Mathematics

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<th>Course: 7th Grade Mathematics</th>
<th>Designated Six Weeks: 1st</th>
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<td>Unit 1: Add and Subtract with Rational Numbers</td>
<td>Days to teach: 29</td>
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<td>Unit 2: Multiply and Divide with Rational Numbers</td>
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<td><strong>TEKS</strong></td>
<td><strong>Guiding Questions/ Specificity</strong></td>
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<tr>
<td>7.2 The student applies mathematical process standards to represent and use rational numbers in a variety of forms.</td>
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<td>7.2(A) extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers.</td>
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<td><strong>Supporting Standard</strong></td>
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### TEKS

7.2 The student applies mathematical process standards to represent and use rational numbers in a variety of forms.

**Guiding Questions/ Specificity**

Emphasize the visual relationship such as Venn Diagrams and tables, not merely naming the set or subset a value belongs.

Consider relationships such as divisibility patterns, operational relationships, and classifications of numbers such as even and odd, composite and prime.

**Assessment**

Which Venn diagram correctly represents the sets and subsets of the numbers below?

-11 ½, -4, 2, \( \frac{2}{3} \), 5.4, 15

A.

B.

Correct answer: A

**Vocabulary**

Integer, Rational number, Irrational number, Whole number, Set, Subset

**Instructional Strategies**

Use multiple representations to develop subsets.

Use nesting boxes to help students develop the concept that numbers can have more than one classification.

**Resources/ Weblinks**

Texas Go Math 7: Lesson 1.2

Motivation Math 7: Unit 1

Google Drive: Exemplar Lesson 7.2A

[Link to ELPS Instructional Strategies: http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html 1C]
## 7.3 The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying the solutions.

### 7.3(A) add, subtract, multiply, and divide rational numbers fluently

**Supporting Standard**

**College Readiness Standard:**
http://www.thecb.state.tx.us/collegereadiness/crs.pdf

Numeric: B1a

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<td>7.3</td>
<td>The student applies mathematical process standards to add, subtract, multiply, and divide while solving problems and justifying the solutions.</td>
<td>Focus computational fluency. Values need to be positive and negative fractions, decimals, integers. Use multiple forms of numbers within the same problem such as mixed numbers, proper and improper fractions with like and unlike denominators and decimals. Include problems that require order of operations.</td>
<td>Which of the following expressions has a solution of -2? I. ((-2 \frac{2}{5} \times 3) \div 3 \frac{3}{5}) II. (28 + (-2.4 \div 0.08)) III. (2 \frac{1}{4} [\frac{7}{3} + (\frac{-1.4}{9})]) A. II only B. I and II only C. II and III only D. I, II, and III</td>
<td>Rational numbers Reciprocal Absolute value Additive inverse Opposite</td>
<td>Convert to the same form before performing mathematical operations. Practice using matching cards or other operational games. Review lining up digits (from the right) when multiplying decimals. Develop number sense when teaching the rules of calculating with positive and negative values by asking what the sign of the answer should be prior to calculating. ie: negative x negative = positive</td>
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| 7.3(B) | apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers. | Ocean water freezes at about -2 ½ degrees C. Fresh water freezes at 0 degrees C. Antifreeze, a liquid used to cool most car engines, freezes at -64 degrees C. Imagine that the temperature is exactly at the freezing point for ocean water. How many degrees must the temperature drop for the antifreeze to turn to ice? Correct answer: -61 ½ degrees | Rational numbers Reciprocal Absolute value Additive inverse Opposite | Parallel Modeling with guided/independent practice, including pictorial models. Generate equations based on the key terms. Stress key words through brainstorming and use of graphic organizer: ex. “More” means addition (i.e.: matching game, think-pair-share) Use number lines as models. Manipulatives (such as fraction bars) to demonstrate the given scenarios. Solve problems involving real life application and check for reasonableness (UPSC). | **Motivation Math 7:** Unit 2  
**AIRR Grade 8:** Activity 56,57,65, 66,67, 70,71, 72,  
Link to ELPS Instructional Strategies: [http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#1C](http://ritter.tea.state.tx.us/rules/tac/chapter074/ch074a.html#1C) |

**Readiness Standard**

**College Readiness Standard:**

- [http://www.thecb.state.tx.us/collegereadiness/crs.pdf](http://www.thecb.state.tx.us/collegereadiness/crs.pdf)
- Numeric: B1a,c

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### 7.3B apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers.

- Choose/create correct expression/equation for a problem situation
  - Recognize correct steps in order to solve problems and explain (including PEMDAS)
  - Use positive and negative rational numbers.
  - Problems should include values that have positive/negative fractions and decimals, not solely integers.

- Ocean water freezes at about -2 ½ degrees C. Fresh water freezes at 0 degrees C. Antifreeze, a liquid used to cool most car engines, freezes at -64 degrees C. Imagine that the temperature is exactly at the freezing point for ocean water. How many degrees must the temperature drop for the antifreeze to turn to ice? Correct answer: -61 ½ degrees

- Rational numbers Reciprocal Absolute value Additive inverse Opposite

- Parallel Modeling with guided/independent practice, including pictorial models. Generate equations based on the key terms.
  - Stress key words through brainstorming and use of graphic organizer: ex. “More” means addition (i.e.: matching game, think-pair-share)
  - Use number lines as models.
  - Manipulatives (such as fraction bars) to demonstrate the given scenarios.
  - Solve problems involving real life application and check for reasonableness (UPSC).

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