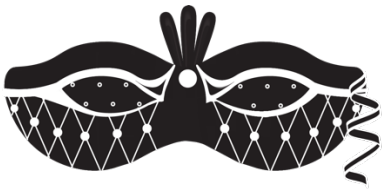


Masked Mathematician

Intro to Rational Numbers

Ideal Unit: Rational Numbers	Time Range: 25-40 Minutes	Supplies: Pencil & Paper (Optional Web App for Reveal)

Common Core Alignment:

This particular activity was mapped to these common core standards. *Masked Mathematician* activities are ideal as individual skill practice.

6.NS.A.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
6.NS.B.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
6.NS.C.6c	Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.C.7	Understand ordering and absolute value of rational numbers.

General Procedures:

A.) The Set-Up - Print a set of pages 2-7 for each student. For older students, you may enjoy NOT giving them the Suspects List (page 3) and require students to rely on their knowledge of historical figures to make an educated guess.

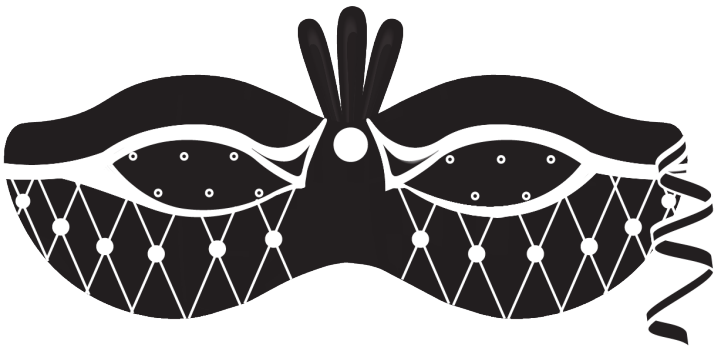
B.) The Job - Students will solve problems for four puzzles. Unlike the elementary topics, the four puzzles are different. They may need to cross out letters, complete word searches, eliminate options or solve ciphers. When complete, each puzzle will reveal a clue. These clues will correspond to the information provided on the Suspect List – with the exception of the quote on Puzzle 4 that is attributed to the Masked Mathematician.

C.) The Clues - After students have a clue, they can rule out suspects of who the Masked Mathematician may be. Unlike the elementary topics, these clues will NOT completely reveal the Masked Mathematician so students will have to make an educated guess -- and may be surprised by the result. Just like on *The Masked Singer.*

D.) The Reveal - You may enjoy a weblink where students will be able to "unmask" the Masked Mathematician to culminate the activity. Click the mask to go to it.

THE CODE FOR THIS ACTIVITY IS: 6-1-0-5

E.) A Follow-Up? - A coloring page of the Masked Mathematician has been added on page 8. As an alternative to D, you can hide this behind a piece of butcher paper for the reveal.



Intro to Rational Numbers

Name: _____

Date: _____

Welcome, welcome, welcome! Thank you for tuning in to this very special program. While you were away, I have sent you quite a treat. FOUR math puzzles. I know you are VERY excited, but wait – there's more! These puzzles weren't just put together by anyone. They have been written by a MASKED MATHEMATICIAN!

All I will tell you is that I am a famous person in history. I have left clues behind about who I am. I might not even be a real mathematician, but instead someone who likes making math puzzles. You have two jobs to do:

1.) Solve the puzzles and practice your math skills.
2.) Figure out who the Masked Mathematician is.

Today you will need to practice with rational numbers. Good luck to you, my friend!

The Masked Mathematician

Suspects

The Masked Mathematician may be one of these people. Each puzzle will give you clues you can use to help eliminate different suspects.

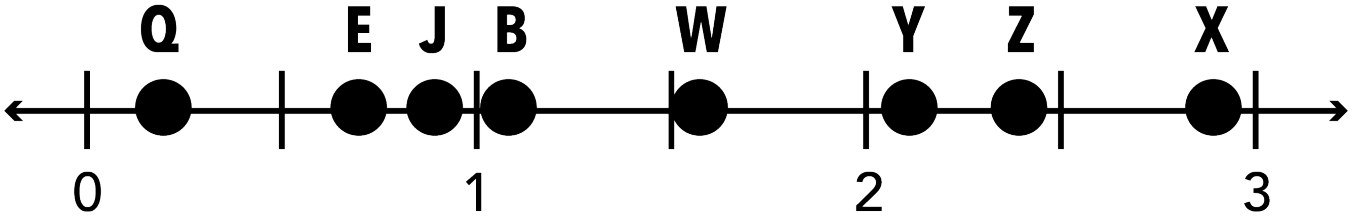
	Country	Special Group(s)	Birth Year
George Washington 	United States	Political Leader	1732
Mahatma Gandhi 	India	Activist	1869
Deborah Sampson 	United States	Soldier	1760
Sacagawea 	United States	Native American	1788
Theodor Geisel 	United States	Writer	1904
Joan of Arc 	France	Soldier	1412
Enheduanna 	Iraq	Writer	2285 BC
Barack Obama 	United States	Political Leader	1961

	Country	Special Group(s)	Birth Year
Malcolm X 	United States	Activist	1925
Emmy Noether 	Germany	Mathematician	1882
Hatshepsut 	Egypt	Political Leader	1507 BC
Jose Rizal 	United States	Activist	1861
Theodore Roosevelt 	United States	Political Leader	1858
Amelia Earhart 	United States	Aviation	1897
Grace Hopper 	United States	Computers	1906
Charles Lindberg 	United States	Aviation	1902

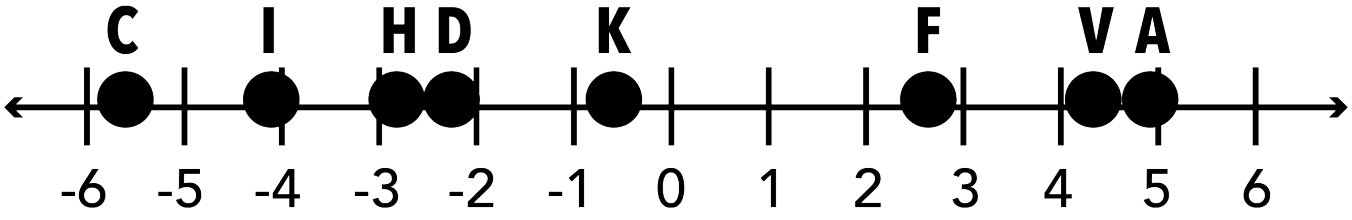
I think the Masked Mathematician is... _____

PUZZLE 1

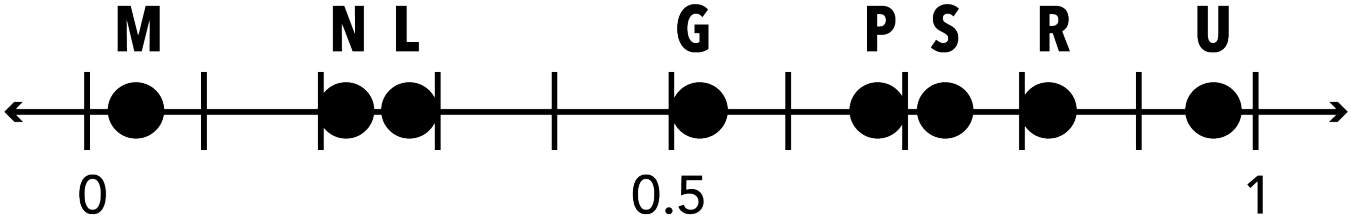
For each number line, identify the letter of the point that best estimates the values underneath. Not all letters will be used.



1.) 2.92 2.) 2.45 3.) 0.21 4.) 0.9



5.) 4.15 6.) -0.84 7.) -5.65 8.) -2.14



9.) 0.972 10.) 0.688 11.) 0.283 12.) 0.035

In pencil, CROSS OUT the letters you've found every time they appear in the Secret Code. Rewrite the leftover letters in order to reveal a clue about the Masked Mathematician. Spaces between any words are not included.

Secret Code

LIDWJAZMSBCOMLRNBEDFQCOREZVUJ
MEQULPLIGHTDEVMPENNICNLEXPDUTY

Skill: I can identify points on a number line.	6.NS.6c

PUZZLE 2

Solve each problem. Answer as a mixed number if necessary. Reduce all fractions. As you solve problems, circle the answers and the word they are connected to in the Word List. Not all words will be used.

1.) $\frac{1}{2} \div \frac{1}{4} =$	2.) $\frac{2}{3} \div \frac{1}{2} =$	3.) $\frac{3}{4} \div \frac{3}{5} =$
4.) $\frac{2}{3} \div \frac{2}{5} =$	5.) $\frac{1}{6} \div \frac{1}{6} =$	6.) $\frac{4}{5} \div \frac{1}{2} =$
7.) $\frac{7}{3} \div \frac{7}{2} =$	8.) $\frac{3}{4} \div \frac{1}{3} =$	9.) $\frac{9}{4} \div \frac{11}{2} =$
10.) $3\frac{1}{2} \div \frac{7}{3} =$	11.) $4\frac{3}{5} \div 4\frac{1}{2} =$	12.) $7\frac{1}{2} \div 8\frac{1}{2} =$
13.) $4\frac{1}{2} \div 5\frac{3}{4} =$	14.) $3\frac{1}{2} \div 3\frac{1}{3} =$	15.) $3\frac{1}{2} \div 8\frac{3}{4} =$

Find the circled words in the Word Search. The leftover letters in the Word Search will reveal a hidden message and a clue about the Masked Mathematician. Read the answers in the list carefully; they are meant to trick!

Word List

1 = Coast	$1\frac{1}{4}$ = Canal
$\frac{1}{6}$ = Pond	$1\frac{1}{45}$ = Mountain
$1\frac{1}{20}$ = Glacier	$1\frac{3}{5}$ = Stream
$1\frac{2}{3}$ = Tunnel	$1\frac{1}{2}$ = Field
2 = Beach	$2\frac{1}{2}$ = Plains
$\frac{2}{15}$ = Crevasse	$\frac{4}{5}$ = Path
$\frac{15}{17}$ = Stone	$2\frac{1}{4}$ = Grass
$\frac{2}{3}$ = Forest	$\frac{18}{23}$ = Meadow
$\frac{2}{5}$ = Cliff	$1\frac{1}{3}$ = Bridge
$\frac{5}{18}$ = Plateau	$\frac{9}{22}$ = Riverbank

Word Search

You are looking for a 30-letter hidden message.

S	I	W	M	O	U	N	T	A	I	N	H	A	D	G
T	S	B	O	R	C	A	N	A	L	N	C	I	L	R
R	N	C	O	A	S	T	O	N	E	N	A	E	E	A
E	W	R	E	I	C	A	L	G	Y	O	E	R	I	S
A	M	E	A	D	O	W	K	A	N	D	B	L	F	S
M	A	T	K	N	A	B	R	E	V	I	R	E	R	D
I	E	D	C	L	I	F	F	E	G	D	I	R	B	T
H	E	R	E	L	E	N	N	U	T	S	E	R	O	F

Skill: I can divide two fractions including mixed numbers. | 6.NS.A.1

PUZZLE 3

Write the correct inequality symbol that will make the sentence true. Find the animal in the correct column for that row and circle it.

			>	<
1.)	0.57	0.34		
2.)	-1.23	6.53		
3.)	-9.8	1.1		
4.)	1.56	1.056		
5.)	-3.18	-3.09		
6.)	-0.068	-0.68		
7.)	|-9|	|8|		
8.)	|-1.34|	1.325		
9.)	-33.12	|5.673|		
10.)	|4.156|	|-4.516|		
11.)	|0.57|	|-0.65|		
12.)	|-4.31|	|4.18|		

If an animal has been circled, CROSS OUT the clue that shares a box below. Any leftover answers reveal clues about the Masked Mathematician.

Clue Bank				
	I lived during ancient history.	I loved being outdoors.	I enjoyed being on a TV show.	I died when I was in my 30's
I lived in a European country.	I was a vegetarian.	I invented electrical devices.	I was a famous aviator.	I was a famous mathematician.
I was involved with NASA.	I lived most of my life in Asia.	I popularized the hobby of jogging.	I was the leader of a country.	I was a pro athlete.

Skill: I can apply inequality symbols with rational numbers and absolute value. | 6.NS.C.7

PUZZLE 4

Solve each problem. Round decimals to the nearest hundredth.

A.)	77.4 – 43.78 =	F.)	5.56 ÷ 8.8 =	K.)	14.32 + 24.7 =
L.)	6.5 x 3.75 =	E.)	19.81 + 13.3 =	P.)	72.11 ÷ 2.15 =
Y.)	19.87 – 17.9 =	C.)	14.62 x 2.8 =	I.)	9.72 + 14.09 =
G.)	6.45 ÷ 12.85 =	T.)	18.67 – 9.9 =	D.)	0.78 x 0.42 =
O.)	0.67 + 0.21 =	N.)	13.25 ÷ 3.6 =	R.)	43.21 – 43.09 =
B.)	12.89 x 7.65 =	S.)	15.78 + 3.3 =		

Write the letter of the problem on every line that has its answer underneath it. This reveals a real quote from the Masked Mathematician.

“

19.08	33.54	33.11	33.62	39.02		19.08	0.88	0.63	8.77	24.38	1.97

33.62	3.68	0.33		40.94	33.62	0.12	0.12	1.97		33.62

98.61	23.81	0.50		19.08	8.77	23.81	40.94	39.02	.	”

Skill: I can add, subtract, multiply, and divide decimals.	6.NS.B.3

“It is hard to fail, but it is worse never to have tried to succeed.”

A Deeper Dive?

You might also like this $3 resource from **Clark Creative World** that includes:

- a biography written at three reading levels
- more coloring page options
- higher order thinking activities
- individual and group crafts
- a slideshow presentation

Suspects

The Masked Mathematician may be one of these people. Each puzzle will give you clues you can use to help eliminate different suspects.

	Country	Special Group(s)	Birth Year
George Washington 	United States	Political Leader	1732
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Enheduanna 	Iraq	Writer	2285 BC
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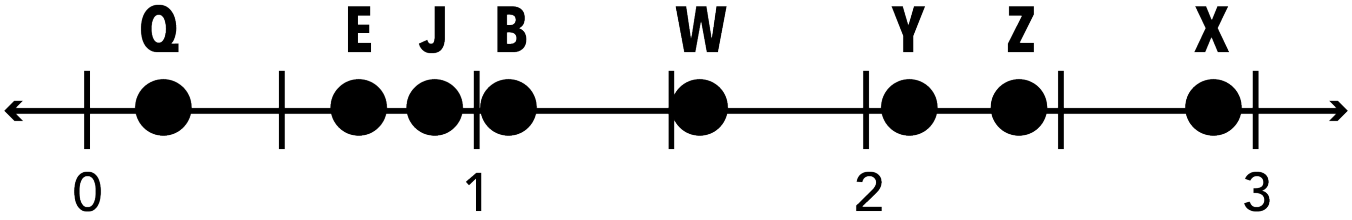
Theodore Roosevelt 	United States	Political Leader	1858
Amelia Earhart 	United States	Aviation	1897
Grace Hopper 	United States	Computers	1906
Charles Lindberg 	United States	Aviation	1902

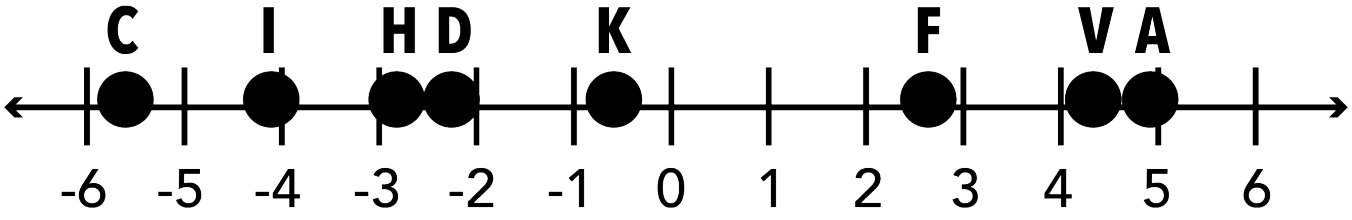
I think the Masked Mathematician is... Theodore Roosevelt

PUZZLE 1

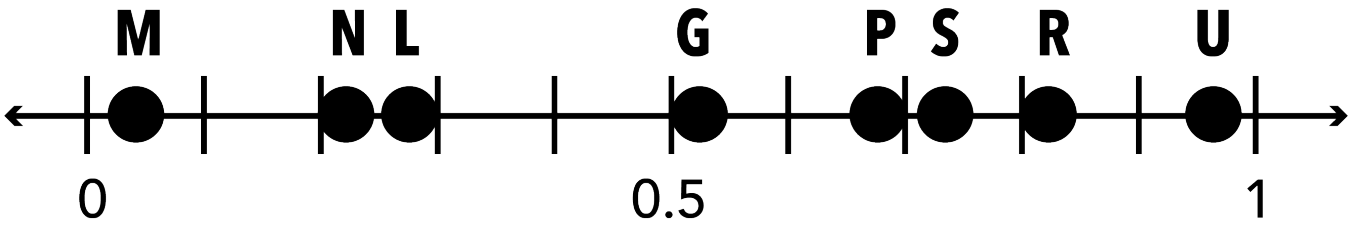
For each number line, identify the letter of the point that best estimates the values underneath. Not all letters will be used.



1.) 2.92 X 2.) 2.45 Z 3.) 0.21 Q 4.) 0.9 J



5.) 4.15 V 6.) -0.84 K 7.) -5.65 C 8.) -2.14 D



9.) 0.972 U 10.) 0.688 P 11.) 0.283 L 12.) 0.035 M

In pencil, CROSS OUT the letters you've found every time they appear in the Secret Code. Rewrite the leftover letters in order to reveal a clue about the Masked Mathematician. Spaces between any words are not included.

Secret Code "I was born before eighteen ninety"

LIDWJAZMSBCOMLRNBEDFQCOREZVUJ
MEQULPLIGHTDEVMPENNICNLEXPDUTY

Skill: I can identify points on a number line. | 6.NS.6c

PUZZLE 2

Solve each problem. Answer as a mixed number if necessary. Reduce all fractions. As you solve problems, circle the answers and the word they are connected to in the Word List. Not all words will be used.

1.) $\frac{1}{2} \div \frac{1}{4} = 2$	2.) $\frac{2}{3} \div \frac{1}{2} = 1\frac{1}{3}$	3.) $\frac{3}{4} \div \frac{3}{5} = 1\frac{1}{4}$
4.) $\frac{2}{3} \div \frac{2}{5} = 1\frac{2}{3}$	5.) $\frac{1}{6} \div \frac{1}{6} = 1$	6.) $\frac{4}{5} \div \frac{1}{2} = 1\frac{3}{5}$
7.) $\frac{7}{3} \div \frac{7}{2} = \frac{2}{3}$	8.) $\frac{3}{4} \div \frac{1}{3} = 2\frac{1}{4}$	9.) $\frac{9}{4} \div \frac{11}{2} = \frac{9}{22}$
10.) $3\frac{1}{2} \div \frac{7}{3} = 1\frac{1}{2}$	11.) $4\frac{3}{5} \div 4\frac{1}{2} = 1\frac{1}{45}$	12.) $7\frac{1}{2} \div 8\frac{1}{2} = \frac{15}{17}$
13.) $4\frac{1}{2} \div 5\frac{3}{4} = \frac{18}{23}$	14.) $3\frac{1}{2} \div 3\frac{1}{3} = 1\frac{1}{20}$	15.) $3\frac{1}{2} \div 8\frac{3}{4} = \frac{2}{5}$

Find the circled words in the Word Search. The leftover letters in the Word Search will reveal a hidden message and a clue about the Masked Mathematician. Read the answers in the list carefully; they are meant to trick!

unused are highlighted Word List

1 = Coast	$1\frac{1}{4}$ = Canal
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$\frac{2}{5}$ = Cliff	$1\frac{1}{3}$ = Bridge
$\frac{5}{18}$ = Plateau	$\frac{9}{22}$ = Riverbank

Word Search

You are looking for a 30-letter hidden message.

"I was born in New York and later died there"

S	I	W	M	O	U	N	T	A	I	N	H	A	D	G
T	S	B	O	R	C	A	N	A	L	N	C	I	L	R
R	N	C	O	A	S	T	O	N	E	N	A	E	E	A
E	W	R	E	I	C	A	L	G	Y	O	E	R	I	S
A	M	E	A	D	O	W	K	A	N	D	B	L	F	S
M	A	T	K	N	A	B	R	E	V	I	R	E	R	D
I	E	D	C	L	I	F	F	E	G	D	I	R	B	T
H	E	R	E	L	E	N	N	U	T	S	E	R	O	F

Skill: I can divide two fractions including mixed numbers. | 6.NS.A.1

PUZZLE 3

Write the correct inequality symbol that will make the sentence true. Find the animal in the correct column for that row and circle it.

			>	<
1.)	0.57	0.34		
2.)	-1.23	6.53		
3.)	-9.8	1.1		
4.)	1.56	1.056		
5.)	-3.18	-3.09		
6.)	-0.068	-0.68		
7.)	|-9|	|8|		
8.)	|-1.34|	1.325		
9.)	-33.12	|5.673|		
10.)	|4.156|	|-4.516|		
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12.)	|-4.31|	|4.18|		

If an animal has been circled, CROSS OUT the clue that shares a box below. Any leftover answers reveal clues about the Masked Mathematician. The highlights are not used.

Clue Bank	 I lived during ancient history.	 I loved being outdoors.	 I enjoyed being on a TV show.	 I died when I was in my 30's
 I lived in a European country.	 I was a vegetarian.	 I invented electrical devices.	 I was a famous aviator.	 I was a famous mathematician.
 I was involved with NASA.	 I lived most of my life in Asia.	 I popularized the hobby of jogging.	 I was the leader of a country.	 I was a pro athlete.

Skill: I can apply inequality symbols with rational numbers and absolute value.	6.NS.C.7

PUZZLE 4

Solve each problem. Round decimals to the nearest hundredth.

A.)	77.4 – 43.78 = 33.62	F.)	5.56 ÷ 8.8 = 0.63	K.)	14.32 + 24.7 = 39.02
L.)	6.5 x 3.75 = 24.38	E.)	19.81 + 13.3 = 33.11	P.)	72.11 ÷ 2.15 = 33.54
Y.)	19.87 – 17.9 = 1.97	C.)	14.62 x 2.8 = 40.94	I.)	9.72 + 14.09 = 23.81
G.)	6.45 ÷ 12.85 = 0.50	T.)	18.67 – 9.9 = 8.77	D.)	0.78 x 0.42 = 0.33
O.)	0.67 + 0.21 = 0.88	N.)	13.25 ÷ 3.6 = 3.68	R.)	43.21 – 43.09 = 0.12
B.)	12.89 x 7.65 = 98.61	S.)	15.78 + 3.3 = 19.08		

Write the letter of the problem on every line that has its answer underneath it. This reveals a real quote from the Masked Mathematician.

“	S	P	E	A	K		S	O	F	T	L	Y
	19.08	33.54	33.11	33.62	39.02		19.08	0.88	0.63	8.77	24.38	1.97

A	N	D		C	A	R	R	Y		A
33.62	3.68	0.33		40.94	33.62	0.12	0.12	1.97		33.62

B	I	G		S	T	I	C	K	.	”
98.61	23.81	0.50		19.08	8.77	23.81	40.94	39.02		

Skill: I can add, subtract, multiply, and divide decimals.	6.NS.B.3