8th GRADE OPEN RESPONSE
FRACTION EQUIVALENCY CHART

KY Academic Expectation 1.5: Students use mathematical ideas and procedures to communicate, reason, and solve problems.
KY Academic Expectation 2.7: Students understand number concepts and use numbers appropriately and accurately.

KY Core Content MA-M-1.1.3: Students will describe properties of, define, give examples of, and/or apply to both real-world and mathematical situations: meaning of proportion (equivalent ratios).
KY Core Content MA-M-1.3.1: Students will show connections and how connections are made between concepts and skills, explain why procedures work, and make generalizations about mathematics in meaningful ways for the following relationships: how fractions relate to each other (e.g., convert between forms of rational numbers, compare, order).

PART I: Complete the chart below by finding the simplest form of each fraction and the three other equivalent fractions indicated by each heading. Each row contains *only* fractions that are equivalent to each other. Use blocks to model the fractions.

Simplest Form	Equivalent Form (Simplest X 2/2)	Equivalent Form (Simplest X 3/3)	Equivalent Form (Simplest X 4/4)	Equivalent Form (Simplest X 5/5)
	2/4			
				5/20
			8/12	
	6/8			
		3/9		
				20/25
			8/20	
		3/18		
	2/10			
				15/25

PART II:

a) **Explain** your strategy for finding the simplest form of a given fraction.
b) Does the simplest form of a fraction represent a lesser number compared to the equivalent fraction? For example, does 1/3 represent less than 3/9? **Justify** your answer using diagrams, real-life examples, or numerical reasoning**.**
c) **Discuss** at least one pattern you notice in the chart.

By Alice Gabbard

NAME_____

8th Grade Open Response

FRACTION EQUIVALENCY CHART

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	2/4			
				5/20
			8/12	
	6/8			
		3/9		
				20/25
			8/20	
		3/18		
	2/10			
				15/25

PART II:

a) **Explain** your strategy for finding the simplest form of a given fraction.

b) Does the simplest form of a fraction represent a lesser number compared to the beginning fraction? For example, does 1/3 represent less than 3/9? **Justify** your answer using diagrams, real-life examples, or numerical reasoning**.**

c) **Discuss** at least one pattern you notice in the chart.

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Rubric for
8th Grade Open Response
Fraction Equivalency Chart

The final score is the sum of all the points earned as stipulated below:

PART I:

2.5 points—0-1 blocks with incorrect answers (39/40=98%).
2.0 points—2-3 blocks with incorrect answers (37/40=93%).
1.5 points—4-5 blocks with incorrect answers (35/40=88%).
1.0 points—6-7 blocks with incorrect answers (33/40=83%).
0.5 points—8-9 blocks with incorrect answers (31/40=78%).
0 points—10 or more blocks with incorrect answers.

PART II:

a) **0.5 points**—Student explains an acceptable strategy for find the simplest form of a fraction, such as:
- dividing both the numerator and denominator by the greatest common factor;
- building a blocks model having equivalent rows;
- the correct calculator sequence;
- other proportional reasoning.

b) **0.25 points**—Student states that the simplest form and other equivalent forms represent the same proportional amount.
0.25 points—Includes an acceptable diagram, example, or numerical reasoning, such as:
- 1/3 of a pie is the same as 3/9 of a pie. With 3/9 you get more pieces, but the pieces are smaller, so it comes out even.
- 1/3 of a bag of Reese's Pieces containing 9 pieces would mean that you get 3 out of the 9 pieces or 1/3 of the total amount.
- Since 1/3 X 3/3 = 3/9, and since 3/3 = 1, you know that 1/3 = 3/9. The identity principle states that whenever you multiply a number by 1, you get the same number you started with.
- Cross multiplying shows that 1/3 and 3/9 are equivalent, because 1 X 9 = 3 X 3.

c) **0.5 points**—Student identifies and discusses at least one pattern in the chart, involving the numerator and denominator across the row. S/he might mention that the numerator and denominator increase arithmetically each time by adding the numbers found in the simplest form.

By Alice Gabbard

8th Grade Open Response
Fraction Equivalency Chart
Distinguished Response Example

PART I: Complete the chart below by finding the simplest form of each fraction and the three other equivalent fractions indicated by each heading. Each row contains *only* fractions that are equivalent to each other. Use blocks to model the fractions.

Simplest Form	Equivalent Form (*Simplest* X 2/2)	Equivalent Form (*Simplest* X 3/3)	Equivalent Form (*Simplest* X 4/4)	Equivalent Form (*Simplest* X 5/5)
1/2	**2/4**	3/6	4/8	5/10
1/4	2/8	3/12	4/16	**5/20**
2/3	4/6	6/9	**8/12**	10/15
3/4	**6/8**	9/12	12/16	15/20
1/3	2/6	**3/9**	4/12	5/15
4/5	8/10	12/15	16/20	**20/25**
2/5	4/10	6/15	**8/20**	10/25
1/6	2/12	**3/18**	4/24	5/30
1/5	**2/10**	3/15	4/20	5/25
3/5	6/10	9/15	12/20	**15/25**

PART II:

a) **Explain** your strategy for finding the simplest form of a given fraction.

To find the simplest form of a given fraction, I divided the numerator and denominator by the greatest common factor. By dividing the numerator and denominator by the same number, it is the same as dividing by the number one, which means I end up with the same amount I started with.

b) Does the simplest form of a fraction represent a lesser number compared to the beginning fraction? For example, does 1/3 represent less than 3/9? **Justify** your answer using diagrams, real-life examples, or numerical reasoning.

The simplest form of a fraction represents the same number compared to the beginning fraction. Since 1/3 x 3/3 = 3/9, and since 3/3 = 1, you know that 1/3 = 3/9. One is the multiplicative identity and whenever you multiply by some form of one, you end up with the same amount you started with.

c) **Discuss** at least one pattern you notice in the chart.

I noticed that there are 2 arithmetic sequences across each row. To get each numeratorand denominator, you repeatedly add the number found in the simplest form.

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