

# TIPS 2.0 Lesson Template

## Mixed Numbers and Improper Fractions: Composing and Decomposing

Grades 5&6

<p>MO 10 min A 30 min C/D 30 min</p>	<p><b>Math Learning Goals</b></p> <ul style="list-style-type: none"> <li>o Fractions represent a relationship between numerator and denominator; the denominator generates the unit fraction and the numerator represents the number of unit fractions being counted</li> <li>o Improper can be decomposed to create a mixed fraction; a mixed fraction can be composed to create an improper fraction</li> </ul>	<p><b>Materials</b></p> <ul style="list-style-type: none"> <li>- Manipulatives (fraction strips)</li> <li>- Laptops / ipads with access to mathies digital fraction strips (<a href="http://www.mathies.ca">www.mathies.ca</a> → Learning Tools)</li> </ul>
<p><b>Curriculum Expectations (Specific):</b></p> <ul style="list-style-type: none"> <li>- Grade 5: represent, <i>compare, and order</i> fractional amounts with like denominators, including proper and improper fractions and mixed numbers, using a variety of tools (e.g., fraction circles, Cuisenaire rods, number lines) and using standard fractional notation;</li> <li>- Grade 6: represent, <i>compare, and order</i> fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers, using a variety of tools and using standard fractional notation;</li> </ul>		
<p><b>Minds On...</b> 10 min</p>	<p><b>Pairs → Think-Pair-Share (10 mins)</b></p> <p>Visualize <math>\frac{7}{5}</math>. (Read as 7 one-fifths)</p> <p>How would you represent this fraction using concrete / digital tools? <i>Fraction Strips (Ministry developed digital learning tool) can be accessed at <a href="http://www.mathies.ca">www.mathies.ca</a></i></p> <p>What actions using the concrete / digital tools are evident as students represent the fraction (e.g. iteration of one-fifth, seven times; 1 whole and iteration of two more one-fifths; 5 one-fifths and 2 one-fifths)?</p> <p><b>Whole Group → Share (5 mins)</b> <i>What information did you use from the numeric representation to visualize and represent the fraction (e.g. unit (denominator), number of units (numerator), how many units greater than 1)?</i></p> <p>Have students model their representation in front of the class (e.g. interactive whiteboard, document camera); draw attention to actions with the tools.</p> <p>Draw attention to composing 5 one-fifths to make a whole with 2 one-fifths left over. Record <math>1\frac{2}{5}</math> as an alternate name for the fraction. Introduce / review the terms improper and mixed fractions.</p>	<p><b>SR</b> Understand what spatial thinking is, and think of ways to support it within the content that you are already teaching</p> <p>Use fraction explored during previous lesson to activate prior knowledge.</p> <p><b>SR</b> Encourage visualization strategies</p> <p><b>SR</b> Provide meaningful opportunities to investigate mathematical concepts using manipulatives.</p> <p><b>SR</b> Take advantage of technology</p> <p>Practice counting by one-fifths for the given fraction.</p> <p><b>SR</b> Encourage students to use gestures [and/or mathematical actions with tools]</p>
<p><b>Action!</b> 30 min</p>	<p><b>Pairs → Represent (20 mins)</b></p> <p>Using the same concrete / digital tool, students complete BLM 1. Students determine the fraction name(s) for the given visual representation and create the concrete/digital representation for the given numeric representations.</p> <p>What actions using the concrete / digital tools are evident as students represent the fractions?</p>	
<p><b>Consolidate Debrief</b> 30 min</p>	<p><b>Whole Group → Share (20 mins)</b></p> <p>Have various students share the visual and/or numeric representations of the fraction. Discuss how they know their representation shows the fraction.</p> <p>Listen for composing / decomposing involving unit fractions.</p> <p>Annotate number sentence alongside the representation (e.g. <math>\frac{9}{5} = \frac{5}{5} + \frac{4}{5}</math>).</p> <p><b>Whole Group → Discussion (10 mins)</b></p> <p>With a partner, discuss: <i>How did the concrete/digital and numeric representations help you to understand how to name improper and mixed fractions?</i></p> <p>Invite students to share whole group. Record summary of learning including sample visual and numeric representations of fractions on chart paper or digitally.</p>	<p>Continue to practice counting by unit fractions.</p>
<p><b>Home Activity / Further Classroom Consolidation</b> Concept Practice</p>	<p><b>Individual → Open Question (10 mins)</b></p> <p>Choose your own fraction greater than 1. Visualize the fraction. Represent the fraction using concrete/digital <i>Fraction Strips</i>. What numeric fraction name(s) would you give this fraction?</p>	<p>Open Question</p>