

<p><b>Task Model 1a</b></p> <p><b>Response Type:</b> Equation/Numeric</p> <p><b>DOK Level 1</b></p> <p><b>4.NF.C.5</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express <math>\frac{3}{10}</math> as <math>\frac{30}{100}</math>, and add <math>\frac{3}{10} + \frac{4}{100} = \frac{34}{100}</math>.</i></p> <p><b>Evidence Required:</b> 1. The student expresses a fraction with denominator 10 as an equivalent fraction with denominator 100.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student is prompted to find equivalent fractions with denominators 10 or 100.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>Item difficulty can be adjusted via these example methods:             <ul style="list-style-type: none"> <li>Location of the unknown</li> <li>Use of fractions greater than 1</li> </ul> </li> </ul> <p><b>TM1a</b> <b>Stimulus:</b> The student is presented with an equation with an unknown numerator that sets a fraction with denominator 10 equal to a fraction with denominator 100.</p> <p><b>Example Stem 1:</b> Enter the unknown number that makes this equation true.</p> $\frac{\square}{10} = \frac{40}{100}$ <p><b>Example Stem 2:</b> Enter the unknown number that makes this equation true.</p> $\frac{4}{10} = \frac{\square}{100}$ <p><b>Rubric:</b> (1 point) The student determines an equivalent fraction and enters the correct number (e.g., 4; 40).</p> <p><b>Response Type:</b> Equation/Numeric</p>
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<p><b>Task Model 1b</b></p> <p><b>Response Type:</b> <b>Matching Tables</b></p> <p><b>DOK Level 1</b></p> <p><b>4.NF.C.5</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.</i></p> <p><b>Evidence Required:</b> 1. The student expresses a fraction with denominator 10 as an equivalent fraction with denominator 100.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student is prompted to find equivalent fractions with denominators 10 or 100.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"><li>Each equation shows a fraction with denominator 10 equal to a fraction with denominator 100.</li><li>Item difficulty can be adjusted via this example method:<ul style="list-style-type: none"><li>Use of fractions greater than 1</li></ul></li></ul> <p><b>TM1b</b> <b>Stimulus:</b> The student is presented with an equation that sets a fraction with denominator 10 equal to a fraction with denominator 100.</p> <p><b>Example Stem:</b> Determine if each equation is true or false. Select True or False for each equation.</p> <table><tr><td></td><td><b>True</b></td><td><b>False</b></td></tr><tr><td><math>\frac{4}{10} = \frac{40}{100}</math></td><td></td><td></td></tr><tr><td><math>\frac{5}{10} = \frac{50}{10}</math></td><td></td><td></td></tr><tr><td><math>\frac{11}{10} = \frac{110}{100}</math></td><td></td><td></td></tr></table> <p><b>Rubric:</b> (1 point) The student correctly identifies all three equations as true or false, showing understanding of equivalent fractions with denominators 10 or 100 (e.g., T, F, T).</p> <p><b>Response Type:</b> Matching Tables</p>		<b>True</b>	<b>False</b>	$\frac{4}{10} = \frac{40}{100}$			$\frac{5}{10} = \frac{50}{10}$			$\frac{11}{10} = \frac{110}{100}$		
	<b>True</b>	<b>False</b>											
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$\frac{5}{10} = \frac{50}{10}$													
$\frac{11}{10} = \frac{110}{100}$													

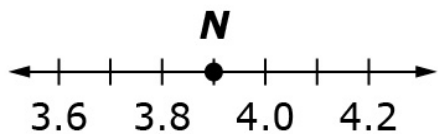
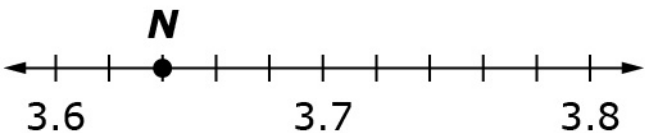
<p><b>Task Model 2a</b></p> <p><b>Response Type:</b> <b>Matching Tables</b></p> <p><b>DOK Level 2</b></p> <p><b>4.NF.C.5</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.</i></p> <p><b>Evidence Required:</b> 2. The student adds two fractions with respective denominators 10 and 100.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student is prompted to identify correctly solved fraction addition problems.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"><li>In each item, fraction addition equations/expressions <b>must</b> include exactly<ul style="list-style-type: none"><li>one addend with the denominator 10; and</li><li>one addend with the denominator 100.</li></ul></li><li>Item difficulty can be adjusted via this example method:<ul style="list-style-type: none"><li>Use of fractions greater than 1</li></ul></li></ul> <p><b>TM2a</b> <b>Stimulus:</b> The student is presented with three fraction addition equations in the answer choices.</p> <p><b>Example Stem:</b> Determine if each equation is true or false. Select True or False for each equation.</p> <table><tr><td></td><td><b>True</b></td><td><b>False</b></td></tr><tr><td><math>\frac{5}{10} + \frac{18}{100} = \frac{68}{100}</math></td><td></td><td></td></tr><tr><td><math>\frac{11}{10} + \frac{13}{100} = \frac{24}{100}</math></td><td></td><td></td></tr><tr><td><math>\frac{10}{10} + \frac{45}{100} = \frac{145}{100}</math></td><td></td><td></td></tr></table> <p><b>Rubric:</b> (1 point) The student shows the ability to add fractions with denominators 10 and 100 by correctly identifying all three equations as true or false (e.g., T, F, T).</p> <p><b>Response Type:</b> Matching Tables</p>		<b>True</b>	<b>False</b>	$\frac{5}{10} + \frac{18}{100} = \frac{68}{100}$			$\frac{11}{10} + \frac{13}{100} = \frac{24}{100}$			$\frac{10}{10} + \frac{45}{100} = \frac{145}{100}$		
	<b>True</b>	<b>False</b>											
$\frac{5}{10} + \frac{18}{100} = \frac{68}{100}$													
$\frac{11}{10} + \frac{13}{100} = \frac{24}{100}$													
$\frac{10}{10} + \frac{45}{100} = \frac{145}{100}$													

<p><b>Task Model 2b</b></p> <p><b>Response Type:</b> Equation/Numeric</p> <p><b>DOK Level 2</b></p> <p><b>4.NF.C.5</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express <math>\frac{3}{10}</math> as <math>\frac{30}{100}</math>, and add <math>\frac{3}{10} + \frac{4}{100} = \frac{34}{100}</math>.</i></p> <p><b>Evidence Required:</b> 2. The student adds two fractions with respective denominators 10 and 100.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student solves a fraction addition problem involving fractions with denominators 10 and 100.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>In each item, fraction addition equations/expressions <b>must</b> include exactly             <ul style="list-style-type: none"> <li>one addend with the denominator 10; and</li> <li>one addend with the denominator 100.</li> </ul> </li> <li>The unknown number in the equation is either the sum or the numerator of the sum.</li> <li>Item difficulty can be adjusted via this example method:             <ul style="list-style-type: none"> <li>Use of fractions greater than 1</li> </ul> </li> </ul> <p><b>TM2b</b> <b>Stimulus:</b> The student is presented with a fraction addition equation with an unknown number.</p> <p><b>Example Stem 1:</b> Enter the unknown numerator that makes this equation true.</p> $\frac{6}{10} + \frac{3}{100} = \frac{\square}{100}$ <p><b>Example Stem 2:</b> Enter the unknown number that makes this equation true.</p> $\frac{3}{10} + \frac{15}{100} = \square$ <p><b>Rubric:</b> (1 point) The student finds the sum of fractions with denominators 10 or 100 and correctly enters the value of the unknown number (e.g., 63; <math>\frac{45}{100}</math>). The student may also give a correct decimal equivalent to an unknown fraction (e.g., not possible for Example Stem 1 since the unknown is a numerator only; 0.45).</p> <p><b>Response Type:</b> Equation/Numeric</p>
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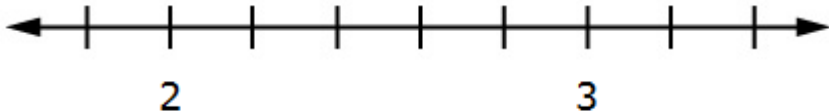
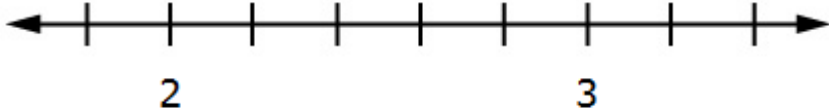
<p><b>Task Model 2c</b></p> <p><b>Response Type:</b> Equation/Numeric</p> <p><b>DOK Level 2</b></p> <p><b>4.NF.A.5</b> Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. <i>For example, express <math>\frac{3}{10}</math> as <math>\frac{30}{100}</math>, and add <math>\frac{3}{10} + \frac{4}{100} = \frac{34}{100}</math>.</i></p> <p><b>Evidence Required:</b> 2. The student adds two fractions with respective denominators 10 and 100.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student solves a fraction addition problem involving fractions with denominators 10 and 100.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>In each item, fraction addition equations/expressions <b>must</b> include exactly             <ul style="list-style-type: none"> <li>one addend with the denominator 10; and</li> <li>one addend with the denominator 100.</li> </ul> </li> <li>The unknown number in the equation is either an addend or the numerator of an addend.</li> <li>Item difficulty can be adjusted via this example method:             <ul style="list-style-type: none"> <li>Use of fractions greater than 1</li> </ul> </li> </ul> <p><b>TM2c</b> <b>Stimulus:</b> The student is presented with a fraction addition equation with an unknown number.</p> <p><b>Example Stem 1:</b> Enter the unknown numerator that makes this equation true.</p> $\frac{\square}{10} + \frac{15}{100} = \frac{65}{100}$ <p><b>Example Stem 2:</b> Enter the unknown number that makes this equation true.</p> $\frac{3}{10} + \square = \frac{65}{100}$ <p><b>Rubric:</b> (1 point) The student finds the sum of fractions with denominators 10 or 100 and correctly enters the value of the unknown number (e.g., 5; <math>\frac{35}{100}</math>). The student may also give a correct decimal equivalent to an unknown fraction (e.g., not possible for Example Stem 1 since the unknown is a numerator only; 0.35).</p> <p><b>Response Type:</b> Equation/Numeric</p>
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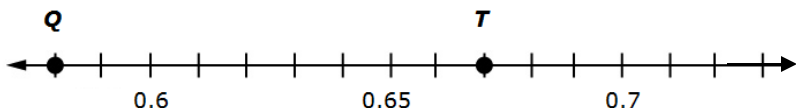
<p><b>Task Model 3a</b></p> <p><b>Response Type:</b> Equation/Numeric</p> <p><b>DOK Level 1</b></p> <p><b>4.NF.C.6</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i></p> <p><b>Evidence Required:</b> 3. The student uses decimal notation to represent fractions with denominators 10 or 100.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student uses decimal notation to represent fractions with denominators 10 or 100.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>Item difficulty can be adjusted via this example method:             <ul style="list-style-type: none"> <li>Use of fractions greater than 1</li> </ul> </li> </ul> <p><b>TM3a</b> <b>Stimulus:</b> The student is presented with a fraction with denominator 10 or 100.</p> <p><b>Example Stem:</b> Enter a decimal that is equivalent to <math>\frac{3}{10}</math>.</p> <p><b>Rubric:</b> (1 point) The student determines an equivalent decimal representation of the given fraction and enters the correct decimal (e.g., 0.3).</p> <p><b>Response Type:</b> Equation/Numeric</p>
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<p><b>Task Model 3b</b></p> <p><b>Response Type:</b> <b>Matching Tables</b></p> <p><b>DOK Level 1</b></p> <p><b>4.NF.C.6</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i></p> <p><b>Evidence Required:</b> 3. The student uses decimal notation to represent fractions with denominators 10 or 100.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student selects equivalent representations of decimals and fractions with the denominators 10 or 100.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"><li>• Answer choices should be in the form of equations.</li><li>• Each answer choice should reflect a different fraction and decimal.</li><li>• Item difficulty can be adjusted via this example method:<ul style="list-style-type: none"><li>◦ Use of fractions/decimals greater than 1</li></ul></li></ul> <p><b>TM3b</b> <b>Stimulus:</b> The student is presented with three equations that set fractions with denominators of 10 or 100 equal to decimals, in the answer choices.</p> <p><b>Example Stem:</b> Determine if each equation is true or false. Select True or False for each equation.</p> <table><tr><td></td><td><b>True</b></td><td><b>False</b></td></tr><tr><td><math>\frac{85}{100} = 85.100</math></td><td></td><td></td></tr><tr><td><math>\frac{20}{100} = 0.2</math></td><td></td><td></td></tr><tr><td><math>\frac{14}{100} = 0.014</math></td><td></td><td></td></tr></table> <p><b>Rubric:</b> (1 point) The student correctly identifies all three equations as true or false, showing the ability to translate between decimal and fraction representations (e.g., F, T, F).</p> <p><b>Response Type:</b> Matching Tables</p>		<b>True</b>	<b>False</b>	$\frac{85}{100} = 85.100$			$\frac{20}{100} = 0.2$			$\frac{14}{100} = 0.014$		
	<b>True</b>	<b>False</b>											
$\frac{85}{100} = 85.100$													
$\frac{20}{100} = 0.2$													
$\frac{14}{100} = 0.014$													

<p><b>Task Model 4a</b></p> <p><b>Response Type:</b> Equation/Numeric</p> <p><b>DOK Level 1</b></p> <p><b>4.NF.C.6</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i></p> <p><b>Evidence Required:</b> 4. The student locates decimal numbers to the hundredths place on a number line.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student is prompted to identify the decimal value of a point on a number line.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>Each item presents a decimal number line.</li> <li>Items must not require students to select/identify decimals that go beyond the hundredths place.</li> </ul> <p><b>TM4a</b> <b>Stimulus:</b> The student is presented with a number line with a point marked on a tick mark or between two tick marks and labeled with a variable.</p> <p><b>Example Stem 1:</b> Enter the decimal value of the unknown number located at point <i>N</i>.</p>  <p><b>Example Stem 2:</b> Enter the decimal value of the unknown number located at point <i>N</i>.</p>  <p><b>Rubric:</b> (1 point) The student locates a decimal number on a number line and enters the correct value of the variable (e.g., 3.9; 3.64).</p> <p><b>Response Type:</b> Equation/Numeric</p>
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<p><b>Task Model 4b</b></p> <p><b>Response Type:</b> <b>Graphing</b></p> <p><b>DOK Level 2</b></p> <p><b>4.NF.C.6</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite <math>0.62</math> as <math>62/100</math>; describe a length as <math>0.62</math> meters; locate <math>0.62</math> on a number line diagram.</i></p> <p><b>Evidence Required:</b> 4. The student locates decimal numbers to the hundredths place on a number line.</p> <p><b>Tools:</b> None</p> <p><b>Accessibility Note:</b> Graphing items are not currently able to be Brailled. Minimize the number of items developed to this TM.</p>	<p><b>Prompt Features:</b> The student is prompted to locate a point on a decimal number line.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>Each item presents a number line.</li> <li>Items must not require students to select/identify decimals that go beyond the hundredths place.</li> </ul> <p><b>TM4b</b> <b>Stimulus:</b> The student is presented with a number line and a number whose value is located at a tick mark or between two tick marks on the number line.</p> <p><b>Example Stem 1:</b> Use the Add Point tool to put a point on the number line to show the location of 2.2.</p>  <p><b>Rubric:</b> (1 point) The student locates a decimal number on a number line and places the point on the correct tick mark (e.g., student places the point at 2.2).</p> <p><b>Response Type:</b> Graphing</p> <p><b>Example Stem 2:</b> Use the Add Point tool to put a point on the number line to show the location of 2.32.</p>  <p><b>Rubric:</b> (1 point) The student locates a decimal number on a number line and places the point within a range equal to 10% of the interval above or below the correct spot, without placing the point on or beyond the nearest tick mark (e.g., student places the point in the range of 2.30 – 2.34).</p> <p><b>Response Type:</b> Graphing</p>
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<p><b>Task Model 4c</b></p> <p><b>Response Type:</b> Equation/Numeric</p> <p><b>DOK Level 1</b></p> <p><b>4.NF.C.6</b> Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i></p> <p><b>Evidence Required:</b> 4. The student locates decimal numbers to the hundredths place on a number line.</p> <p><b>Tools:</b> None</p>	<p><b>Prompt Features:</b> The student is prompted to select the correct location of decimal numbers to the hundredths place on a number line.</p> <p><b>Stimulus Guidelines:</b></p> <ul style="list-style-type: none"> <li>Each item presents a decimal number line with two labeled points above different tick marks.</li> <li>Items must not require students to select/identify decimals that go beyond the hundredths place.</li> </ul> <p><b>TM4c</b> <b>Stimulus:</b> The student is presented with a number line which includes two labeled points.</p> <p><b>Example Stem:</b> Use this number line to identify the numbers that each letter represents.</p> <div>  </div> <p>Enter the numbers represented by <i>Q</i> and <i>T</i> in the response boxes.</p> <p><b>Rubric:</b> (1 point) The student shows an understanding of decimal number lines by correctly identifying the value of both letters on the number line (e.g., 0.58 and 0.67).</p> <p><b>Response Type:</b> Equation/Numeric (2 labeled response boxes)</p>
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**Task Model 5****Response Type:**  
**Matching Table****DOK Level 2****4.NF.C.7**

Compare two decimals to hundredths by reasoning about their size.

Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions, e.g., by using a visual model.

**Evidence Required:**

5. The student compares two decimals to the hundredths place by reasoning about their size, using the symbols  $<$ ,  $>$ , or  $=$ .

**Tools:** None

**Version 3 Update:**

Changed TM5 from an equation/numeric response type to a matching table response type. Updated the stimulus and stem to match the new format.

**Prompt Features:** The student identifies the correct symbol ( $<$ ,  $>$ , or  $=$ ) to compare two decimals.

**Stimulus Guidelines:**

- Item difficulty can be adjusted via these example methods:
  - Both decimals have the same number of places represented before and after the decimal point.
  - Decimals have a different number of places represented before the decimal point, but the same number after the decimal point.
  - Decimals have a different number of places represented after the decimal point.

**TM5**

**Stimulus:** The student is presented with two pairs of decimal numbers, up to the hundredths place and directed to compare them using ( $<$ ,  $>$ , or  $=$ ).

**Example Stem:**

Select the symbol ( $<$ ,  $>$ , or  $=$ ) that correctly compares each pair of numbers.

	$<$	$>$	$=$
0.09 $\square$ 0.7			
1.2 $\square$ 0.37			

**Rubric:** (1 point) The student identifies the correct symbol to compare pairs of decimals (e.g.,  $<$ ,  $>$ ).

**Response Type:** Matching Table