Fractional Reasoning Assessment

Student_____ **Date**_____ **Grade:**_____

Assessor_____ **Classroom Teacher:**_____

Domain 1: Understanding a Fraction within the Context of One Whole

Naming Fractions with Different Models and Counting by Fractional Parts

Skill 1	Skill 1.1	Skill 2	Skill 3	Skill 3.1
Identifies Basic Fractions Part of Whole / Set	Identifies Fractions on a Number Line	Counts by Fractional Parts	Identifies Improper Fractions or Mixed Numbers	Improper Fractions / Mixed Numbers on a Number Line

Fractions as Part of a Whole / Whole and Some Parts

Skill 4	Skill 5	Skill 6	Skill 6
Fraction is Less Than One	Completes a Whole with Unit and Non-Unit Fractions	Mixed Numbers are Greater than One	Improper Fractions are Greater than One

Domain 2: Comparing Fractions with Defined Characteristics

Comparing Fractions

Skill 7	Skill 8	Skill 9	Skill 10
Same Denominator	Unit Fractions and Same Numerator	One Unit Away from a Whole	Benchmark of 1/2

Domain 3: Manipulates Equivalent Change to a Fraction

Equivalent Fractions and Common Denominators

Skill 12	Skill 13	Skill 14	Skill 15
Identifies Equivalents on a Number Line	Identifies Equivalents for 1/2 with Automaticity	Generates Equivalent Fractions / Convert fractions to Simplest From	Generates a Common Denominator for Two Fractions

Mixed Numbers and Improper Fractions

Skill 16	Skill 17
Converts a Mixed Number to an Improper Fraction	Converts an Improper Fraction to a Mixed Number

©Numeracy Consultants Fractional Reasoning Assessment

Domain 4: Arithmetic with Fractions

Procedures for Addition / Subtraction and Estimation

Skill 18	Skill 19	Skill 20	Skill 21	Skill 22
Add & Subtract with Like Denominators	Add & Subtract Unlike Denominators	Add & Subtract Mixed Numbers Like Denominators	Add & Subtract Mixed Numbers Unlike Denominators Regrouping/ Ungrouping	Estimation of Addition of Fractions

Understanding Multiplication and Division

Skill 23	Skill 24	Skill 25	Skill 26	Skill 27
Multiply a Whole Number by a Fraction	Multiply a Fraction by a Fraction	Divide a Whole number by a Fraction	Divide a Fraction by a Fraction	Understanding Multiplication of Fractions

Domain 1: Progress Monitoring

Date	Skill 1	Skill 1.1	Skill 2	Skill 3	Skill 3.1	Skill 4	Skill 5	Skill 6	Skill 6	%

Domain 2: Progress Monitoring

Date	Skill 7	Skill 8	Skill 9	Skill 10	%

Domain 3: Progress Monitoring

Date	Skill 12	Skill 13	Skill 14	Skill 15	Skill 16	Skill 17	%

Domain 4: Progress Monitoring

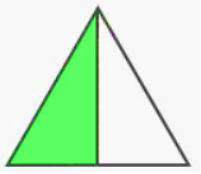
Date	Skill 18	Skill 19	Skill 20	Skill 21	Skill 22	Skill 23	Skill 24	Skill 25	Skill 26	Skill 27	%

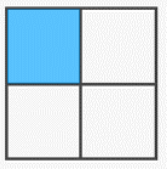
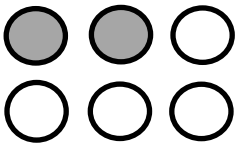
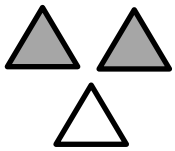
©Numeracy Consultants Fractional Reasoning Assessment

Domain 1: Understanding One Whole: Naming Fractions with Different Models and Counting

Say to the Student: "**Name each Fraction.**"

Skill 1



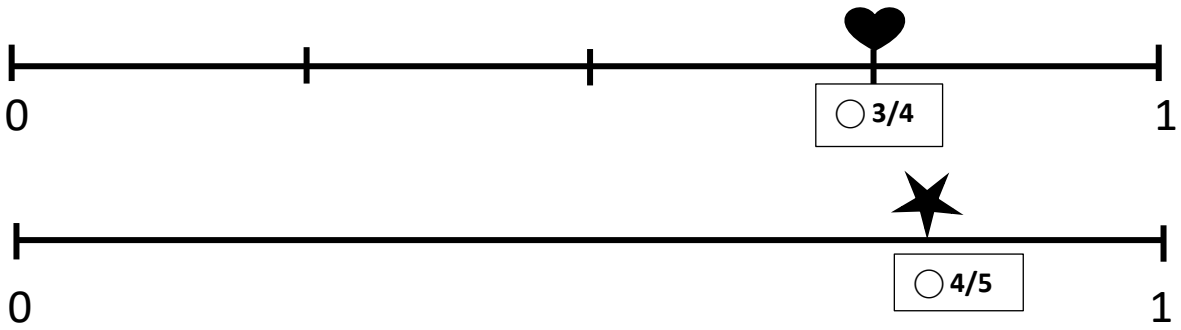




◯ **1/2** ◯ **4/5** ◯ **1/4** ◯ **2/6** ◯ **2/3**

Say to the Student: **What fraction is the heart placed at on the number line?**

Where would 4/5 go on the number line?

Skill 1.1



Say to the Student:

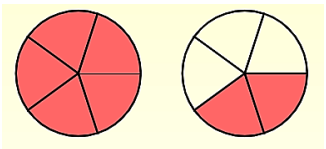
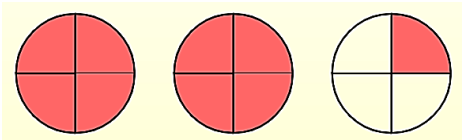
Skill 2

"Count by eighths starting at 0 and stop at 1." Correct ◯ Incorrect ◯

"Count backwards by sixths starting at 1 or 6/6 and stop at zero." Correct ◯ Incorrect ◯

Say to the Student: "**Name as a mixed number or an improper fraction**. "

Skill 3

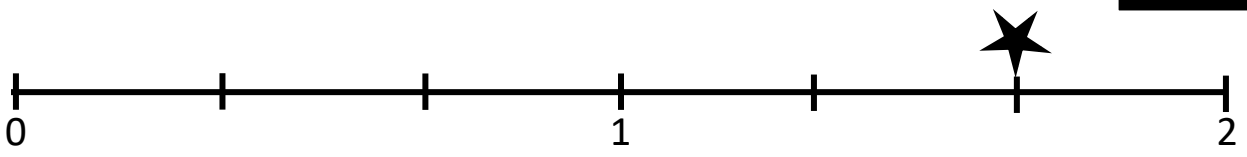
◯ **7/5 or ◯ 1 and 2/5**

◯ **9/4 or ◯ 2 and 1/4**

©Numeracy Consultants Fractional Reasoning Assessment

Say to the Student: **"Where would 5/3rds or 1 and 2/3 go on this number line?"**

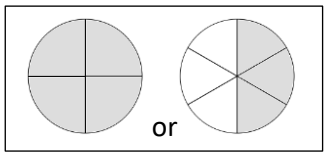
Skill 3.1



Domain 1: Understanding One Whole: Fractions as Part of a Whole

Say to the Student: ***"I am going to show you some fractions and numbers. I want you to tell me which is greater."*** *Student must explain each answer, if no explanation is given then the question will be marked as unable to explain.*

Skill 4



◯ *Evidence of understanding*
◯ *Evidence of misconception*
◯ *Unable to explain*

$\frac{3}{4}$ or 1

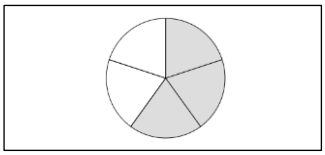
◯ *Evidence of understanding*
◯ *Evidence of misconception*
◯ *Unable to explain*

$\frac{3}{3}$ or $\frac{4}{5}$

◯ *Evidence of understanding*
◯ *Evidence of misconception*
◯ *Unable to explain*

Say to the Student: ***"I am going to show you a fraction. Tell me how much more I would need to make one whole.***

Skill 5



◯ *Correct answer of 2/5*
◯ *Incorrect Answer*

$\frac{1}{3}$

◯ *Correct answer of 2/3*
◯ *Incorrect Answer*

$\frac{4}{7}$

◯ *Correct answer of 3/7*
◯ *Incorrect Answer*

Say to the Student: ***"Compare and tell me which is greater."***

Skill 6

1 or $2\frac{1}{4}$

◯ *Evidence of understanding*
◯ *Evidence of misconception*
◯ *Unable to explain*

$\frac{3}{3}$ or $1\frac{1}{2}$

◯ *Evidence of understanding*
◯ *Evidence of misconception*
◯ *Unable to explain*

Skill 6

$\frac{5}{4}$ or 1

◯ *Evidence of understanding*
◯ *Evidence of misconception*
◯ *Unable to explain*

$\frac{7}{4}$ or $\frac{9}{9}$

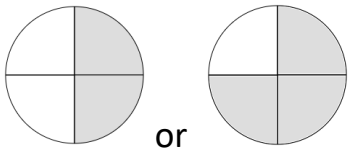
◯ *Evidence of understanding*
◯ *Evidence of misconception*
◯ *Unable to explain*

©Numeracy Consultants Fractional Reasoning Assessment

Domain 2: Comparing Fractions with Defined Characteristics

Say to the Student: ***"I am going to show you two fractions and I want you to compare and tell me which fraction is greater and explain why"***

Skill 7



or

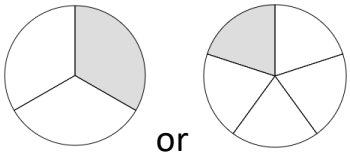
◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

$\frac{2}{8}$ or $\frac{6}{8}$

◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

NOTES:

Skill 8



or

◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

$\frac{1}{4}$ or $\frac{1}{8}$

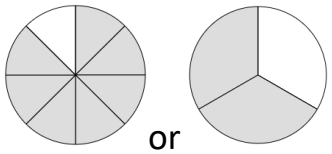
◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

$\frac{3}{7}$ or $\frac{3}{9}$

◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

NOTES:

Skill 9 *Question 2 *both fractions are one piece away from being one whole, use that piece to explain which fraction is greater.*



or

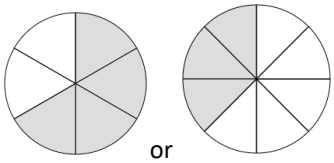
◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

$\frac{5}{6}$ or $\frac{3}{4}$

◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

NOTES:

Skill 10 *Question 1 and 2: *use the benchmark of ½ to explain to me which fraction is greater.*



or

◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

$\frac{6}{10}$ or $\frac{4}{9}$

◯ *Evidence of understanding*
◯ *Use of Procedure*
◯ *Evidence of misconception*

NOTES:

©Numeracy Consultants Fractional Reasoning Assessment

Domain 3: Manipulates Change to a Fraction: Equivalent Fractions and Common Denominators

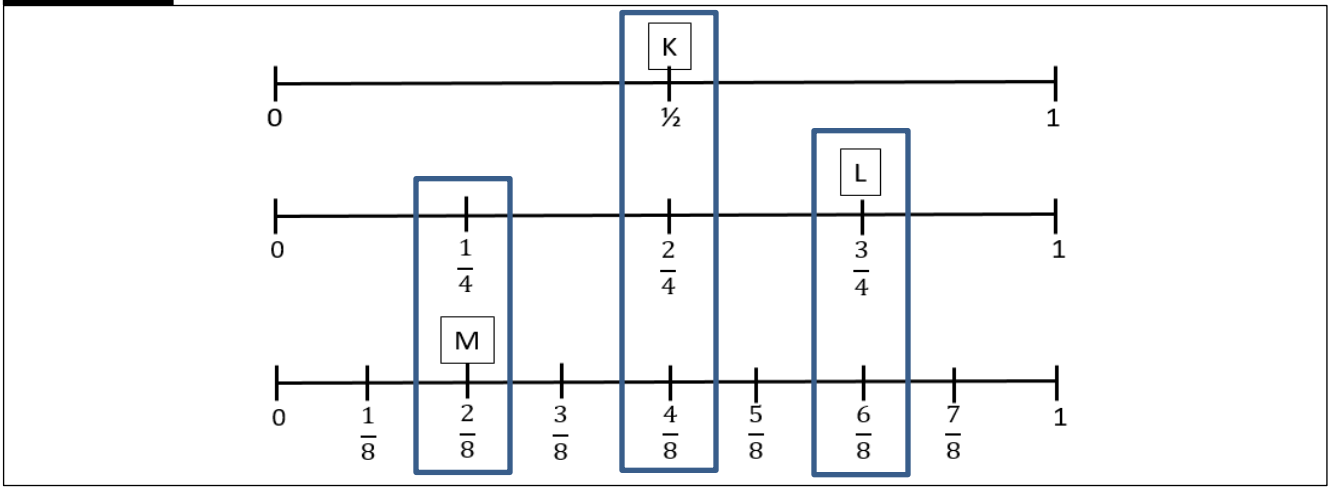
Say to the Student:

"What are all the fractions that are equivalent to K? Correct ◯ Incorrect◯

"What are all the fractions that are equivalent to L? Correct ◯ Incorrect◯

"What are all the fractions that are equivalent to M? Correct ◯ Incorrect◯

Skill 12



Say to the Student: ***"Which fractions are equivalent or the same as ½. *no paper pencil.***

Skill 13

$\frac{1}{3}$	$\frac{2}{4}$ ◯	$\frac{3}{5}$	$\frac{4}{8}$ ◯	$\frac{6}{10}$	$\frac{3}{6}$ ◯	$\frac{5}{7}$

Say to the Student: ***"Write an equivalent fraction for 3/5."***

"Write an equivalent fraction for 5/15 that is in simplest form."

Skill 14

$\frac{3}{5}$	$\frac{5}{15}$

Say to the Student: ***"Find a common dominator for the fraction sets below."***

Skill 15

$\frac{2}{3}$ $\frac{1}{6}$	$\frac{1}{2}$ $\frac{3}{5}$

©Numeracy Consultants Fractional Reasoning Assessment

Domain 3: Manipulates Change to a Fraction: Mixed Numbers and Improper Fractions

Distribute to the Student the Arithmetical Procedures 16-21 sheet:

Skill 16

$2\frac{1}{5}$ $\frac{11}{5}$

Skill 17

$\frac{7}{4}$ $1\frac{3}{4}$

Domain 4: Arithmetic with Fractions: Addition and Subtraction

Distribute Arithmetical Procedures 16-21 WORKSHEET.

Skill 18

$\frac{1}{8}+\frac{4}{8}=\frac{5}{8}$ $\frac{9}{10}-\frac{3}{10}=\frac{6}{10}$

Skill 19

$\frac{1}{4}+\frac{3}{8}=\frac{5}{8}$ $\frac{4}{5}-\frac{1}{2}=\frac{3}{10}$

Skill 20

$3\frac{3}{5}+1\frac{1}{5}=4\frac{4}{5}$ $5\frac{9}{10}-2\frac{3}{10}=3\frac{6}{10}$

Skill 21

$3\frac{4}{6}+1\frac{3}{4}=5\frac{5}{12}$ $8\frac{1}{3}-5\frac{4}{5}=2\frac{8}{15}$

*Say to the Student**: "Estimate where 1/8 + 1/10 would go on the number line?"*** **Skill 22**

*Say to the Student**: "Estimate where 1 and 11/12 + 9/10 would go on the number line?"*** **Skill 22**

Domain 4: Arithmetic with Fractions: Multiplication and Division

Distribute Applying Arithmetical Procedures WORKSHEET (Skill 23-26)

What is ¼ of 24? **Skill 23** ***Answer: 6***

What is 2/3 of ¾? **Skill 24** ***Answer: 6/12 or ½***

How many 1/3's will go into 4? **Skill 25** ***Answer: 12***

How many 1/8's will go into 3/4? **Skill 26** ***Answer: 6***

If 5 is multiplied by ¾ will the product be larger or smaller than 5? *Explain* **Skill 27** *Smaller*

If 5 is multiplied by 2 ½ will the product be larger or smaller than 5? *Explain* **Skill 27** *Larger*

©Numeracy Consultants Fractional Reasoning Assessment

Arithmetical Procedures Worksheet (Skill 16-21) Student Sheet

Skill 16

$2\frac{1}{5}$

Convert to an equivalent improper fraction.

Skill 17

$\frac{7}{4}$

Convert to an equivalent mixed number.

Solve:

Skill 18

$\frac{1}{8} + \frac{4}{8} =$

Skill 18

$\frac{9}{10} - \frac{3}{10} =$

Skill 19

$\frac{1}{4} + \frac{3}{8} =$

Skill 19

$\frac{4}{5} - \frac{1}{2} =$

Skill 20

$3\frac{3}{5} + 1\frac{1}{5} =$

Skill 20

$5\frac{9}{10} - 2\frac{3}{10} =$

Skill 21

$3\frac{4}{6} + 1\frac{3}{4} =$

Skill 21

$8\frac{1}{3} - 5\frac{4}{5} =$

©Numeracy Consultants Fractional Reasoning Assessment

Applying Arithmetical Procedures Worksheet (Skill 23-26)

Skill 23

What is ¼ of 24?

Skill 24

What is $\frac{2}{3}$ of $\frac{3}{4}$?

Skill 25

How many $\frac{1}{3}$'s will go into 4?

Skill 26

How many $\frac{1}{8}$'s will go into $\frac{3}{4}$?

©Numeracy Consultants Fractional Reasoning Assessment