Title: Fantastic Fractional Foods

Brief Overview:

Using common food illustrations and examples, students will be able to identify and list equivalent fractions, compute the least common multiple and greatest common factor, order, compare, and add two or more fractions with unlike denominators.

NCTM Content Standard/National Science Education Standard:

Standard 6.0-Knowledge of Number Relationships or Computations

Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies.

C.1.a) Analyze # relations and compute – add and subtract fractions and mixed numbers and express answers in simplest form. (Assessment limit: Use denominators as factors of 60 (0-20))

Grade/Level:

Sixth Grade

Duration/Length:

4 days; each lesson is 45 minutes.

Student Outcomes:

Students will:

- Identify and list equivalent fractions.
- Compute the least common multiple and greatest common factor using two or more fractions with unlike denominators.
- Order and compare two or more fractions with unlike denominators.
- Add two fractions with unlike denominators.

Materials and Resources:

Equal Fractions Sheet
Pizza Fractions Sheet & Answer Key
Circle Fractions Sheet (COPIED ONTO CARD STOCK PAPER)
Factors Answer Key
Fractions Answer Key
Poster boards and markers
Circle Fraction Pieces in baggies for student desks
"Warm-Up: Comparing Fractions?" Sheet & Answer Key
Comparing Fractions Steps – Copy onto an overhead transparency
Comparing Fractions Worksheet & Answer Key
Blank Index Cards (class set)
Fact/Fiction – Copy onto an overhead transparency
Lesson 4 Warm-up & Answer Key
Polygon Fraction Pieces
What's the Total Sheet & Answer Key
Adding Fractions Examples 1-3 & Answer Key
Fraction Tic-Tac-Toe board
Geoboards and Rubber Bands (optional)

Development/Procedures:

Lesson 1 GCF

Preassessment – Give students the worksheet "Factors" to complete. As students complete the worksheet, circulate the room to see how students are performing.

Launch – Have students check preassessment and discuss the vocabulary. Circulate the room and check to see how students performed. Discuss with students what GCF is (work with students to define GCF) and why it is important.

Teacher Facilitation – Demonstrate to students how to make a list to find the GCF and how to use prime factorization (factor trees) to calculate the GCF. Use the worksheet "A Chef's Dilemma" to demonstrate the two methods to find the GCF. Make copies of the worksheet for each student. Make a transparency of the worksheet and read the word problem to the students.

<u>Factor List Directions</u>

- Show students how to make a list of factors for 24 and 18 then circle the GCF, which is 6, with a marker.
- Answer the questions in the word problem. The chef will be able to make 6 pizzas.
- Explain to students to find the number of vegetables the students will have to divide 24 and 18 by six. Each pizza

will have 4 slices of mushrooms and 3 slices of green peppers.

Prime Factorization Directions

- Repeat the process but show students how to make prime factorization (factor trees) to find the GCF. See the answer key for the examples of factor trees for 24 and 18.
- Start by writing 24 at the top of the paper and drawing two lines from it. This is the beginning of a factor tree. Pick any two factors of 24. For example 8 and 3 and write one of these numbers at the end of each line.
- Explain to students that "3" is a prime number and does not need to be broken into factors.
- For 8, draw two lines from 8 and place a 4 at the end of one line and a 2 at the end of the other line.
- Explain to students that "2" is a prime number and does not need to be broken into factors.
- For 4, draw two lines from 4 and place a 2 at the end of one line and a 2 at the end of the other line. Now, the factor tree is complete.
- Write out 24 = 2 X 2 X 2 X 3.
- Repeat the steps for the number 18.
- The final answer will be 18 = 3 X 3 X 2.
- Circle all of the factors that are the same for 18 and 24, which would be 3 and 2. Multiply 3 X 2 and the answer is the GCF for 24 and 18, which would be 6.

Additional Practice

Demonstrate the two methods again using the numbers 64 and 48.

Student Application – Make copies of the worksheet "GCF" for all students. Have students work in teams of two to complete the worksheet.
As students are completing the worksheets, circulate the room to ensure the students know how to find the GCF.
Once students are finished the worksheet, go over the problems with them.
If some teams finish before others, have those teams start working on the journal worksheet in the embedded assessment.

Embedded Assessment – Have students complete the journal worksheet "GCF Letter." Students will write letters to a friend explaining how to find the GCF and what the GCF is.

Reteaching/Extension – If students are having difficulty finding the GCF, demonstrate to students a third method, factor towers, to find the GCF.

Factor Towers Directions

Start by writing 24 at the top of the paper and underlining it. Start with the lowest nonzero number that goes into 24 and write out 1 X 24 then under this proceed to 2 X 12. Continue writing under the previous one until there are no other nonzero numbers that are factors.

Do the same for the number 18.

Circle all of the factors that are the same for 18 and 24 and then explain to students that the GCF is the greatest common factor that both have, which is 6.

Create worksheets with pairs of numbers for students to find the GCF for homework.

Lesson 2

Preassessment – Equivalent Fractions

Have students complete the "Equal Fractions" worksheets. As students are completing the worksheet, circulate the room to observe how each student is doing.

Launch – Have students do a think-pair-share. First students will be asked to list as many ways as possible that the number one can be written as a fraction. Then students will be asked to find a partner and share answers with each other then with the class. Check the preassessment with students and review how equivalent fractions can be found. Remind students that multiplying or dividing can find equivalent fractions.

Teacher Facilitation **–** Inform students that multiplying or dividing the numerator and denominator by the same nonzero number finds equivalent fractions.

Have students multiply $\frac{2}{3}$ by 1. Substitute the value of 1 with $\frac{3}{3}$.

Use $\frac{2}{3}$ X $\frac{3}{3}$ = as the model. What is this product? $\frac{6}{9}$ Have students draw models of the original fraction $\frac{2}{3}$ and the new product, $\frac{6}{9}$. Students should compare the two models and list what they have observed.

Have students divide $\frac{5}{10}$ by 1. Substitute the value of 1 with $\frac{5}{5}$.

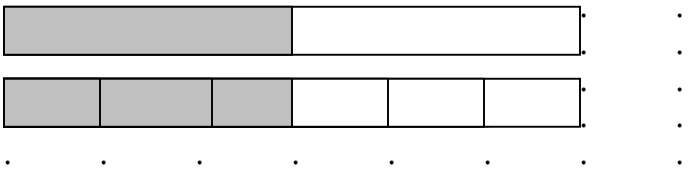
Use $\frac{5}{10} \div \frac{5}{5}$ = as the model. What is the quantity? $\frac{1}{2}$ Continue with the example.

Have students discuss the similarities and differences between the two examples.

Student Application – Give each student a "Circle Fractions" worksheet. Tell students that they are going to pretend that each circle on the worksheet is a pizza. Have students cut out each circle and decorate with their favorite pizza toppings then cut each "pizza" into parts (it is recommended that you give students a time limit). Have students work in teams of two to complete part A of the worksheet, "Pizza Fractions."
Tell students that they are going to use their "pizzas" to find equivalent fractions listed on the worksheet.
Inform students that after they finish working with the "pizzas" to work independently to finish part B of the worksheet.

Embedded Assessment – Circulate the room and observe students. Take notice of how students are performing on part B of the "Pizza Fractions" worksheet.

Reteaching/Extension **–** Use geoboards to demonstrate equivalent fractions.
Have students use dot paper to draw and find equivalent fractions.



Lesson 3 Comparing Fractions

Preassessment – As students enter the room, they are to rotate through posters displayed around the room. Each poster has a fraction identified on top and students add an equivalent fraction to each poster. After students have made their way around the room, instruct them to pick up a launch/warm-up sheet, take their seat, and begin working quietly.

[Example fractions to use on posters: $\frac{1}{2}, \frac{3}{4}, \frac{1}{6}, \frac{2}{3}, \frac{3}{10}, \frac{3}{5}$]

Launch – Students will answer the eight motivating questions related to the six standards to explore the idea of comparing and ordering fractions. Students are welcome to use fraction pieces to help them. (Have bags of circle fraction pieces on desks at the start of the lesson.)

Teacher Facilitation – [For the following activities, it is best when the students are seated in teams or groups of 4. You, as the teacher, can decide what is the best way to do this for your class.] In order to teach the three steps of comparing fractions (find the LCM of the denominators; rename the fractions using the LCM as the denominator; and compare the renamed fractions), you can use a strategy similar to "Telephone," which is described by Dr. Spencer Kagan in section 18:1 of his *Cooperative*

Learning book (Kagan Publishing, San Clemente, CA, 1994). First, send one "student" from each team out of the room. (Perhaps prearrange this with another teacher beforehand.) While the "students" are gone, proceed to teach the three steps to the remaining "tutors". Put the Comparing Fractions Steps transparency on the overhead for the students to reference. Then demonstrate comparing $\frac{2}{3}$ and $\frac{5}{7}$ on the blackboard next to the overhead screen. Next, have the "tutors" direct you, the teacher, in comparing $\frac{3}{4}$ and $\frac{5}{8}$ on the board. Finally, give each team two fractions to compare (you will want to choose fractions at the appropriate level for your class/student needs). Have "tutors" number off 1-2-3 in their teams, designating their assigned step to master (steps are also numbered on the overhead transparency.) Allow the teams about three minutes to complete their comparison. Each "tutor" is to contribute by passing the problem through the team and each "tutor" doing his or her step. Rotate through the room to check their final comparisons for accuracy. Once the class appears to be ready, send a "tutor" to bring back the "students". "Students" are to return to sit with their teams.

Student Application – While still sitting in their teams, pair up the students with there shoulder partners. Students complete one column of the Comparing Worksheet, alternating back and forth one exercise at a time between partners. After each exercise, the partner is to put a smiley face on the answer if they agree with it.

Embedded Assessment – The following activity is a structure called "Fact or Fiction" described by Dr. Spencer Kagan in section 10:14 of his *Cooperative Learning* book (Kagan Publishing, San Clemente, CA, 1994). Pass out one index card to each student and instruct them to write "FACT" on one side and "FICTION" on the other side large enough for someone at the front of the room to see. Put the "Fact/Fiction" transparency on the overhead projector, showing only one problem at a time. Instruct the students to show "FACT" if they agree with the comparison and "FICTION" if they disagree (make sure to cover the answers on the overhead). You will be able to see from this how many students have grasped the concept of comparing fractions with unlike denominators.

Reteaching/Extension – There is another cooperative learning method of teaching called "Jigsaw". Kagan describes the strategy in section 18:3 of his *Cooperative Learning* book (Kagan Publishing, San Clemente, CA, 1994). Have students count off from 1 to 6 around the room. Have students reseat themselves to be in the six groups. Assign groups 1 and 4 the first step of comparing fractions from the overhead. Assigned groups 2 and 5 the second step and assign groups 3 and 6 the third step. Students will master their step in their small group. Then, they will return to their team with

their understanding of their step. There will be at least one student of each step per team, to help each other in further practice if necessary.

Lesson 4

Preassessment: Students complete warm-up activities. Review and reteach as necessary Adding Fractions.

Launch: Ask students to complete "Lesson 4 Warm-Up," using pattern blocks if needed. Assist students who are having difficulty.

Teacher Facilitation: Teacher models a sample problem of adding fractions on the board, using a visual representation of each step (Examples 1, 2, and 3 worksheets). Begin with 2 fractions that have common denominators. Allow students to practice. Move to fractions with non-common denominators. Students gradually become responsible for completing more of the problem.

Student Application: Students play Fraction Tic-Tac-Toe with a partner. Decide which player goes first. On his turn, each player does a problem and writes the answer in the appropriate square, along with his initials. Players take turns working problems. After all squares have been filled in, teacher reads the answers. If the answer to the problem is correct, the student keeps his initials in the box. If the answer is incorrect, the opponent puts her initials in the box. A player wins if he or she is able to get three initials in a row.

Embedded Assessment: Teacher should monitor students as they complete the example problems and play Tic-Tac-Toe.

Reteaching/Extension: Students who experience difficulties with adding fractions can be taught using alternate materials such as geoboards, fraction bars, or graph paper models. Students needing to be challenged can try adding three or more fractions, adding fractions and mixed numbers, or to find real-world problems where fractions need to be added. As an extension, ask students to complete "What's the Total?" in pairs using pattern blocks. Assist students who are having difficulty. Have students realize that they didn't just count the # of original shapes, but had to change the shapes to some type of common, smaller shape. Draw the connection between this and making fractions with common denominators.

Summative Assessment:

Refer to “Fraction Quiz”.

Authors:

Katherine J. Buck
Wiley H. Bates Middle School
Anne Arundel County Public Schools

Amy Greene
Norfolk Christian School
Norfolk, VA

Michelle Simons
Diggs-Johnson Middle School
Baltimore City Public Schools

Name_____
Date_____

Factors

Define the terms in your own words:

1. Whole Number	
2. Factor	
3. Common Factor	
4. GCF	

Find the factors of the following whole numbers:

9	
50	
12	
8	
42	
27	

Factors—Answer Key

Define the terms in your own words:

1. Whole Number	**0 and the counting numbers** **0, 1, 2, 3, 4, 5, . . .**
2. Factor	**A number that goes evenly into another number.** **EX: 4 is a factor of 8.**
3. Common Factor	**A number that goes evenly into 2 or more numbers.** **EX: 5 is common factor of 0 and 25.**
4. GCF	**Greatest Common Factor; the largest factor that two or more numbers share. EX: the GCF of 8 and 12 is 4.**

Find the factors of the following whole numbers:

9	**1, 3, 9**
50	**1, 2, 5, 10, 25, 50**
12	**1, 2, 3, 4, 6, 12**
8	**1, 2, 4, 8**
42	**1, 2, 3, 6, 7, 14, 21, 42**
27	**1, 3, 9, 27**

A Chef’s Dilemma

A chef divides 24 slices of mushrooms and 18 slices of green peppers for some pizzas. Each pizza must have the same number of mushrooms and the same number of green peppers.

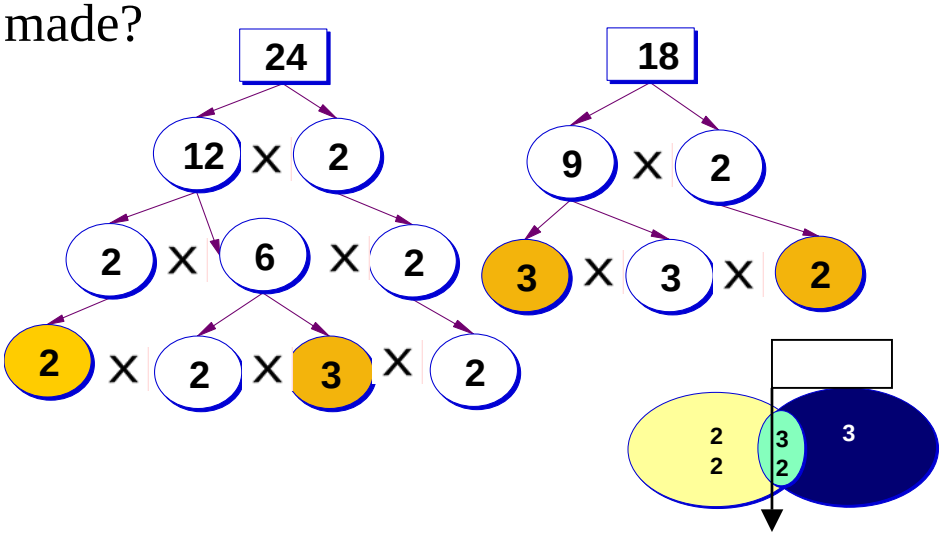
What is the greatest number of pizzas that can be made?

How many slices of each vegetable will be on each pizza?

A Chef's Dilemma- Answer Key

A chef divides 24 slices of mushrooms and 18 slices of green peppers for some pizzas. Each pizza must have the same number of mushrooms and the same number of green peppers.

What is the greatest number of pizzas that can be made?



3x2=6 pizzas

How many slices of each vegetable will be on each pizza?

$\frac{24}{6} = 4$ mushrooms/pizza

$\frac{18}{6} = 3$ green peppers/pizza

Name_____
Date_____

GCF

Show all work:

1. A cooking class with 36 boys and 60 girls is divided into groups. Each group has the same number of boys and the same number of girls.

What is the greatest number of groups can be formed?_____

How many boys and girls are in each group?_____

Find the GCF for the following sets of whole numbers.
Show all work below.

2. 12, 80_____ 3. 26, 60_____4. 27, 36_____

Name_____
Date_____

GCF Letter

Directions: On the lines below, write a letter to friend explaining how to find the greatest common factor (GCF) of 54 and 63. Make sure to include the definition of GCF and to write out the steps in finding the GCF.

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Name_____
Date_____

Equal Fractions

Define the terms in your own words:

1. Fraction	
2. Numerator	
3. Denominator	
4. Equivalent Fractions	

Circle the correct answer:

5. **Which of the following fractions are equivalent?**

A. $\frac{1}{2}, \frac{3}{4}$ B. $\frac{2}{6}, \frac{1}{3}$ C. $\frac{7}{8}, \frac{1}{9}$ D. $\frac{5}{8}, \frac{2}{10}$

6. **Which of the following is a fraction?**

A. $\frac{6}{7}$ B. 0.45 C. 25% D. 90

Name_____
Date_____

Equal Fractions

Define the terms in your own words:

1. Fraction	An expression that indicates the quotient of two quantities, such as $^1/_3$.
2. Numerator	The top number in a fraction; represents the "partial" amount
3. Denominator	The bottom number in a fraction; represents the "whole" amount
4. Equivalent Fractions	Two fractions that represent the same amount. EX: $\frac{2}{4}$ and $\frac{1}{2}$ are equivalent fractions

Circle the correct answer:

7. Which of the following fractions are equivalent?

A. $\frac{1}{2}, \frac{3}{4}$ B. $\frac{2}{6}, \frac{1}{3}$ C. $\frac{7}{8}, \frac{1}{9}$ D. $\frac{5}{8}, \frac{2}{10}$

8. Which of the following is a fraction?

A. $\frac{6}{7}$ B. 0.45 C. 25% D. 90

Name_____
Date_____

Pizza Fractions

Part A: Use the pizzas to find an equivalent fraction.

1. $\frac{2}{6}$ pizza = _____

2. $\frac{1}{3}$ pizza = _____

3. $\frac{6}{9}$ pizza = _____

4. $\frac{1}{2}$ pizza = _____

5. $\frac{3}{4}$ pizza = _____

6. $\frac{2}{8}$ pizza = _____

Part B: Fill in the missing number.

7. $\frac{1}{8} = \frac{\square}{40}$

8. $\frac{\square}{2} = \frac{11}{22}$

9. $\frac{4}{\square} = \frac{1}{6}$

10. $\frac{2}{3} = \frac{\square}{36}$

11. $\frac{5}{6} = \frac{40}{\square}$

12. $= \frac{1}{3}$

13. $\frac{\square}{8} = \frac{72}{96}$

14. $\frac{24}{36} = \frac{8}{\square}$

15. $\frac{4}{\square} = \frac{1}{6}$

16. $\frac{24}{144} = \frac{\square}{12}$

17. $\frac{15}{60} = \frac{3}{\square}$

18. $\frac{21}{54} = \frac{7}{\square}$

Pizza Fractions ANSWER KEY*

Part A: Use the pizzas to find the answer.

1. $\frac{2}{6}$ pizza = $\frac{1}{3}$

2. $\frac{1}{3}$ pizza = $\frac{2}{6}$, $\frac{3}{9}$

3. $\frac{6}{9}$ pizza = $\frac{2}{3}$

4. $\frac{1}{2}$ pizza = $\frac{2}{6}$, $\frac{2}{4}$, $\frac{4}{8}$

5. $\frac{3}{4}$ pizza = $\frac{6}{8}$

6. $\frac{2}{8}$ pizza = $\frac{1}{4}$

Part B: Fill in the missing number.

7. $\frac{1}{8} = \frac{\boxed{5}}{40}$

8. $\frac{\boxed{1}}{2} = \frac{11}{22}$

9. $\frac{4}{\boxed{24}} = \frac{1}{6}$

10. $\frac{2}{3} = \frac{\boxed{12}}{36}$

11. $\frac{5}{6} = \frac{40}{\boxed{48}}$

12. $\frac{\boxed{9}}{27} = \frac{1}{3}$

13. $\frac{\boxed{6}}{8} = \frac{72}{96}$

14. $\frac{24}{36} = \frac{8}{\boxed{12}}$

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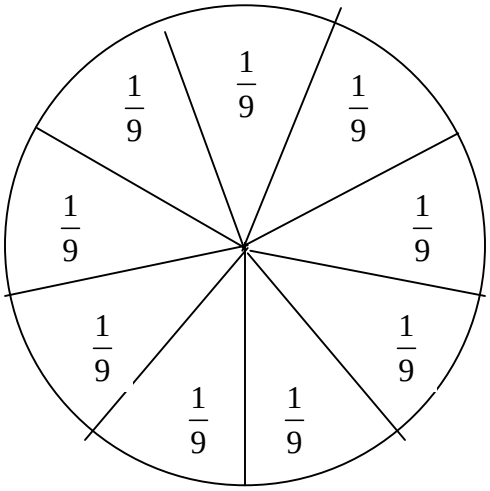
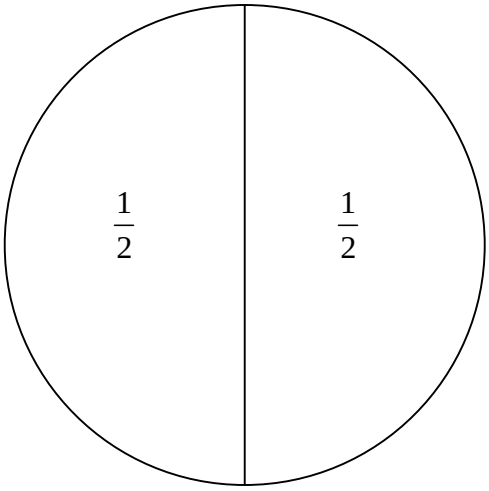
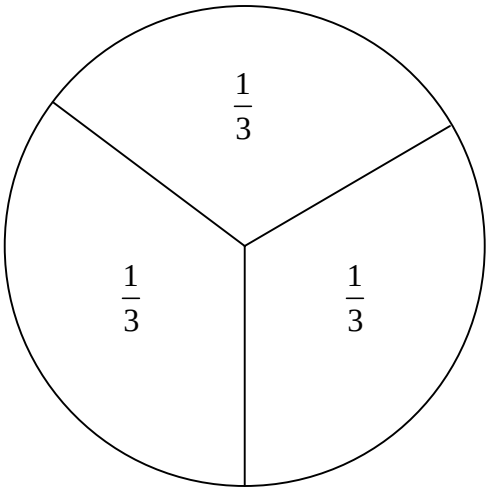
17. $\frac{15}{60} = \frac{3}{\boxed{12}}$

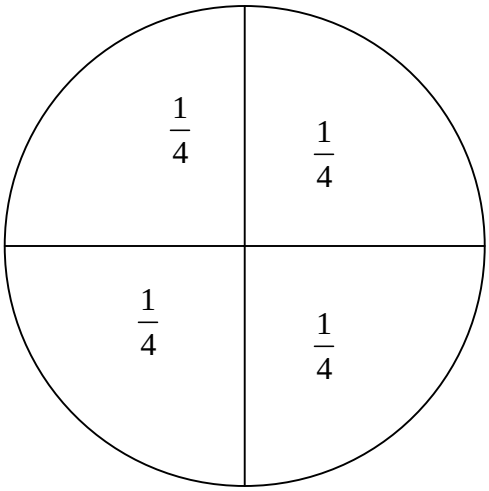
18. $\frac{21}{54} = \frac{7}{\boxed{18}}$

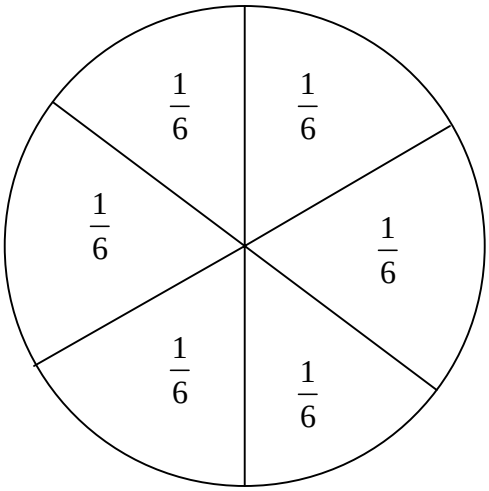
Circle Fractions

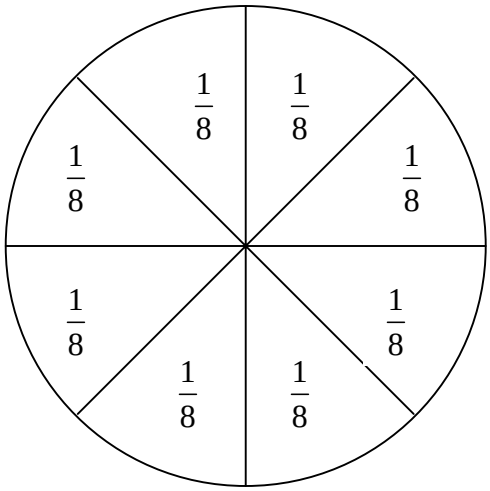












Name: _____
Date: _____
Period: _____

Warm-Up: What Do You Know About Comparing Fractions?

Standard 1.0 Algebra, Patterns, and Functions

1. What could be a value of x in the following expressions? $x > \frac{2}{3}$

   a. $\frac{4}{6}$ b. $\frac{7}{9}$

   c. $\frac{2}{6}$ d. $\frac{7}{12}$

Standard 2.0 Geometry

2. There are two pizzas ordered by your math teacher. Pizza A is divided into six equal slices. Pizza B is divided into five equal slices. If Jack eats two slices from pizza A and Marcus eats two slices from pizza B, who ate the most pizza?
   a. Marcus
   b. Jack
   c. Neither, they ate the same amount.

Standard 3.0 Measurement

3. Ashley walked a $\frac{1}{2}$ mile to go from her house to the pizza place. Monie walked $\frac{5}{8}$ of a mile to get there. Kayla had to walk $\frac{3}{4}$ of a mile. Who lives the farthest away from the pizza place?
   a. Ashley
   b. Monie
   c. Kayla
   d. None of the above.

Standard 4.0 Statistics

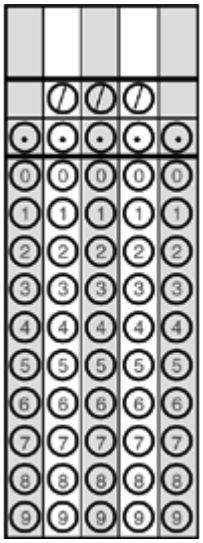
4. What is the median of the following pizza slice size options listed below? $\frac{1}{6}, \frac{1}{8}, \frac{1}{5}, \frac{1}{4}, \frac{1}{10}$

   a. $\frac{1}{6}$ b. $\frac{1}{4}$

   c. $\frac{1}{8}$ d. $\frac{1}{5}$

Standard 5.0 Probability

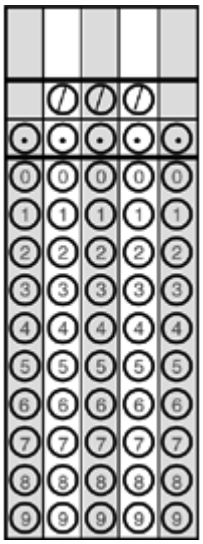
5. There is one piece of cake left. Myron and Alejandra decide to flip a coin for it. Find the probability of flipping a coin once and it landing on heads. Now think of one equivalent fraction to that answer and grid in your equivalent fraction.



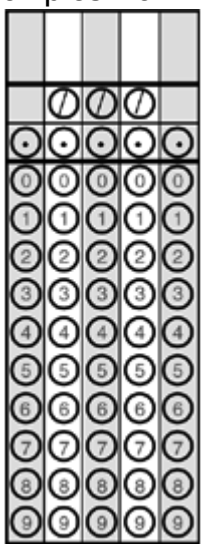
Standard 6.0 Number Relationships and Computation

During a pie-eating contest, Heriberto consumed 5 pies in six hours. Dominique consumed 3 pies in 3 hours.

6. What was the average number of pies Heriberto ate in one hour?



7. What was the average number of pies Dominique ate in one hour?



8. Who had the faster rate of eating pie?

   a. Heriberto b. Dominique

Warm-Up: What Do You Know About Comparing Fractions?
ANSWER KEY

Standard 1.0 Algebra, Patterns, and Functions

1. What could be a value of x in the following expressions? $x > \frac{2}{3}$

   a. $\frac{4}{6}$
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   d. $\frac{7}{12}$

Standard 2.0 Geometry

2. There are two pizzas ordered by your math teacher. Pizza A is divided into six equal slices. Pizza B is divided into five equal slices. If Jack eats two slices from pizza A and Marcus eats two slices from pizza B, who ate the most pizza?
   b. $\boxed{\text{Marcus}}$
   c. Jack
   d. Neither, they ate the same amount.

Standard 3.0 Measurement

3. Ashley walked a $\frac{1}{2}$ mile to go from her house to the pizza place. Monie walked $\frac{5}{8}$ of a mile to get there. Kayla had to walk $\frac{3}{4}$ of a mile. Who lives the farthest away from the pizza place?
   e. Ashley
   f. Monie
   g. $\boxed{\text{Kayla}}$
   h. None of the above.

Standard 4.0 Statistics

4. What is the median of the following pizza slice size options listed below? $\frac{1}{6}, \frac{1}{8}, \frac{1}{5}, \frac{1}{4}, \frac{1}{10}$

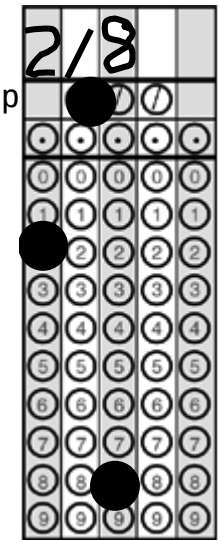
   i. $\boxed{\frac{1}{6}}$ b. $\frac{1}{4}$

   c. $\frac{1}{8}$ d. $\frac{1}{5}$

Standard 5.0 Probability

5. There is one piece of cake left. Myron and Alejandra decide to flip a coin for it. Find the probability of flipping a coin once and it landing on heads. Now think of one equivalent fraction to that answer and grid in your equivalent fraction.

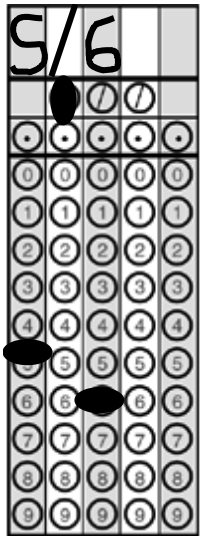
Any fraction that is equivalent to ¼.



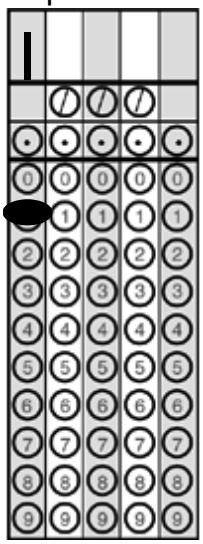
Standard 6.0 Number Relationships and Computation

During a pie-eating contest, Heriberto consumed 5 pies in six hours. Dominique consumed 3 pies in 3 hours.

6. What was the average number of pies Heriberto ate in one hour?



7. What was the average number of pies Dominique ate in one hour?



8. Who had the faster rate of eating pie?

a. Heriberto b. Dominique

STEPS to Compare Fractions

1. Find the LCM of the two denominators.

2. Rename the fractions (using the LCM as the new denominator)

3. Compare numerators

COMPARING FRACTIONS PRACTICE

Name _____ **Name** _____

Compare the following fractions using **>**, **<**, or **=**. If you agree with your partners answer, give them a smiley face! ☺ REMEMBER: Take Turns.

1. $\frac{2}{3}$ ___ $\frac{3}{5}$	2. $\frac{2}{5}$ ___ $\frac{4}{8}$
3. $\frac{3}{4}$ ___ $\frac{2}{3}$	4. $\frac{3}{10}$ ___ $\frac{3}{5}$
5. $\frac{9}{15}$ ___ $\frac{18}{30}$	6. $\frac{9}{10}$ ___ $\frac{10}{12}$
7. $\frac{5}{12}$ ___ $\frac{3}{6}$	8. $\frac{9}{10}$ ___ $\frac{27}{30}$
9. $\frac{12}{15}$ ___ $\frac{49}{60}$	10. $\frac{35}{60}$ ___ $\frac{6}{12}$
*CHALLENGE: *Order* the following fractions:	
11. $\frac{1}{2}, \frac{4}{6}, \frac{3}{12}$	12. $\frac{1}{3}, \frac{5}{12}, \frac{1}{4}$
13. $\frac{9}{12}, \frac{6}{10}, \frac{29}{60}$	14. $\frac{1}{3}, \frac{2}{5}, \frac{3}{10}$

COMPARING FRACTIONS PRACTICE-**ANSWERS**

Name _____ **Name** _____

Compare the following fractions using **>**, **<**, or **=**. If you agree with your partners answer, give them a smiley face! ☺ REMEMBER: Take Turns.

1. $\frac{2}{3} \succ \frac{3}{5}$	2. $\frac{2}{5} \prec \frac{4}{8}$
3. $\frac{3}{4} \succ \frac{2}{3}$	4. $\frac{3}{10} \prec \frac{3}{5}$
5. $\frac{9}{15} = \frac{18}{30}$	6. $\frac{9}{10} \succ \frac{10}{12}$
7. $\frac{5}{12} \prec \frac{3}{6}$	8. $\frac{9}{10} = \frac{27}{30}$
9. $\frac{12}{15} \prec \frac{49}{60}$	10. $\frac{35}{60} \succ \frac{6}{12}$
*CHALLENGE: *Order* the following fractions: **Fractions are now ordered.**	
11. $\frac{3}{12}, \frac{1}{2}, \frac{4}{6}$	12. $\frac{1}{4}, \frac{1}{3}, \frac{5}{12}$
13. $\frac{29}{60}, \frac{6}{10}, \frac{9}{12}$	14. $\frac{3}{10}, \frac{1}{3}, \frac{2}{5}$

FACT OR FICTION?

$\frac{3}{10} \prec \frac{3}{5}$	**FACT**
$\frac{3}{10} \succ \frac{3}{5}$	**FICTION**
$\frac{3}{4} \prec \frac{2}{3}$	**FICTION**
$\frac{2}{3} \prec \frac{3}{5}$	**FICTION**
$\frac{2}{5} \prec \frac{4}{8}$	**FACT**
$\frac{12}{15} \succ \frac{49}{60}$	**FICTION**
$\frac{9}{10} \prec \frac{27}{30}$	**FICTION**

Lesson 4 Warm-Up

1. Circle ALL the fractions that are equivalent to $\frac{5}{8}$.

$$\frac{5}{16}, \frac{10}{18}, \frac{2.5}{4}, \frac{25}{40}$$

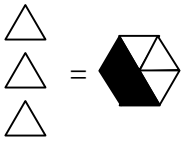
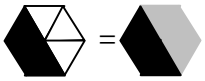
2. Write two fractions that are equivalent to $\frac{4}{5}$.

3. Fill in the blanks to make two equivalent fractions.

$$\frac{2}{5} = \frac{\quad}{15} \qquad \frac{3}{7} = \frac{12}{\quad} \qquad \frac{\quad}{8} = \frac{1}{4}$$

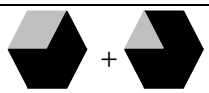
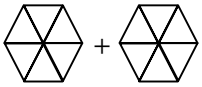
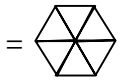
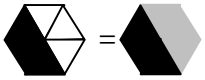
Adding Fractions: Example 1

John eats $\frac{1}{6}$ of a pepperoni pizza and $\frac{2}{6}$ of a cheese pizza. How much pizza did he eat altogether?

STEPS	*VISUAL*	*MATHEMATICAL*
Step 1: Write what you have.		$\frac{1}{6}+\frac{2}{6}$
Step 2: Find a common denominator		Already done
Step 3: Add.		$\frac{1}{6}+\frac{2}{6}=\frac{3}{6}$
Step 4: Simplify		$\frac{3}{6}\div\frac{3}{3}=\frac{1}{2}$

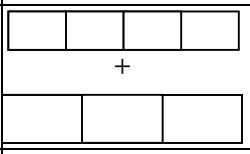
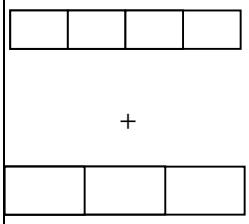
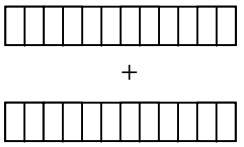
Adding Fractions: Example 2

John eats $\frac{1}{3}$ of a pepperoni pizza and $\frac{1}{6}$ of a cheese pizza. How much pizza did he eat altogether?

STEPS	*VISUAL*	*MATHEMATICAL*
Step 1: Write what you have.		$\frac{1}{3}+\frac{1}{6}$
Step 2: Find a common denominator		$\frac{\quad}{6}+\frac{\quad}{6}$
Step 3: Add.		$\frac{\quad}{6}+\frac{\quad}{6}=\frac{\quad}{6}$
Step 4: Simplify		$\frac{3}{6}\div\frac{3}{3}=\frac{1}{2}$

Adding Fractions: Example 3

Mary eats $\frac{1}{4}$ of a chocolate cake and $\frac{2}{3}$ of a lemon cake. How much cake did she eat altogether?

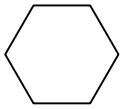
STEPS	*VISUAL*	*MATHEMATICAL*
Step 1: Write what you have.		$\frac{1}{4}+\frac{2}{3}$
Step 2: Find a common denominator		$\frac{1}{4}$ x — = — $\frac{2}{3}$ x — = —
Step 3: Add.		— + — = —
Step 4: Simplify, if needed.		

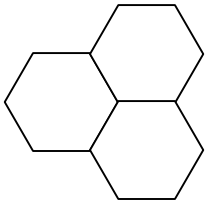
Fraction Tic Tac Toe

$\frac{3}{7}+\frac{3}{8}=$	$\frac{2}{3}+\frac{4}{5}=$	$\frac{2}{6}+\frac{3}{5}=$
$\frac{3}{4}+\frac{1}{8}=$	$\frac{1}{4}+\frac{2}{9}=$	$\frac{5}{6}+\frac{1}{8}=$
$\frac{3}{5}+\frac{1}{8}=$	$\frac{2}{3}+\frac{2}{9}=$	$\frac{1}{5}+\frac{2}{3}=$

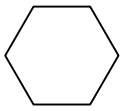
What's the Total?

Directions: Use pattern blocks to answer the following addition problems.

1. If + = $\frac{2}{3}$, what is  ?

2. If + = $\frac{1}{10}$, what is 

3. If + + = $\frac{5}{8}$, what is ?

4. If + = $\frac{2}{5}$, what is  ?

Answer Key: Lesson 4

Warm-up

1. $\frac{2.5}{4}, \frac{25}{40}$

2. Answers will vary. Some possible answers are $\frac{8}{10}, \frac{12}{15}, \frac{16}{20}, \frac{20}{25}$

3. $\frac{2}{5} = \frac{6}{15}$ $\frac{3}{7} = \frac{12}{28}$ $\frac{2}{8} = \frac{1}{4}$

What's the total?

1. $\frac{4}{3} = 1\frac{1}{3}$

2. $\frac{4}{10} = \frac{2}{5}$

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

4. $\frac{4}{5}$

Fraction Tic-Tac-Toe

$\frac{45}{56}$	$1\frac{7}{15}$ *or* $\frac{22}{15}$	$\frac{14}{15}$
$\frac{7}{8}$		$\frac{23}{24}$
$\frac{29}{40}$	$\frac{8}{9}$	$\frac{13}{15}$

Name _____ Date_____

Fraction Quiz

1. Which of the following fractions is NOT equivalent to $\frac{2}{5}$?

   A. $\frac{4}{10}$

   B. $\frac{4}{20}$

   C. $\frac{14}{35}$

   D. $\frac{20}{50}$

2. What is the LCM of 10 and 15?
   A. 5
   B. 10
   C. 30
   D. 150

3. What is the GCF of 24 and 36?
   A. 4
   B. 12
   C. 72
   D. 864

4. Which statement is true?
   A. $\frac{5}{8} > \frac{5}{16}$
   B. $\frac{2}{3} = \frac{4}{9}$
   C. $\frac{9}{35} < \frac{6}{27}$
   D. $\frac{5}{22} > \frac{18}{88}$

5. Jeb runs $\frac{1}{4}$ mile in one and a half minutes. The next day, he ran $\frac{2}{3}$ mile in one and three fourths minutes. How far did he run in these two days?

A. $\frac{3}{7} mile$

B. $\frac{11}{12} mile$

C. $1\frac{3}{4} miles$

D. none of the above

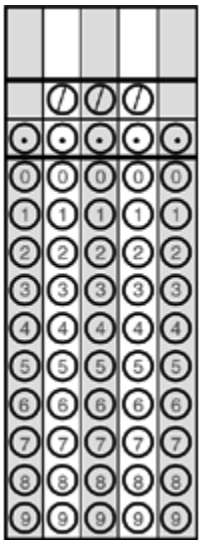
6. The world record for eating ice cream is $9\frac{3}{16}$ oz in a minute. Which of the following attempts would NOT beat this record?

A. $9\frac{1}{8} oz$

B. $9\frac{6}{32} oz$

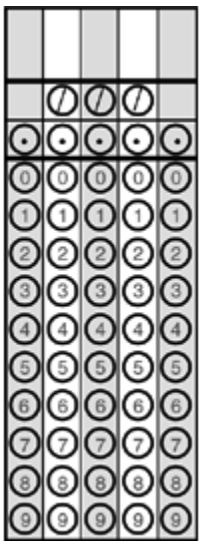
C. $9\frac{1}{4} oz$

D. $10\frac{1}{10} oz$



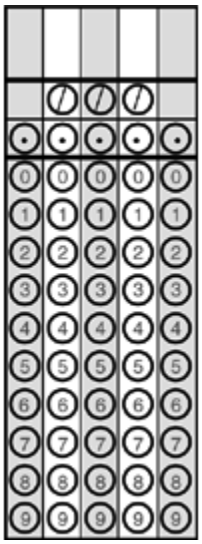
7. Which of the following fractions is the smallest?

$\frac{1}{3}, \frac{5}{12}, \frac{1}{4}, \frac{4}{18}$



8. Tony loves the homemade apple pie that his grandmother bakes. He snuck home $\frac{1}{6}$ of a pie on Sunday. When he visited on Tuesday, he snuck home $\frac{8}{18}$ of a pie for snacking. What total fraction of an apple pie did he sneak home?

9. Simplify the following fraction in lowest terms: $\frac{5}{60}$



10. BCR: A Pastry Chef's Dilemma

A pastry chef is decorating cakes with different colors of roses. Each cake will have the same number of each rose color. There are 72 red roses, 63 yellow roses, and 27 pink roses.

What is the greatest number of cakes that can be baked? Justify your answer.

How many roses of each color will be on each cake?
Justify your answer.

Fraction Quiz – ANSWER KEY

1. Which of the following fractions is NOT equivalent to $\frac{2}{5}$?

   E. $\frac{4}{10}$

   F. $\boxed{\frac{4}{20}}$

   G. $\frac{14}{35}$

   H. $\frac{20}{50}$

2. What is the LCM of 10 and 15?

   A. 5
   B. 10
   C. $\boxed{30}$
   D. 150

3. What is the GCF of 24 and 36?

   E. 4
   F. $\boxed{12}$
   G. 72
   H. 864

4. Which statement is true?

   E. $\boxed{\frac{5}{8} > \frac{5}{16}}$

   F. $\frac{2}{3} = \frac{4}{9}$

   G. $\frac{9}{35} < \frac{6}{27}$

   H. $\frac{5}{22} > \frac{18}{88}$

5. Jeb runs $\frac{1}{4}$ mile in one and a half minutes. The next day, he ran $\frac{2}{3}$ mile in one and three fourths minutes. How far did he run in these two days?

E. $\frac{3}{7} mile$

F. $\boxed{\frac{11}{12} mile}$

G. $1\frac{3}{4} miles$

H. none of the above

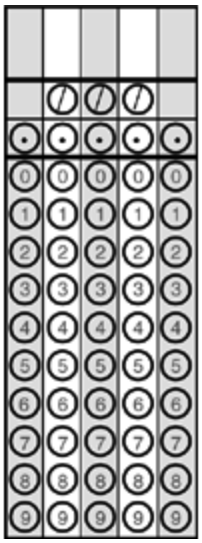
6. The world record for eating ice cream is $9\frac{3}{16}$ oz in minute. Which of the following attempts would NOT beat this record?

E. $\boxed{9\frac{1}{8} oz}$

F. $9\frac{6}{32} oz$

G. $9\frac{1}{4} oz$

H. $10\frac{1}{10} oz$

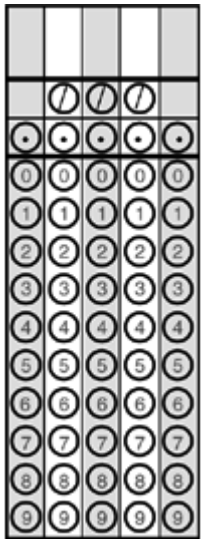


7. Which of the following fractions is the smallest?

$\frac{1}{3}, \frac{5}{12}, \frac{1}{4}, \boxed{\frac{4}{18}}$

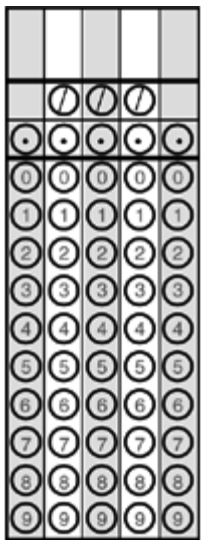
8. Tony loves the homemade apple pie that his grandmother bakes. He snuck home $\frac{1}{6}$ of a pie on Sunday. When he visited on Tuesday, he snuck home $\frac{8}{18}$ of a pie for snacking. What total fraction of an apple pie did he sneak home?

$\boxed{\frac{11}{18}}$



9. Simplify the following fraction in lowest terms: $\frac{5}{60}$

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



A Pastry Chef's Dilemma *ANSWER KEY*

A pastry chef is decorating cakes with different colors of roses. Each cake will have the same number of each rose color. There are 72 red roses, 63 yellow roses, and 27 pink roses.

What is the greatest number of cakes that can be baked?

9

How many roses of each color will be on each cake?

3 PINK ROSES
7 YELLOW ROSES
8 RED ROSES