

7 Math Unit 01: Adding & Subtracting Rational Numbers

Content Area: **Mathematics**
Course(s):
Time Period: **Marking Period 1**
Length: **16 days**
Status: **Published**

Unit Overview

Chapter 1 begins with an introduction to rational numbers. Number lines are used to explore opposites and absolute values. The approach used is to explore operations with integers using integer counters and/or number lines. Students will understand that they are transferring their knowledge of operations on one set of numbers, integers, to another set of numbers, rational numbers.

Standards

MATH.7.NS.A.1	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.
MATH.7.NS.A.1.a	Describe situations in which opposite quantities combine to make 0.
MATH.7.NS.A.1.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.
MATH.7.NS.A.1.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.
MATH.7.NS.A.1.d	Apply properties of operations as strategies to add and subtract rational numbers.
MATH.7.NS.A.3	Solve real-world and mathematical problems involving the four operations with rational numbers.

Materials

Big Ideas Math

- 1.1 Rational Numbers
- 1.2 Adding Integers
- 1.3 Adding Rational Numbers
- 1.4 Subtracting Integers
- 1.5 Subtracting Rational Numbers

Desmos

Unit 5: [Operations With Positive and Negative Numbers](#)

Other Resources:

- [ST Math](#)
- [Delta Math](#)
- [3 Act Lessons](#)
- [Brainiaccamp Manipulatives](#)
- [Nearpod Lessons](#)
- [Brainpop Resources](#)
- [Online Resources](#)

Technology

CS.6-8.8.1.8.AP.6	Refine a solution that meets users' needs by incorporating feedback from team members and users.
CS.6-8.8.1.8.DA.1	Organize and transform data collected using computational tools to make it usable for a specific purpose.

Assessment

Formative Assessment

- Teacher Observation
- Daily Quick Check
- Quizzes
- Exit Tickets

Summative Assessment

- Topic Tests
- Benchmark Tests
- Alternative Assessments: Performance Tasks & Projects
- NWEA Grade 7 Assessment

Accommodations & Modifications

Special Education

- Follow IEP Plan which may contain some of the following examples...
- In class/pull out support with special ed teacher
- Additional time during intervention time

- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Limit number of questions
- Scribe
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

504

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher
- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

At-risk of Failure

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices

- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
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- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Interdisciplinary Connections

Topic 1 STEM Project - How Cold Is Too Cold? -

In this project, students research the habitability of regions with cold temperatures and extreme conditions. They learn about the minimum and maximum temperatures that make a place inhabitable. Students will discuss their findings and brainstorm solutions for habitability.

Science Connection -

Students engage in their first steps of scientific research. They recognize how there are challenges and limitations associated with the habitability of living in places with low air temperatures and extreme conditions.

ELA: NJSLSA.R.1. Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

Science: MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions

Climate Change:

- **Climate Change:** Students may solve real-world problems involving the four operations with rational numbers related to the relationship between altitude and the temperature above sea level.
- **Climate Change:** Students may solve multi-step real-life problems posed with positive and negative rational numbers in any form related to the relationship between altitude and the temperature above sea level.

Career Readiness, Life Literacies & Key Skills

PFL.9.1.8.CP.1	Compare prices for the same goods or services.
PFL.9.1.8.EG.1	Explain how taxes affect disposable income and the difference between net and gross income.
PFL.9.1.8.FI.4	Analyze the interest rates and fees associated with financial products.
WRK.9.2.8.CAP.2	Develop a plan that includes information about career areas of interest.
TECH.9.4.8.CI.2	Repurpose an existing resource in an innovative way (e.g., 8.2.8.NT.3).
TECH.9.4.8.CT.2	Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option (e.g., MS-ETS1-4, 6.1.8.CivicsDP.1).
TECH.9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.
TECH.9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).
TECH.9.4.8.TL.3	Select appropriate tools to organize and present information digitally.
TECH.9.4.8.TL.4	Synthesize and publish information about a local or global issue or event (e.g., MSLS4-5, 6.1.8.CivicsPI.3).
TECH.9.4.8.IML.9	Distinguish between ethical and unethical uses of information and media (e.g., 1.5.8.CR3b, 8.2.8.EC.2).

Career Ready Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.