Name ____ Date____________________

Lesson 1: Interpreting Division of a Fraction by a Whole Number—Visual Models

Exit Ticket

Find the quotient using a model.

1. $\frac{2}{3} \div 3$

2. $\frac{5}{6} \div 2$

Fraction cards to use at the beginning of class:

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

Name ____ Date____________________

Lesson 2: Interpreting Division of a Whole Number by a Fraction—Visual Models

Exit Ticket

Solve each division problem using a model.

1. Henry bought 4 pies which he plans to share with a group of his friends. If there is exactly enough to give each member of the group one-sixth of the pie, how many people are in the group?

2. Rachel completed $\frac{3}{4}$ of her cleaning in 6 hours. How many total hours will Rachel spend cleaning?

Name ____ Date____________________

Lesson 3: Interpreting and Computing Division of a Fraction by a Fraction—More Models

Exit Ticket

Draw a model to support your answer to the division questions.

1. $\frac{9}{4} \div \frac{3}{4}$

2. $\frac{7}{3} \div \frac{2}{3}$

Name ____ Date____________________

Lesson 4: Interpreting and Computing Division of a Fraction by a Fraction—More Models

Exit Ticket

Draw a model to support your answer to the division questions.

1. $\frac{9}{4} \div \frac{3}{8}$

2. $\frac{3}{5} \div \frac{2}{3}$

Name ____ Date____________________

Lesson 5: Creating Division Stories

Exit Ticket

Write a story problem for the following measurement division: $\frac{3}{4} \div \frac{1}{8} = 6$.

1

$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$

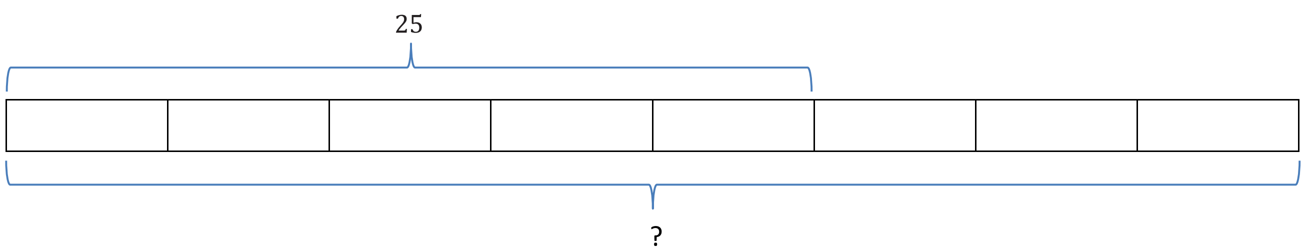
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

Name ____ Date____________________

Lesson 6: More Division Stories

Exit Ticket

Write a word problem for the following partitive division: $25 \div \frac{5}{8} = 40$.



Name ______________________________ Date______________

Lesson 7: The Relationship Between Visual Fraction Models and Equations

Exit Ticket

1. Write the reciprocal of the following numbers.

Number	$\frac{7}{10}$	$\frac{1}{2}$	5
Reciprocal			

2. Rewrite this division problem as a multiplication problem: $\frac{5}{8} \div \frac{2}{3}$.

3. Solve Problem 2 using models.

1 whole unit

$\frac{1}{2}$ $\frac{1}{2}$

$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$

$\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$ $\frac{1}{5}$

$\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$

$\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$

$\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$ $\frac{1}{9}$

$\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$

$\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$

Name ____ Date____________________

Lesson 8: Dividing Fractions and Mixed Numbers

Exit Ticket

Calculate the quotient.

1. $\frac{3}{4} \div 5\frac{1}{5}$

2. $\frac{3}{7} \div 2\frac{1}{2}$

3. $\frac{5}{8} \div 6\frac{5}{6}$

4. $\frac{5}{8} \div 8\frac{3}{10}$

Memory Game

A. $\frac{3}{4} \div 6\frac{2}{3}$	$\frac{9}{80}$	B. $\frac{1}{3} \div 4\frac{3}{4}$	$\frac{4}{57}$
C. $\frac{2}{5} \div 1\frac{7}{8}$	$\frac{16}{75}$	D. $7\frac{1}{2} \div \frac{5}{6}$	9
E. $3\frac{4}{7} \div \frac{5}{8}$	$5\frac{5}{7}$	F. $5\frac{5}{8} \div \frac{9}{10}$	$6\frac{1}{4}$
G. $\frac{1}{4} \div 10\frac{11}{12}$	$\frac{3}{131}$	H. $5\frac{3}{4} \div \frac{5}{9}$	$10\frac{7}{20}$
I. $3\frac{1}{5} \div \frac{2}{3}$	$5\frac{4}{5}$	J. $\frac{3}{5} \div 3\frac{1}{7}$	$\frac{21}{110}$
K. $\frac{10}{13} \div 2\frac{4}{7}$	$\frac{35}{117}$	L. $2\frac{1}{4} \div \frac{7}{8}$	$2\frac{4}{7}$

Name ____ Date____________________

Lesson 9: Sums and Differences of Decimals

Exit Ticket

Solve each problem. Show that the placement of the decimal is correct through either estimation or fraction calculation.

1. $382\frac{3}{10} - 191\frac{87}{100}$

2. $594\frac{7}{25} + 89\frac{37}{100}$

Name ____ Date____________________

Lesson 10: The Distributive Property and the Products of Decimals

Exit Ticket

Complete the problem using partial products.

500×12.7

Name ____ Date____________________

Lesson 11: Fraction Multiplication and the Product of Decimals

Exit Ticket

Use estimation or fraction multiplication to determine if your answer is reasonable.

1. Calculate the product: 78.93×32.45.

2. Paint costs $\$29.95$ per gallon. Nikki needs 12.25 gallons to complete a painting project. How much will Nikki spend on paint? Remember to round to the nearest penny.

Name ____ Date ______________________

1. Yasmine is having a birthday party with snacks and activities for her guests. At one table, five people are sharing three-quarters of a pizza. What equal-sized portion of the whole pizza will each of the five people receive?

   a. Use a model (e.g., picture, number line, or manipulative materials) to represent the quotient.

   b. Write a number sentence to represent the situation. Explain your reasoning.

   c. If three-quarters of the pizza provided 12 pieces to the table, how many pieces were in the pizza when it was full? Support your answer with models.

2. Yasmine needs to create invitations for the party. She has $\frac{3}{4}$ of an hour to make the invitations. It takes her $\frac{1}{12}$ of an hour to make each card. How many invitations can Yasmine create?

   a. Use a number line to represent the quotient.

   b. Draw a model to represent the quotient.

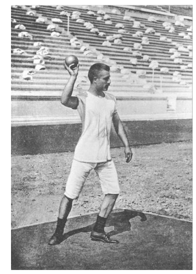
   c. Compute the quotient without models. Show your work.

3. Yasmine is serving ice cream with the birthday cake at her party. She has purchased $19\frac{1}{2}$ pints of ice cream. She will serve $\frac{3}{4}$ of a pint to each guest.

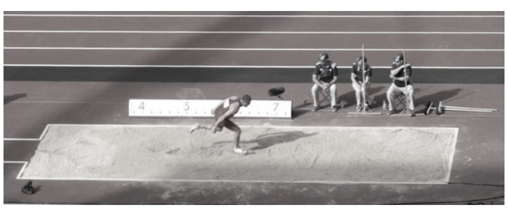
   a. How many guests can be served ice cream?

   b. Will there be any ice cream left? Justify your answer.

4. L.B. Johnson Middle School held a track and field event during the school year. Miguel took part in a four-person shot put team. Shot put is a track and field event where athletes throw (or "put") a heavy sphere, called a "shot," as far as possible. To determine a team score, the distances of all team members are added. The team with the greatest score wins first place. The current winning team's final score at the shot put is 52.08 ft. Miguel's teammates threw the shot put the following distances: 12.26 ft., 12.82 ft., and 13.75 ft. Exactly how many feet will Miguel need to throw the shot put in order to tie the current first place score? Show your work.



5. The sand pit for the long jump has a width of 2.75 meters and a length of 9.54 meters. Just in case it rains, the principal wants to cover the sand pit with a piece of plastic the night before the event. How many square meters of plastic will the principal need to cover the sand pit?



6. The chess club is selling drinks during the track and field event. The club purchased water, juice boxes, and pouches of lemonade for the event. They spent $\$138.52$ on juice boxes and $\$75.00$ on lemonade. The club purchased three cases of water. Each case of water costs $\$6.80$. What is the total cost of the drinks?

Name ____ Date____________________

Lesson 12: Estimating Digits in a Quotient

Exit Ticket

1. Estimate the quotient: $1{,}908 \div 36$.

2. Use the division algorithm and your estimate to find the quotient: $1{,}908 \div 36$.

3. Use estimation to determine if $8{,}580 \div 78$ has a quotient in the 10s, 100s, or 1000s.

Name ____ Date____________________

Lesson 13: Dividing Multi-Digit Numbers Using the Algorithm

Exit Ticket

Divide using the division algorithm: $392{,}196 \div 87$.

Name ____ Date____________________

Lesson 14: The Division Algorithm—Converting Decimal Division into Whole Number Division Using Fractions

Exit Ticket

1. Lisa purchased almonds for $\$3.50$ per pound. She spent a total of $\$14.70$. How many pounds of almonds did she purchase?

2. Divide: $125.01 \div 5.4$. Then, check your answer for reasonableness.

Name ____ Date____________________

Lesson 15: The Division Algorithm—Converting Decimal Division into Whole Number Division Using Mental Math

Exit Ticket

State the power of 10 you would use to convert the given decimal division to whole number division. Then, complete the multiplication on the dividend and divisor.

1. $133.84 \div 5.6$

2. $12.4 \div 1.036$

3. $38.9 \div 2.91$

4. $45 \div 1.5$

Player A

1. $15.5 \div 6.2$	Check:
2. $28.08 \div 7.8$	Check:
3. $44.888 \div 3.62$	Check:
4. $3{,}912.99 \div 15.9$	Check:
5. $865.1475 \div 47.25$	Check:

Player B

1. $32.4 \div 7.2$	Check:
2. $49.14 \div 6.3$	Check:
3. $39.321 \div 2.57$	Check:
4. $8{,}578.02 \div 24.6$	Check:
5. $439.0464 \div 35.18$	Check:

Player C

1. $25.9 \div 7.4$	Check:
2. $25.48 \div 5.2$	Check:
3. $61.962 \div 4.49$	Check:
4. $16{,}437.42 \div 31.8$	Check:
5. $1{,}238.8048 \div 52.76$	Check:

Player D

1. $63.7 \div 9.8$	Check:
2. $32.68 \div 8.6$	Check:
3. $142.912 \div 8.12$	Check:
4. $23{,}344.58 \div 57.4$	Check:
5. $2{,}498.743 \div 39.65$	Check:

Name ____ Date____________________

Lesson 16: Even and Odd Numbers

Exit Ticket

Determine whether each sum or product will be even or odd. Explain your reasoning.

1. $56{,}426 + 17{,}895$

2. $317{,}362 \times 129{,}324$

3. $10{,}481 + 4{,}569$

4. $32{,}457 \times 12{,}781$

5. Show or explain why $12 + 13 + 14 + 15 + 16$ will result in an even sum.

Name ____ Date____________________

Lesson 17: Divisibility Tests for 3 and 9

Exit Ticket

1. Is $26,341$ divisible by 3? If it is, write the number as the product of 3 and another factor. If not, explain.

2. Is $8,397$ divisible by 9? If it is, write the number as the product of 9 and another factor. If not, explain.

3. Explain why $186,426$ is divisible by both 3 and 9.

Name ____ Date____________________

Lesson 18: Least Common Multiple and Greatest Common Factor

Exit Ticket

1. Find the LCM and GCF of 12 and 15.

2. Write two numbers, neither of which is 8, whose GCF is 8.

3. Write two numbers, neither of which is 28, whose LCM is 28.

Rate each of the stations you visited today. Use this scale:

3—Easy—I've got it; I don't need any help.

2 —Medium—I need more practice, but I understand some of it.

1—Hard—I'm not getting this yet.

Complete the following chart:

Station	Rating $(3, 2, 1)$	Comment to the Teacher
Station 1: Factors and GCF		
Station 2: Multiples and LCM		
Station 3: Using Prime Factors for GCF		
Station 4: Applying Factors to the Distributive Property		

Exploratory Challenge Reproducible

Station 1: Factors and GCF

Choose one of these problems that has not yet been solved. Solve it together on your student page. Then, use your marker to copy your work neatly on the chart paper. Use your marker to cross out your choice so that the next group solves a different problem.

Find the greatest common factor of one of these pairs: $30, 50$; $30, 45$; $45, 60$; $42, 70$; $96, 144$.

Next, choose one of these problems that has not yet been solved:

a. There are 18 girls and 24 boys who want to participate in a Trivia Challenge. If each team must have the same number of girls and boys, what is the greatest number of teams that can enter? How many boys and girls will be on each team?

b. The Ski Club members are preparing identical welcome kits for the new skiers. They have 60 hand warmer packets and 48 foot warmer packets. What is the greatest number of kits they can prepare using all of the hand and foot warmer packets? How many hand warmer packets and foot warmer packets will be in each welcome kit?

c. There are 435 representatives and 100 senators serving in the United States Congress. How many identical groups with the same number of representatives and senators could be formed from all of Congress if we want the largest groups possible? How many representatives and senators will be in each group?

d. Is the GCF of a pair of numbers ever equal to one of the numbers? Explain with an example.

e. Is the GCF of a pair of numbers ever greater than both numbers? Explain with an example.

Station 2: Multiples and LCM

Choose one of these problems that has not yet been solved. Solve it together on your student page. Then, use your marker to copy your work neatly on the chart paper. Use your marker to cross out your choice so that the next group solves a different problem.

Find the least common multiple of one of these pairs: $9, 12; 8, 18; 4, 30; 12, 30; 20, 50$.

Next, choose one of these problems that has not yet been solved:

a. Hot dogs come packed 10 in a package. Hot dog buns come packed 8 in a package. If we want one hot dog for each bun for a picnic, with none left over, what is the least amount of each we need to buy? How many packages of each item would we have to buy?

b. Starting at $6{:}00$ a.m., a bus makes a stop at my street corner every 15 minutes. Also starting at $6{:}00$a.m., a taxi cab comes by every 12 minutes. What is the next time there will be a bus and a taxi at the corner at the same time?

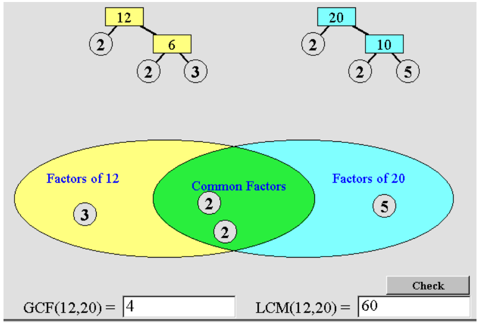
c. Two gears in a machine are aligned by a mark drawn from the center of one gear to the center of the other. If the first gear has 24 teeth, and the second gear has 40 teeth, how many revolutions of the first gear are needed until the marks line up again?

d. Is the LCM of a pair of numbers ever equal to one of the numbers? Explain with an example.

e. Is the LCM of a pair of numbers ever less than both numbers? Explain with an example.

Solve it together on your student page. Then, use your marker to copy your work neatly on this chart paper. Use your marker to cross out your choice so that the next group solves a different problem.

Station 3: Using Prime Factors to Determine GCF



Choose one of these problems that has not yet been solved. Solve it together on your student page. Then, use your marker to copy your work neatly on the chart paper. Use your marker to cross out your choice so that the next group solves a different problem.

Use Prime Factors to find the Greatest Common Factor of one of the following pairs of numbers:

$30, 50$ $30, 45$ $45, 60$ $42, 70$ $96, 144$

Next, choose one of these problems that has not yet been solved:

a. Would you rather find all the factors of a number or find all the prime factors of a number? Why?

b. Find the GCF of your original pair of numbers.

c. Is the product of your LCM and GCF less than, greater than, or equal to the product of your numbers?

d. Glenn's favorite number is very special because it reminds him of the day his daughter, Sarah, was born. The factors of this number do not repeat, and all of the prime numbers are less than 12. What is Glenn's number? When was Sarah born?

Station 4: Applying Factors to the Distributive Property

Study these examples of how factors apply to the distributive property.

$$8 + 12 = 4(2) + 4(3) = 4(2 + 3) = 20$$
$$4(2) + 4(3) = 4(5) = 20$$

$$15 + 25 = 5(3) + 5(5) = 5(3 + 5) = 40$$
$$5(3) + 5(5) = 5(8) = 40$$

$$36 - 24 = 4(9) - 4(6) = 4(9 - 6) = 12$$
$$4(9) - 4(6) = 4(3) = 12$$

Choose one of these problems that has not yet been solved. Solve it together on your student page. Then, use your marker to copy your work neatly on the chart paper. Use your marker to cross out your choice so that the next group solves a different problem.

Find the GCF from the two numbers, and rewrite the sum using the distributive property.

1. $12 + 18 =$
2. $42 + 14 =$
3. $36 + 27 =$
4. $16 + 72 =$
5. $44 + 33 =$

Next, add another new example to one of these two statements applying factors to the distributive property.

Choose any numbers for n, a, and b.

$n(a) + n(b) = n(a + b)$

$n(a) - n(b) = n(a - b)$

Name ____ Date____________________

Lesson 19: The Euclidean Algorithm as an Application of the Long Division Algorithm

Exit Ticket

Use Euclid's Algorithm to find the greatest common factor of 45 and 75.

Name ____ Date ____________________

1. L.B. Johnson Middle School held a track and field event during the school year. The chess club sold various drink and snack items for the participants and the audience. All together, they sold 486 items that totaled $\$2,673$.

   a. If the chess club sold each item for the same price, calculate the price of each item.

   b. Explain the value of each digit in your answer to 1(a) using place value terms.

2. The long jump pit was recently rebuilt to make it level with the runway. Volunteers provided pieces of wood to frame the pit. Each piece of wood provided measures 6 feet, which is approximately 1.8287 meters.

2.75 meters

9.54 meters

a. Determine the amount of wood, in meters, needed to rebuild the frame.

b. How many boards did the volunteers supply? Round your calculations to the nearest hundredth and then provide the whole number of boards supplied.

3. Andy runs 436.8 meters in 62.08 seconds.

   a. If Andy runs at a constant speed, how far does he run in one second? Give your answer to the nearest tenth of a second.

   b. Use place value, multiplication with powers of 10, or equivalent fractions to explain what is happening mathematically to the decimal points in the divisor and dividend before dividing.

   c. In the following expression, place a decimal point in the divisor and the dividend to create a new problem with the same answer as in 3(a). Then, explain how you know the answer will be the same.

$$4\ 3\ 6\ 8 \div 6\ 2\ 0\ 8$$

4. The PTA created a cross-country trail for the meet.

   a. The PTA placed a trail marker in the ground every four hundred yards. Every nine hundred yards the PTA set up a water station. What is the shortest distance a runner will have to run to see both a water station and trail marker at the same location?

   Answer: ______________________hundred yards

   b. There are $1{,}760$ yards in one mile. About how many miles will a runner have to run before seeing both a water station and trail marker at the same location? Calculate the answer to the nearest hundredth of a mile.

   c. The PTA wants to cover the wet areas of the trail with wood chips. They find that one bag of wood chips covers a $3\frac{1}{2}$ yards section of the trail. If there is a wet section of the trail that is approximately $50\frac{1}{4}$ yards long, how many bags of wood chips are needed to cover the wet section of the trail?

5. The Art Club wants to paint a rectangle-shaped mural to celebrate the winners of the track and field meet. They design a checkerboard background for the mural where they will write the winners' names. The rectangle measures 432 inches in length and 360 inches in width. Apply Euclid's Algorithm to determine the side length of the largest square they can use to fill the checkerboard pattern completely without overlap or gaps.