MDI Questions/Recording Sheet: Grade 6

Name _____ **Teacher** _____ **Date** _____

Green = grade level prompts; Yellow = prior grade level prompts

1_G6. Compare	**Materials:** screening cards, symbols cards

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 placed the symbol ask, "Can you read this for me?" Follow up: "How do you know?"

A. 0   -3   B. -7   -5   C. -4   -4.5   D. $-\frac{1}{2}$ $-\frac{1}{16}$

Abilities	Challenges/Strategies	Notes
☐ $0 > -3$	☐ Incorrect comparison $0 \_\_ -3$	
☐ Sound justification	☐ Incorrect comparison $-7 \_\_ -5$	
☐ $-7 < -5$		
☐ Sound justification	☐ Incorrect comparison $-4 > -4.5$	
☐ $-4 > -4.5$	☐ Incorrect comparison $-\frac{1}{2} \_\_ -\frac{1}{16}$	
☐ Sound justification		
☐ $-\frac{1}{2} < -\frac{1}{16}$	☐ Compares numeric value, ignores (-)	
☐ Sound justification	☐ Unable to justify	

Compare (1_G5)	**Materials:** screening cards; symbol cards

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 placed the symbol ask, "Can you read this for me?" Follow up: "How do you know?"

A. 0.165 0.2 B. 0.25 0.054 C. 0.43 0.430

Abilities	Challenges/Strategies	Notes
☐ $0.165 < 0.2$	☐ Thinks more digits is greater	
☐ Sound justification	☐ Place value difficulty	
☐ $0.25 > 0.054$		
☐ Sound justification	☐ Incorrect comparison $0.165\_\_ 0.2$	
☐ $0.43 = 0.430$	☐ Incorrect comparison $0.25\_\_ 0.054$	
☐ Sound justification	☐ Incorrect comparison $0.43\_\_ 0.430$	
	☐ Unable to justify	
	☐ Does not read decimals using place value language (i.e. reads as "point two five" or "point twenty-five" instead of twenty-five hundredths	

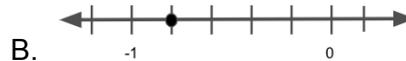| **Compare (2_G3)**	**Materials:** screening cards, symbol cards

Place comparison symbol cards and fraction comparison 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?" 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
Compares ☐　$\frac{1}{6} > \frac{1}{8}$ ☐　Sound justification ☐　$\frac{1}{2} = \frac{2}{4}$ ☐　Sound justification ☐　$\frac{3}{8} < \frac{5}{8}$ ☐　Sound justification	☐　Whole number overgeneralization (looks for largest or smallest number) ☐　Compares correctly but unable to provide sound justification ☐　Other	

| **2_G6. Number Identification**	**Materials:** screening cards; symbol cards; available: grid paper, base ten blocks

Show number line card and ask, "What number can name the location shown by the point on the number line?" Follow up: "How did you figure out your answer?"

A. 　　　B.

Abilities	Challenges/Strategies	Notes
Identifies ☐　$\frac{4}{16}$ or $\frac{1}{4}$ （four-sixteenths or equiv) ☐　$-\frac{4}{5}$ (negative four-fifths)	Unable to identify: ☐　$\frac{4}{16}$ (four-sixteenths or equiv) ☐　$-\frac{4}{5}$ (negative four-fifths)	

Number Identification (1_G3_C)	Materials: screening cards

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?"
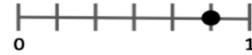
Abilities	Challenges/Strategies	Notes
Identifies ☐ $\frac{5}{6}$ (five-sixths)	Unable to name fraction(s). ☐ $\frac{5}{6}$ (five-sixths)	

3_G6. Percent of a Quantity	Materials: screening cards; available: paper and pencil

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

   A. What is 5% of 30?   B. 6 is what % of 24?   C. 30% of what is 6?

Abilities	Challenges/Strategies	Notes
☐ 5% of 30 is <u>1.5</u> ☐ Sound justification ☐ 6 is **25%** is 24 ☐ **S**ound justification ☐ 30% of **20** is 6 ☐ Sound justification	☐ 5% of 30 is _____ ☐ 6 is ___**%** is 24 ☐ 30% of _____ is 6 ☐ Unable to justify	

4_G6. Equivalent Ratios	Materials: screening cards; available: paper and pencil

Place a screening card in front of student one at a time, and ask, "What missing amount will make the ratios equivalent?" If needed, follow up: "How did you figure out your answer?"

   A. 4 : 7 = ___ : 21   B. 12 : ___ = 4 : 3

Abilities	Challenges/Strategies	Notes
☐ 4 : 7 = **12** : 21 ☐ Sound justification ☐ 12 : **9** = 4 : 3 ☐ Sound justification	☐ 4 : 7 = ___ : 21 ☐ 12 : ___ = 4 : 3 ☐ Unable to justify	

5_G6. Ratio Word Problems	Materials: screening cards

Place the problem cards in front of the student one at a time, and say, "Which is a better deal."
Once, the student chooses, ask, "How do you know?"
A. $23 for 2 pounds fish, $11 for a pound of fish
B. $7 for 9 pounds of flour, $8 for 10 pounds of flour

Abilities	Challenges/Strategies	Notes
☐ Chooses $11 for a lb.	☐ Incorrect choice _____	
☐ Sound justification		
☐ Chooses $7 for 9 lbs.	☐ Incorrect choice _____	
☐ Sound justification		
	☐ Unable to justify	

Compare (2_G3-if didn't use above)	Materials: screening cards, symbol cards

Place comparison symbol cards and fraction comparison 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?" 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
Compares		
☐ $\frac{1}{6} > \frac{1}{8}$	☐ Whole number overgeneralization (looks for largest or smallest number)	
☐ Sound justification		
☐ $\frac{1}{2} = \frac{2}{4}$	☐ Compares correctly but unable to provide sound justification	
☐ Sound justification		
☐ $\frac{3}{8} < \frac{5}{8}$	☐ Other	
☐ Sound justification		

6_G6. Estimating Fraction Quotients	**Materials:** screening cards; Available: paper and pencil

Show each card and ask students to use what they know about fraction operations to determine whether the quotient is less than or greater than the benchmark, rather than work out an exact answer. If needed, follow up: "How do you know?"

A. $\frac{5}{11} \div \frac{3}{4}$ B. $2\frac{1}{8} \div \frac{1}{4}$

Abilities	Challenges/Strategies	Notes
☐ $\frac{5}{11} \div \frac{3}{4}$ < 1 ☐ Sound justification ☐ $2\frac{1}{8} \div \frac{1}{4} > 4$ ☐ Sound justification	☐ $\frac{5}{11} \div \frac{3}{4}$ > 1 ☐ $2\frac{1}{8} \div \frac{1}{4} < 4$ ☐ Unable to justify	

Estimating Fraction Products and Quotients (7_G5)	**Materials:** screening cards

Show each card and ask students to estimate rather than work out an exact answer.
If needed, follow up: "How do you know?"

A. $2 \times \frac{4}{5}$ "Using estimation, is the product less than $\frac{4}{5}$ or greater than $\frac{4}{5}$?"

B. $\frac{2}{3} \times \frac{9}{10}$ "Using estimation, is the product less than $\frac{9}{10}$ or greater than $\frac{9}{10}$?"

C. $3 \div \frac{1}{8}$ "Using estimation, is the quotient less than 3 or greater than 3?"

Abilities	Challenges/Strategies	Notes
☐ Greater than $\frac{4}{5}$ ☐ Less than $\frac{9}{10}$ ☐ Greater than 3 ☐ Reasons about fractions and multiplication (2 times is doubling; 2/3 of a number less is less than that number) ☐ Reasons about fraction division (3 has how many 1/8)	☐ Misconception: multiplication always makes bigger ☐ Misconception: division always makes smaller ☐ Computes rather than estimates ☐ Other	

7_G6. Numerical Expressions	**Materials:** screening cards available paper and pencil	

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

A. $6^2 - 5 \times 2$ B. $20 - 2^3$

Abilities	**Challenges/Strategies**	**Notes**
☐ $6^2 - 5 \times 2 =$ **26**	☐ $6^2 - 5 \times 2 =$ _____	
☐ Sound justification	☐ $20 - 2^3 =$ _____	
☐ $20 - 2^3 =$ **12**		
☐ Sound justification	☐ Unable to justify	

8_G6. Algebraic Expressions	**Materials:** screening cards	

Place the pair of expression cards in front of the student one at a time, and say, "Are these expressions equivalent?" Follow up with, "How do you know?"

A. $3 + 4n + 1$ $8n$ B. $2(m + 3)$ $2m + 3$

Abilities	**Challenges/Strategies**	**Notes**
☐ 3+ 4n + 1 Not Equivalent to 8n	☐ Equivalent	
☐ Sound justification	☐ Equivalent	
☐ 2(m+3) is Not Equivalent to 2m+3	☐ Unable to justify	
☐ Sound justification		

9_G6. Word Problems	Materials: screening cards; available: paper and pencil

Place the word problem card in front of the student and say, "Read the problem on this card." Next, spread the remaining cards in the set out in front of the student and ask,

A school group is preparing for a field trip to a science center. There will be 7

times as many students as teachers on the trip.

A. "Which card is an equation that represents the relationship in the problem?"
B. "Are there other cards that also represent this problem? If so which one/ones? If not, why not?"

$7s = t$ $t = \frac{1}{7}s$ $7t = s$ $7 = \frac{s}{t}$ $\frac{t}{s} = 7$

Abilities	Challenges/Strategies	Notes
Represents Relationship:	**Incorrect Choices**	
☐ $t = \frac{1}{7}s$	☐ $7s = t$	
☐ Sound justification	☐ $7 = \frac{t}{s}$	
☐ $7t = s$	☐ Unable to justify	
☐ Sound justification		
☐ $7 = \frac{s}{t}$		
☐ Sound justification		
Does Not Represent Relationship:		
☐ $7s = t$		
☐ Sound justification		
☐ $7 = \frac{t}{s}$		
☐ Sound justification		