teacher will review Operations on Rational Numbers
- Slide 5 the teacher will review Addition of Rational Numbers
- Slide 6 the teacher and student will review Addition of Rational Numbers
- Slide 7 the student will complete Activity - Addition of Rational Numbers
- Slide 8 the teacher will review Subtraction of Rational Numbers
- Slide 9 student will view Video - Adding and Subtracting Fractions with Like Denominators
- Slide 10 student will view Video - Simplifying Expressions with Rational Numbers
- Slide 11 the teacher and student will review Subtraction of Rational Numbers
- Slide 12 the teacher will review Multiplication of Rational Numbers
- Slide 13 the teacher and student will review Multiplication of Rational Numbers
- Slide 14 the teacher will review Division of Rational Numbers
- Slide 15 the student will complete Activity - Division of Rational Numbers
- Slide 16 the teacher and student will review Division of Rational Numbers
- Slide 17 the student will complete Activity - Multiplication of Rational Numbers
- Slide 18 the student will complete Activity - Rational Numbers
- Slide 19 the student will complete Drag and Drop Activity

Break – 10 Minutes

Supplemental: (20 mins.) Video 1: Other-Backyard Bugs: Applying Rational Numbers (11 mins.) Video 2: Math’s Cool (28 mins.)

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 20 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 mins.) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: 7th/ Math

Day: 13

Topic/Lesson Title & Grade Results #: Expressions & Equations/ Lesson 13: Properties of Operation – Add, Subtract, Factor and Expand Linear Expressions/ Lesson B: Forms of Expression

Objective(s): Students will be able to do the following:

- Add and subtract linear expressions with linear coefficients.
- Use properties of operations to add and subtract linear expressions.
- Factor and expand linear expressions with linear coefficients.

Lesson B Objectives: At the end of the lesson, the student will be able to do the following:

- Rewrite an expression in different forms.
- Describe the relationship among the quantities in an expression.

Guiding Question(s):

1. How do add or subtract linear expressions with linear coefficients?
2. What properties of operations can you use to add or subtract linear expressions?
3. How do factor linear expressions?
4. What are the steps to rewriting an expression in different forms?

TN Curriculum Standard(s): 7. EE.A.1, 2

Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

Understand that rewriting an expression in different forms in a contextual problem can provide multiple ways of interpreting the problem and how the quantities in it are related. For example, shoes are on sale at a 25% discount. How is the discounted price P related to the original cost C of the shoes? $C - 0.25C = P$. In other words, P is 75% of the original cost for $C - 0.25C$ can be written as $0.75C$.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Algebraic expression, Coefficient, Constant, Distributive Property, Like Terms, Numerical Expression, Term, Variable

Algebraic expression: An expression consisting of at least one variable and consists of numbers and operations.

Coefficient: A number multiplied by a variable in an algebraic expression.

Constant: A quantity having a fixed value that does not change or vary, such as a number. For example, 5 is the constant of $x + 5$.

Distributive Property: The sum of two addends multiplied by a number is the sum of the product of each addend and the number.

Like terms: Terms in an algebraic expression that have the same variable raised to the same power.

Numerical Expression: An expression consisting of numbers and operations.

Term: A number, a variable, or a product of a number and variables.

Variable: A symbol, usually a letter, used to represent one or more numbers.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions, and vocabulary. The lesson will review how to find the perimeter and illustrate an algebraic expression as well as the components. Algebraic expressions have a combination of variables, constants, and arithmetic operators. Verbal statements can be expressed in algebraic forms and vice versa. Students will learn how to translate verbal phrases into algebraic expressions and vice versa as well as simplify algebraic expressions.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

Lesson A Activities:

- Slide 1 the students will state Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Algebraic Expression
- Slide 4 the teacher will review Words to Symbols
- Slide 5 the teacher will review Translating Verbal Phrases into Algebraic Expressions and Vice Versa
- Slide 6 student will complete Activity - Translating Verbal Phrases into Algebraic Expressions
- Slide 7 the teacher will review Rational Number and Rational Expression
- Slide 8 the teacher will review Arithmetic Operations on Algebraic Expressions
- Slide 9 the teacher will review Simplifying Algebraic Expressions
- Slide 10 the student will complete Activity - Simplifying Algebraic Expressions
- Slide 11 the teacher will review Properties of Operations in Algebraic Expressions
- Slide the teacher will review Applying Property of Operations in Expressions
- Slide 13 the teacher and student will review Applying Property of Operations in Expressions
- Slide 14 the teacher will review Simplifying Algebraic Expressions
- Slide 15 the teacher will review Expanding Linear Expressions
- Slide 16 the student will complete Activity - Simplifying Algebraic Expressions
- Slide 17 the teacher will review Real-life Examples on Simplifying Expressions
- Slide 18 the student will complete Activity - Simplifying Algebraic Expressions
- Slide 19 the student will complete Activity Simplifying Algebraic Expressions
- Slide 20 the student will complete Activity Properties of Expressions
- Slide the student will complete Activity

Lesson B Activities:

- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Expressions and its Types
- Slide 4 the student will complete Activity - Expressions and its Types
- Slide 5 the teacher will review Algebraic Expressions
- Slide 6 the student will complete Activity - Algebraic Expressions
- Slide 7 the teacher will review Terms of the Algebraic Expressions
- Slide 8 the student will complete Activity - Terms of the Algebraic Expressions
- Slide 9 the teacher will review Finding Terms
- Slide 10 the teacher will review Expression using Percentage
- Slide 11 the teacher will review Percent Increase or Decrease

- Slide 12 the student will complete Activity Writing Expression
- Slide 13 the student will complete Activity Writing Expression
- Slide 14 the teacher will review Properties of Addition and Multiplication
- Slide the teacher will review Forming Equivalent Expressions
- Slide 16 the teacher and student will review Forming Equivalent Expressions
- Slide 17 the teacher will review Identifying Equivalent Expressions
- Slide 18 the student will complete Activity Identifying Equivalent Expressions
- Slide 19 the student will complete Activity Drag and Drop Activity

Break – 10 Minutes

Supplemental: (20 mins.) Flocabulary: Equations & Expressions Video (2:18 mins.), If time permits, students should complete the Vocabulary Cards and Vocabulary Game for Lesson A.

Video 2: Flocabulary: Expressions: Vocabulary Cards, Vocabulary Game,

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 22 & Slide 20 (Lesson B) Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 mins.) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 14

Topic/Lesson Title & Grade Results #: Expressions & Equations: Lesson 14: Operations on Negative & Positive Rational Numbers in Any Form

Objective(s): Students will be able to do the following:

- Solving real-life problems involving positive and negative rational numbers (whole numbers, fractions, and decimals) using addition, subtraction, multiplication, and division.
- Apply order of operations in simplifying numerical expressions.
- Convert decimals to fractions and vice versa.
- Assess the reasonableness of answers and estimation strategies.

Guiding Question(s):

1. Why is order of operations important?
2. How do you use order of operations to simplify numerical expressions?
3. How do you convert decimals to fractions and vice versa?
4. How do you determine if a solution is a reasonable answer?
5. What are estimation strategies?

TN Curriculum Standard(s): 7. EE.B.3

Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals).

- a. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate.
- b. Assess the reasonableness of answers using mental computation and estimation strategies.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMs meeting (if applicable)

Key Vocabulary/Terms: Additive Property, Decimal, Equation, Estimation, Integers, Least Common Denominator, Multiplicative Property, Rational Number, Reasonableness, Reciprocal of a Fraction, Whole Number

Additive Property: It allows one to add the same quantity to both sides of an equation.

Decimal: A number in base-ten number system.

Equation: An algebraic sentence which denotes those two expressions are equal.

Estimation: An approximation of a quantity.

Integers: The set of positive whole numbers {1, 2, 3, ...}, negative whole numbers {-1, -2, -3, ...}, and zero.

Least Common Denominator: The least common multiple of the denominators of many fractions.

Multiplicative Property: It allows one to multiply the same quantity on both sides of an equation.

Rational Number: A number that can be written as a/b where a and b are integers, but b is not equal to 0.

Reasonableness: Validating the solution by verifying the answer.

Reciprocal of a Fraction: A fraction which we get by flipping the given fraction.

Whole Number: A counting number including zero.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions and vocabulary. In this lesson, students will examine the classification of numbers. Students should be able to classify numbers as natural numbers, whole numbers,

integers, and rational numbers. Students will review the rules for the addition and subtraction of two numbers. In addition, students will review the rules for multiplying and dividing integers for two numbers. Also, students will solve one step equations and word problems.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Classification of Numbers
- Slide the teacher will review Introduction
- Slide 4 the teacher will review Properties of Operations
- Slide 5 the teacher and student will review Properties of Operations
- Slide 6 the teacher will review Converting Fractions to Decimals
- Slide 7 the teacher and student will review Converting Fractions to Decimals
- Slide 8 the teacher and student will review Converting Decimals to Fractions
- Slide 9 the student will complete the Activity - Converting Fractions to Decimals and Decimals to Fractions
- Slide 10 the teacher will review Definition of Estimation
- Slide 11 the teacher will review Rounding off Fractions
- Slide 12 the student will complete Activity - Rounding off
- Slide 13 the teacher will review Estimation - Example
- Slide 14 the teacher and student will review Estimation - Example
- Slide 15 the teacher will review Estimation - Example
- Slide 16 the student will complete Activity - Estimation
- Slide 17 the teacher will review Estimating Length and Width - Example
- Slide 18 the student will complete Activity - Estimating Length and Width
- Slide 19 the teacher will review Finding Reasonable Ages
- Slide 20 the teacher will review Estimating Weights
- Slide 21 the teacher will review Estimate the Age
- Slide 22 the teacher will review Estimate the Length
- Slide 23 the student will complete Activity - Estimation
- Slide 24 the teacher will review Estimate the Price
- Slide 25 the teacher will review Finding Reasonable Price
- Slide 26 the student will complete Drag and Drop Activity
- Slide 27 the student will complete Drag and Drop Activity

Break – 10 Minutes

Supplemental: Video: (20 minutes) Adding & Subtracting Fractions (6:43 mins.), Video: Adding Rational and Decimal Number (3 mins.), Video: Adding & Subtracting Fractions Unlike Denominators (5:33 mins.)

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 20 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 15

Topic/Lesson Title & Grade Results #: Expressions & Equations: Lesson 15: Solving Two-Step Equations

Objective(s): Students will be able to do the following:

- Solve equations in the form of $p(x + q) = r$.
- Compare arithmetic and algebraic solutions to word problems.
- Solve real world problems where the formed equations are in the form of $p(x + q) = r$.

Guiding Question(s):

1. How do you solve equations in the form of $p(x + q) = r$?
2. What are the necessary steps to solve real-world problems where the formed equations are in the form of $p(x + q) = r$?
3. How do you solve two-step equations?

TN Curriculum Standard(s): 7. EE.B.4.a

Use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems by reasoning about the quantities.

a. Solve contextual problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p , q , and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm (about 1.77 ft). Its length is 6 cm (about 2.36 in). What is its width?

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Distributive Property, Rational Numbers, Rational Numbers

Distributive Property: The sum of two addends multiplied by a number is the sum of the product of each addend and the number.

Rational numbers: All numbers that can be expressed in the form, where p and q are integers and $q \neq 0$.

Variables: A quantity that can assume any set of values.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions and vocabulary. This lesson highlights how to solve two-step equations and word problems. In addition, students will simplify numerical expressions and understand equivalent expressions.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Introduction

- Slide 3 the teacher will review Numerical Expression
- Slide 4 the teacher will review Simplifying Numerical Expressions
- Slide 5 the teacher will review Equivalent Expressions
- Slide 6 the student will complete Activity - Equivalent Expressions
- Slide 7 the teacher will review Solving Equations of the Forms $x + p = q$ and $px = q$
- Slide 8 the teacher will review Solving Equations of the Forms $x + p = q$ and $px = q$ (contd...)
- Slide 9 the student will complete Activity - Solve the Equations
- Slide 10 the teacher will review Compare Arithmetic and Algebraic Solutions
- Slide 11 the teacher will review Solving Equations of the Forms $px + q = r$ and $p(x + q) = r$
- Slide 12 the student will complete Activity - Verbal Problems on Solving Equations
- Slide 13 the teacher will review Verbal Problems on Solving Equations
- Slide 14 the teacher and student will review Verbal Problems on Solving Equations
- Slide 15 the student will complete Verbal Problems on Solving Equations (contd...)
- Slide 16 Solving Consumer/Business Problems Using Equations of One Variable
- Slide 17 the student will complete Activity - Solving Equations
- Slide 18 the student will complete Drag and Drop Activity

Break – 10 Minutes

Supplemental: (20 minutes) Video: Flocabulary (2:20 mins.) If time permits, students should complete the Vocabulary Cards, Vocabulary Game & Lyric Lab.

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 19 Summarize the lesson with lesson review in Grade Results. (10 mins.)

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 16

Topic/Lesson Title & Grade Results #: Expressions & Equations: Lesson 16: Inequalities of Form $px + q > r$

Objective(s): Students will be able to do the following:

- Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers.
- Graph the solution set of the inequality of the form $px + q > r$ or $px + q < r$.
- Interpret the solution set of an inequality in the context of the problem.

Guiding Question(s):

1. How do you solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers?
2. How do you graph the solution set of the inequality of the form $px + q > r$ or $px + q < r$?
3. What does it mean to interpret the solution set of an inequality in the context of the problem?

TN Curriculum Standard(s): 7. EE.B.4. b

b. Solve contextual problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p , q , and r are specific rational numbers. Graph the solution set of the inequality on a number line and interpret it in the context of the problem. For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make and describe the solutions.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms: Inequality, Rational Number, Variable

Inequality: The relation between two unequal expressions.

Rational Number: A number that can be written as a/b where a and b are integers, but b is not equal to 0.

Variable: A symbol or letter that stands for an unknown quantity.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions, and vocabulary. This lesson will illustrate how to solve word problems in which the answer can be represented using an inequality. In addition, students will solve inequalities and graph the solution set of inequalities.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

- Objectives
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Inequality
- Slide 4 the teacher will review Solving Inequality

- Slide 5 the teacher will review Solving Inequalities of the Form $px + q > r$
- Slide 6 Video - Solving Inequalities of the Form $px + q > r$
- 7. Activity - Solving Inequality
- Slide 8 the teacher will review Graphing the Solution Set of the Inequality
- Slide 9 the teacher and student will review Graphing the Solution Set of the Inequality
- Slide 10 the teacher and student will review Graphing the Solution Set of the Inequality (contd...)
- Slide 11 the student will complete Graphing the Solution Set of the Inequality (contd...)
- Slide 12 the teacher will review Interpreting Inequalities
- 13. Activity - Solving Inequality
- 14. Activity - Solving Inequality
- 15. Activity - Graphing the Solution Set of the Inequality
- 16. Activity

Break – 10 Minutes

Supplemental: (20 minutes) Video: Pitching Pies: Intro to Algebraic Inequalities (23:30 mins.)

Additional Teacher Resources: None

Lesson Review (5 mins.) Slide 17 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 17

Topic/Lesson Title & Grade Results #: Geometry: Lesson 17: Finding Unknown Angles in Problems

Objective(s): Students will be able to do the following:

- Define supplementary, complementary, vertical, and adjacent angles.
- Use properties of supplementary, complementary, vertical, and adjacent angles to solve for unknown angles in a figure.
- Write and solve equations based on unknown values in the figures.

Guiding Question(s):

What is the difference in complementary and supplementary angles?

What is the difference in vertical and adjacent angles?

How do write and solve equations based on unknown values in the figures?

TN Curriculum Standard(s): 7.G.B.4

Know and use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMs meeting (if applicable)

Key Vocabulary/Terms: Adjacent Angles, Complementary Angles, Supplementary Angles, Vertical Angles

Adjacent Angles: Two angles share a common side and a common vertex, and do not overlap.

Complementary angles: A pair of angles that add up to 90° .

Supplementary angles: Angles add up to 180° .

Vertical Angles: The angles formed opposite to each other when two lines cross or intersect. They are equal in measure.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions and vocabulary. This lesson demonstrates how to find unknown angles in problems. In addition, it classifies six types of angles based on measurement and types of angles based on facts.

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Types of Angles based on Measure
- Slide 4 the teacher will review Types of Angles based on Facts
- Slide 5 the student will complete Drag and Drop Activity - Types of Angles
- Slide 6 the teacher will review Vertical Angles and Adjacent Angles
- Slide 7 the student will complete Drag and Drop Activity - Adjacent Angles

- Slide 8 the teacher will review Complementary and Supplementary Angles
- Slide 9 the student will complete Drag and Drop Activity - Supplementary Angles
- Slide 10 the student will complete Drag and Drop Activity - Types of Angles
- Slide 11 the teacher will review Find the Measure of Missing Angle
- Slide 12 the teacher and student will review Find the Measure of Missing Angle (contd...)
- Slide 13 the teacher will review Find the Measure of Missing Angle (contd...)
- Slide 14 the teacher and student will review Find the Measure of Missing Angle (contd...)
- Slide 15 the student will review Find the Measure of Missing Angle (contd...)
- Slide 16 the student will complete Drag and Drop Activity
- Slide 17 the student will complete Drag and Drop Activity Drag and Drop Activity
- Slide 18 the student will complete Drag and Drop Activity Drag and Drop Activity

Break – 10 Minutes

Supplemental: (20 minutes) Video 1: Complementary, Supplementary and Vertical Angles (8:42 mins.) If time permits, students will complete the Worksheet: Lesson Notes.

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 19 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/ 7th

Day: 18

Topic/Lesson Title & Grade Results #: Probability Lesson 18

- *Determine the outcome of an experiment.
- *Predict which events are likely or unlikely
- *Determine if an experiment is fair or unfair.

Guiding Questions:

- *What is the difference between theoretical and experimental probability?
- *How can data collection assist in making predictions about an event

TN Curriculum Standard(s): 7.SP.C.5, 7.SP.C.6

Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Key Vocabulary/Terms:

Probability: How likely an event is to occur.

Experiment: In probability, any activity based on chance.

Outcome: A possible result of a probability experiment.

Sample Space: Set of all possible outcomes of an experiment.

Event: An outcome or set of outcomes (a subset of the sample space) of an experiment or situation.

Simple Event: The event of a single outcome.

Likely Event: An event that is most likely to happen.

Unlikely Event: An event that is not likely to happen.

Fair Experiment: An experiment in which each outcome has an equal chance of occurring.

Unfair Experiment: An experiment which is not fair. An experiment in which an outcome has more chance of occurring than others.

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do): (15 minutes) Discuss objectives, guiding questions and vocabulary. In this lesson, Students will learn What is the difference between theoretical and experimental probability. How can data collection assist in making predictions about an event?

Vocabulary: Discuss the meaning of each vocabulary word. Share the words on the screen. It is in Grade Results under learning tools.

Lesson Activities (We Do): (40 minutes) Both Teacher and Student will work together reviewing examples and solving problems in the Activities and lessons in Grade Results slides.

Lesson A:

- Slide 1 the student will state Objective.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Basic Terms in Probability

- Slide 4 the teacher will review Fair and Unfair Experiments
- Slide 5 the teacher will review Finding Sample Space
- Slide 6 the student will complete Drag and Drop Activity - Finding Sample Space
- Slide 7 the teacher will review Probability of an Event
- Slide 8 the teacher will review types of Events based on Probability Scale
- Slide 9 the student will complete Drag and Drop Activity - Types of Events
- Slide 10 the teacher will review Identifying the Event based on Probability
- Slide 11 the student will view Video - Probability
- Slide 12 the teacher will review Identifying the Event based on Probability
- Slide 13 the teacher and student will review Identifying the Event based on Probability
- Slide 14 the teacher will review Finding the Event based on Probability
- Slide 15 the teacher will review Identifying the Event based on Probability
- Slide 16 the student will complete Drag and Drop Activity - Likely Event
- Slide 17 the student will complete Drag and Drop Activity - Events and Experiments
- Slide 18 the student will complete Drag and Drop Activity Activity/ Lesson

Lesson B

- Slide 1 the student will state Objectives.
- Slide 2 the teacher will review Introduction
- Slide 3 the teacher will review Experimental Probability
- Slide 4 the teacher will review Finding Experimental Probability
- Slide 5 the teacher and student will review Finding Experimental Probability
- Slide 6 the student will complete Finding Experimental Probability (contd...)
- Slide 7 the student will complete Activity - Relative Frequency
- Slide 8 the teacher will review Finding Experimental Probability
- Slide 9 the student will complete Activity - Relative Frequency
- Slide 10 the teacher will review Making a Prediction with the Help of Experimental Probability
- Slide 11 the student will complete Activity - Relative Frequency
- Slide 12 the teacher will review Finding Experimental Probability using the Frequency Table
- Slide 13 the student will complete Activity - Relative Frequency
- Slide 14 the teacher and student will review Finding Experimental Probability using the Frequency Table (contd...)
- Slide 15 the student will complete Activity 1
- Slide 16 the student will complete Activity 2

Break – 10 Minutes

Supplemental: (20 minutes)

Additional Teacher Resources: None

Lesson Review: (5 mins.) Slide 19 Summarize the lesson with lesson review in Grade Results.

Independent Work – Posttest (They Do): (30 minutes) Explain to the students that they will be assessed and will work independently. Encourage them to think critically and do their absolute best on the Posttest. The Posttest will count as the grade for the daily lesson.

Closing/Wrap Up/Notes Review: (5 mins.) Take a moment to reflect on the lesson of the day and pick one of the following closure activities as time permits. Examples: (1) Repeat the Lesson Review, (2) Use an exit ticket: Ask students: What did you learn? What surprised you? What is unclear? (3) Ask: I Care Why? Students explain the relevancy of the concept to their life or how they might use it.

Summer School Lesson Plan

Subject/Grade: Math/7th Grade

Day: 19

Topic/Lesson Title & Grade Results #: Final Post-Test Review & Post-Test

Objective(s):

- Students will review lessons to prepare for the final Post-Test.
- Final Post-Test will open. All students must complete the final Post-Test.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do):

Identify the purpose of the course.

Connect the course to missing or future coursework and Post-Test.

Lesson Activities/Supplemental (We Do) – 30-60 minutes

Lesson Activities and Review (We Do):

Check Grade Results and have students review activities/lesson that they have not completed or need assistance with.

Hold an open Q&A for students to ask questions regarding the activities/lessons they are reviewing.

Independent Work – Post-Test (They Do):

Students will review and complete any incomplete/missed/failed coursework.

Closing/Wrap Up:

Summer School Lesson Plan

Subject/Grade: Math/7th Grade

Day: 20

Topic/Lesson Title & Grade Results #: Review Lessons & Quizzes

Objective(s):

- Students will review and complete all incomplete/missed/failed coursework.
- Students can retake daily Post-Tests up to three (3) times before tests lock. Teachers can unlock the test so students can retake the test.
- Students can retake the final Post-Test.

Materials/Resources Needed: Grade Results Online Platform, Grade Results video, paper, pencil, or notes in Grade Results

Technology: Computer, Whiteboard, TEAMS meeting (if applicable)

Take attendance in PowerSchool (5 minutes)

Lesson Introduction (I Do):

Identify the purpose of the course.

Connect the course to missing or future coursework and Post-Test.

Lesson Activities/Supplemental (We Do) – 30-60 minutes.

Lesson Activities and Review (We Do):

Check Grade Results and have students review activities/lesson that they have not completed or need assistance with.

Hold an open Q&A for students to ask questions regarding the activities/lessons they are reviewing.

Independent Work – Post-Test (They Do):

Students will review and complete any incomplete/missed/failed coursework.

Closing/Wrap Up: