



## Solving One-Variable Equations and Inequalities

### Lesson Plan

**Lesson Overview:** In this lesson, students will write equations or inequalities to represent given problem situations, use models and algebraic properties to solve the equations or inequalities, and represent the solution(s) on a number line. Students will also verify that a given number is or is not a solution to the equation or inequality and write problem situations from a given equation or inequality. TEKS: 6.9A, 6.9B, 6.9C, **6.10A**, and 6.10B.

	Procedures	Facilitation Questions	Advance Preparation
Engage	<ul style="list-style-type: none"> <li>Distribute the <b>Engage Activity Sheet</b>, scissors, and glue, tape, or paste to each student.</li> <li>Play the video for the class.</li> <li>Facilitate students as they match each problem situation with a number sentence.</li> <li>Discuss different ways to identify operations from a verbal problem situation.</li> <li>Display the <b>Engage Answer Key</b> if desired.</li> </ul>	<ul style="list-style-type: none"> <li>How can you identify the operation from the problem situation?</li> <li>What verbs do you see in the problem situation? What do the actions tell you about the operation necessary for that part of the problem?</li> <li>Which order do the operations need to be in? How do you know?</li> </ul>	<ul style="list-style-type: none"> <li>Copies of <b>Engage Activity Sheet</b> for each student</li> <li>scissors</li> <li>glue, tape or paste</li> </ul>
Explore	<ul style="list-style-type: none"> <li>Arrange students in pairs.</li> <li>Distribute cups, beans, and two-color counters and the <b>Explore Activity Sheet</b> to each student pair.</li> <li>Play the video for the class.</li> <li>Facilitate the students as needed in completing the activity.</li> <li>Display the <b>Explore Activity Sheet Answers</b> if desired.</li> <li>If desired, use the Extra Practice problems at the end of the <b>Explore Activity Sheet</b>.</li> </ul>	<ul style="list-style-type: none"> <li>If the cup represents <math>x</math>, how many cups do you need?</li> <li>What operation does the problem suggest that you will need to use?</li> <li>What is the formula for the perimeter of a square?</li> <li>If you have 3 cups and 42 counters, how can you determine the number of counters that will belong in each cup?</li> </ul>	<ul style="list-style-type: none"> <li>Copies of <b>Explore Activity Sheet</b> for each student pair</li> <li>cups (about 5), beans (about 50) and two-color counters (about 30) for each student pair</li> </ul>
Explain	<ul style="list-style-type: none"> <li>Distribute blank paper, scissors, and glue, tape, or paste.</li> <li>Play the video for the class. Pause and repeat as necessary for construction of foldable graphic organizer.</li> <li>Provide students <b>Math Journals</b>.</li> <li>Play the video to show the Journal Entry.</li> <li>To differentiate, provide the struggling learner with the <b>Mission Support Sheet</b>.</li> <li>Answer the <b>Trajectory Check</b> questions.</li> </ul>	<ul style="list-style-type: none"> <li>How can you use cups and counters to demonstrate the inverse?</li> <li>How are multiplication and division related?</li> <li>How are addition and subtraction related?</li> <li>How does the identity element of multiplication and addition represent balance in an equation?</li> </ul>	<ul style="list-style-type: none"> <li>blank paper (one sheet per student, plus extras)</li> <li>scissors</li> <li>glue, tape, or paste</li> <li>optional: colored pencils or markers</li> <li>Access to <b>Math Journals</b></li> <li>Make copies of the <b>Mission Support Sheet</b> as needed.</li> </ul>
Elaborate	<ul style="list-style-type: none"> <li>Provide each student with the <b>Elaborate Activity Sheet</b>.</li> <li>Play the video for the class.</li> <li>Facilitate as complete both Part 1 and Part 2 of the activity.</li> <li>To differentiate for the struggling learner provide copies of the <b>Mission Support Sheet</b>.</li> <li>If desired, display the <b>Elaborate Answer Key</b>.</li> <li>Answer the <b>Trajectory Check</b> questions.</li> </ul>	<ul style="list-style-type: none"> <li>How could you use the additive inverse to solve this inequality?</li> <li>How could you use the multiplicative inverse to solve this inequality?</li> <li>If this were an equation, what would you do to solve it?</li> </ul>	<ul style="list-style-type: none"> <li>Copies of <b>Elaborate Activity Sheet</b> for each student</li> <li>scissors</li> <li>Make copies of the <b>Mission Support Sheet</b> as needed.</li> </ul>
Evaluate	<ul style="list-style-type: none"> <li>Display the questions or provide a printed copy of the <b>Evaluation Questions</b> for each student.</li> <li>Have students solve the problems in their <b>Math Journal</b>.</li> </ul>		<ul style="list-style-type: none"> <li>Access to Math Journals</li> <li>If desired make a copy of the <b>Evaluation Questions</b> for each student.</li> </ul>

