

## EMDI Questions/Recording Sheet: Grade 4

Name \_\_\_\_\_ Teacher \_\_\_\_\_ Date \_\_\_\_\_

Green = grade level prompts

Yellow = prior grade level prompts

<b>1_G4. Rounding: Place Value</b>		<b>Materials:</b> screening cards; paper and pencil
<p>A. Place 4,546 card in front of student and ask the student to read the number. Then ask, "How would you round this number to the nearest <b>hundred</b>?" Follow up: "How do you know?"</p> <p>B. Place 48.67 card in front of student and ask the student to read the number. Then ask, "How would you round this number to the nearest <b>tenth</b>?" Follow up: "How do you know?"</p>		
Abilities	Challenges/Strategies	Notes
<input type="checkbox"/> Rounds to 4,500  <input type="checkbox"/> Rounds to 48.7	<input type="checkbox"/> Rounds to 5000 <input type="checkbox"/> Rounds to 4400 or 4600 <input type="checkbox"/> Other <input type="checkbox"/> Rounds to 50 <input type="checkbox"/> Rounds to 48.6 <input type="checkbox"/> Other	
<b>2_G4. Decimal/Fraction Identification</b>		<b>Materials:</b> screening cards; paper and pencil symbol cards >, <, and =
<p>A. Show card <math>\frac{6}{10}</math> and ask the student to read the number. Then ask, "How would you write this number in decimal form?" Follow up: "How do you know?"</p> <p>B. Show card <math>\frac{54}{100}</math> and ask the student to read this number. Then ask, "How would you write this number in decimal form?" Follow up: "How do you know?"</p> <p>C. Show card 0.07 and ask the student to read the number. Then ask, "How would you write this decimal number as a fraction?" Follow up: "How do you know?"</p>		
Abilities	Challenges/Strategies	Notes
<input type="checkbox"/> 0.6  <input type="checkbox"/> 0.54  <input type="checkbox"/> $\frac{7}{100}$	<input type="checkbox"/> Unable to write any decimal <input type="checkbox"/> Incorrectly writes 0.6 as _____  <input type="checkbox"/> Incorrectly writes 0.54 as _____ <input type="checkbox"/> Other difficulties  <input type="checkbox"/> Unable to write fraction <input type="checkbox"/> Incorrectly writes fraction as ____ <input type="checkbox"/> Other	

**3\_G4. Compare Decimals****Materials:** decimal comparison cards; symbol cards- >, <, and = have available grid paper, base ten blocks

Place a card in front of the student one at a time, along with the symbol cards, and say: "Choose the comparison symbol that shows the relationship between these two numbers." Once they have placed the symbol ask, "Can you read this for me?" Then follow up with, "How do you know?"

- A. 0.16   0.2  
 B. 0.25   0.19  
 C. 0.4   0.40

Abilities	Challenges/Strategies	Notes
<input type="checkbox"/> 0.16 < 0.2 <input type="checkbox"/> sound justification <input type="checkbox"/> 0.25 > 0.19 <input type="checkbox"/> sound justification <input type="checkbox"/> 0.4 = 0.40 <input type="checkbox"/> sound justification	<input type="checkbox"/> Thinks more digits is greater <input type="checkbox"/> Place value difficulty <input type="checkbox"/> Incorrect comparison 0.16__ 0.2 <input type="checkbox"/> Incorrect comparison 0.25__ 0.19 <input type="checkbox"/> Incorrect comparison 0.4__ 0.40 <input type="checkbox"/> Does not read decimals using place value language (reads "point two five" or "point twenty-five" instead of twenty-five hundredths for example) <input type="checkbox"/> Unable to justify	

**4\_G4. Compare Fractions****Materials:** screening cards; symbol cards- >, <, and =

Place a fraction comparison card and comparison symbol cards in front of the student one at a time and say, "Choose the comparison symbol that shows the relationship between these two fractions." Once they have placed the symbol ask, "Can you read this for me?" Then follow up with, "How do you know?"

- A.  $\frac{5}{9}$     $\frac{5}{12}$                       B.  $\frac{6}{8}$     $\frac{3}{4}$                       C.  $\frac{4}{5}$     $\frac{6}{7}$

Abilities	Challenges/Strategies	Notes
<input type="checkbox"/> $\frac{5}{9} > \frac{5}{12}$ <input type="checkbox"/> $\frac{6}{8} = \frac{3}{4}$ <input type="checkbox"/> $\frac{4}{5} < \frac{6}{7}$ <input type="checkbox"/> Compares to benchmarks $\frac{1}{2}$ or 1	<input type="checkbox"/> Whole number overgeneralization (looks for largest or smallest number) <input type="checkbox"/> Thinks if numbers are not the same fractions must not be equivalent <input type="checkbox"/> No use of benchmarking (comparing to common fractions like $\frac{1}{2}$ ) <input type="checkbox"/> Creates visual representation of fractions <input type="checkbox"/> Reasons about number of pieces and piece size <input type="checkbox"/> Other difficulties	

**Compare Fractions (2\_G3)**      **Materials:** screening cards; symbol cards >, <, =

Place fraction comparison cards and comparison symbol cards in front of the student one at a time and say, "Choose the comparison symbol that shows the relationship between these two fractions." Once, the student has placed the symbol ask, "Can you read this for me?" Then follow up with, "How do you know?"

- A.      $\frac{1}{6}$       $\frac{1}{8}$
- B.      $\frac{1}{2}$       $\frac{2}{4}$
- C.      $\frac{3}{8}$       $\frac{5}{8}$

Abilities	Challenges/Strategies	Notes
<p>Compares</p> <p><input type="checkbox"/> <math>\frac{1}{6} &gt; \frac{1}{8}</math> with sound justification</p> <p><input type="checkbox"/> <math>\frac{1}{2} = \frac{2}{4}</math> with sound justification</p> <p><input type="checkbox"/> <math>\frac{3}{8} &lt; \frac{5}{8}</math> with sound justification</p>	<p><input type="checkbox"/> Whole number overgeneralization (looks for largest or smallest number)</p> <p><input type="checkbox"/> Compares correctly but unable to provide sound justification</p> <p><input type="checkbox"/> Other difficulties</p>	

**Number Identification (1\_G3)**      **Materials:** screening cards (Use this item only if student struggles with 2\_G3.)

- A. Show circle card and ask, "Part of this circle has been shaded. What fraction is shown by the shaded part?" Follow up: "How did you figure out your answer?"
- B. Show rectangle card and ask, "Part of this rectangle has been shaded. What fraction is shown by the shaded part?" Follow up: "How did you figure out your answer?"
- C. Show number line card and ask, "What fraction can name the location shown by the point on the number line?" Follow up: "How did you figure out your answer?"

Abilities	Challenges/Strategies	Notes
<p>Identifies</p> <p><input type="checkbox"/> <math>\frac{5}{8}</math> (five-eighths)</p> <p><input type="checkbox"/> <math>\frac{2}{5}</math> (two-fifths)</p> <p><input type="checkbox"/> <math>\frac{5}{6}</math> (five-sixths)</p>	<p><input type="checkbox"/> Unable to name fraction(s).</p> <p><input type="checkbox"/> <math>\frac{5}{8}</math></p> <p><input type="checkbox"/> <math>\frac{2}{5}</math></p> <p><input type="checkbox"/> <math>\frac{5}{6}</math></p>	

**5\_G4. Operations with Whole Numbers**

**Materials** screening cards; paper and pencil

Place one card in front of the student at a time and ask, “What is the answer to this problem?” If needed, follow up: “How did you figure out your answer?”

- A.  $765 + 218$
- B.  $5,600 \div 7$
- C.  $43 \times 21$

Abilities	Challenges/Strategies	Notes
<input type="checkbox"/> <b>765+218= (983)</b> Model- partial sum – standard – compensation-other  <input type="checkbox"/> <b>5,600 ÷ 7= (800)</b> strategy:  <input type="checkbox"/> <b>43 x 21+ (903)</b> Model- partial products – standard – compensation-other	<input type="checkbox"/> <b>765+218= ___</b> Strategy attempted:  <input type="checkbox"/> <b>5,600 ÷ 7</b> Strategy attempted:  <input type="checkbox"/> <b>43 x 21</b> Strategy attempted:	

**Estimating Sums and Differences (3\_G3)**

**Materials:** Screening cards

- A. Place  $126 + 597$  in front of student. “Do you think the answer to this problem is more than 700 or less than 700?” Follow up: “How did you figure out your answer?”
- B. Place  $1,354 - 426$  in front of student. “Do you think the answer to this problem is more than 1,000 or less than 1,000?” Follow up: “How did you figure out your answer?”

Abilities	Challenges/Strategies	Notes
<input type="checkbox"/> $126+597$ ( <b>more</b> ) <input type="checkbox"/> sound justification <input type="checkbox"/> $1354-426$ <b>less</b> <input type="checkbox"/> sound justification	<input type="checkbox"/> Incorrect (+) estimate <input type="checkbox"/> Unable to justify (+) <input type="checkbox"/> Incorrect (-) estimate <input type="checkbox"/> Unable to justify (-)	

### 6\_G4. Addition & Subtraction Strategies (Fractions)

**Materials:** screening cards

Place one card in front of the student at a time, and ask, "What is the answer to this problem?" If needed, follow up with "How did you figure out your answer?"

A.  $\frac{2}{7} + \frac{4}{7}$

B.  $1\frac{3}{10} + 4\frac{7}{10}$

C.  $8\frac{5}{8} - 2\frac{3}{8}$

Abilities	Challenges/Strategies	Notes
<input type="checkbox"/> $\frac{2}{7} + \frac{4}{7} = \frac{6}{7}$ <input type="checkbox"/> $1\frac{3}{10} + 4\frac{7}{10} = 5\frac{10}{10}$ or 6 <input type="checkbox"/> $8\frac{5}{8} - 2\frac{3}{8} = 6\frac{2}{8}$ or $6\frac{1}{4}$ <input type="checkbox"/> Explains approach	<input type="checkbox"/> Adds numerators <input type="checkbox"/> Adds denominators <input type="checkbox"/> Adds both <input type="checkbox"/> Other	

### 7\_G4. Multiplication of Fractions

**Materials:** screening cards

Place the card  $4 \times \frac{2}{3}$  in front of the student and say, "Take a look at this card." Next, spread the remaining cards in the set out in front of the student and ask,

A. "Which of these cards is another way to show or represent  $4 \times \frac{2}{3}$ ?"

B. Point to the  $4 \times \frac{2}{3}$  card and ask, "What is the answer to this problem?" If needed, follow up with "How did you figure out your answer?"

Abilities	Challenges/Strategies	Notes
<input type="checkbox"/> Selects the three correct representations $8 \times \frac{1}{3}$ $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3}$ and  <input type="checkbox"/> $4 \times \frac{2}{3} = \frac{8}{3}$ or $2\frac{2}{3}$ <input type="checkbox"/> sound justification	<input type="checkbox"/> Difficulty with groups of <input type="checkbox"/> Difficulty with equivalent expression <input type="checkbox"/> Difficulty with repeated addition <input type="checkbox"/> Difficulty interpreting number line <input type="checkbox"/> Other	

**8\_G4. Fraction Word Problems**  
**Word Problems**

**Materials** Screening cards; paper and pencil; have a variety of materials available to students: fraction pieces or bars, number lines, grid paper

Place one card in front of the student at a time and ask the student to read the problem aloud and then solve it. For each problem, ask a follow up question: “How did you figure out your answer?” If the student has only shown one way to express the answer, follow up: “Is there also another way to express this answer?”

- A. “There are 2 containers of paint with  $\frac{3}{5}$  of a gallon in each container. How many gallons of paint are there?”
- B. “Trina’s watering can has 2 gallons of water in it. After she waters her plants, there is  $\frac{3}{4}$  of a gallon of water in the watering can. How much water did she use?”
- C. “There are 7 children sitting at the table. Paulina gives  $\frac{1}{2}$  of an apple to each of them. How many apples does she give out?”

Abilities	Challenges/Strategies	Notes
<ul style="list-style-type: none"> <li><input type="checkbox"/> <math>2 \times \frac{3}{5} = 1 \frac{1}{5}</math> or <math>\frac{6}{5}</math></li> <li><input type="checkbox"/> Correct unit (gallons) Strategy: visual model, additive; standard multiplication</li> <li><input type="checkbox"/> <math>2 - (1\frac{1}{4} \text{ or } \frac{5}{4}) = \frac{3}{4}</math></li> <li><input type="checkbox"/> Correct unit (gallons) Strategy: regrouping, adding up, expressing as improper fraction, uses standard algorithm, other</li> <li><input type="checkbox"/> <math>7 \times \frac{1}{2} = 3\frac{1}{2}</math> or <math>\frac{7}{2}</math></li> <li><input type="checkbox"/> Correct unit (apples) Strategy: <math>\frac{1}{2}</math> of 7, algorithm</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> <math>2 \times \frac{3}{5} = \underline{\hspace{1cm}}</math> Strategy attempted:</li> <li><input type="checkbox"/> Incorrect unit</li> <li><input type="checkbox"/> <math>2 - \underline{\hspace{1cm}} = \frac{3}{4}</math> Strategy attempted:</li> <li><input type="checkbox"/> Incorrect unit</li> <li><input type="checkbox"/> <math>7 \times \frac{1}{2} = \underline{\hspace{1cm}}</math> Strategy attempted:</li> <li><input type="checkbox"/> Incorrect unit</li> </ul>	