Small Group Center Resource- 4th Grade Fractions

By: Jennifer Ova

Math Standard: 4.NF.3

Understand a fraction a/b with a > 1 as a sum of unit fractions 1/b. If a = 5, b = 6

a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.

b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition with an equation.

Justify decompositions by using a visual fraction model or other strategies.

c. Add and subtract mixed numbers with like denominators.

d. Using visual fraction models and equations, solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.

Day 1

	Rotation 1	Rotation 2	Rotation 3
Striving Learners	Discovering fractional relationships	Identifying fractions game https://www.mathgames.com/skill/2.6-identify-fractions-of-shapes	Identifying fractions clip card activity
Grade Level	Adding fractions clip card activity	Adding fractions with like denominators	Add Fractions (Sums up to 1) game https://www.splashmath.com/fraction-games-for-4th-graders
High Flyers	Subtract Fractions game https://www.splashmath.com/fraction-games-for-4th-graders?page=2	Adding and Subtracting fractions clip card activity	Adding and subtracting fractions with like denominators

Materials: strips of paper, crayons, computer/iPad, clip card games, clothes pins, whiteboard, markers

Appendix A, B, C, D, E

Striving Learners:

Rotation 1: Teacher Time:

- Begin by asking students what they know about fractions by having them do a quick write

- Have students share out
- Explain that fractions represent parts of one whole and that fractions represent equal shares
- Relate fraction to real world
- Have students make fraction strips
    - Give each student 5 strips of paper to fold equal parts for halves, thirds, fourths, sixths, and eighths
    - Students will write the fraction on each equal part

Assessment: fraction strips are folded into equal parts and labeled

Rotation 2: Technology

Fraction Equal Parts game: https://www.mathgames.com/skill/2.5-equal-parts

Rotation 3: Activity/ Game

Identifying fractions clip card activity- students will place a clothes pin on the corresponding fraction and write out the fraction on the whiteboard (example in Appendix D)

Grade Level:

Rotation 1: Teacher Time

- Tell students our lesson today is adding fractions with like denominators
- Ask students what I mean when I say “like denominators”
- Ask students when you might need to add fractions with like denominators
- Explain to students that when we add fractions with like denominators all we have to do is add the numerator, or top number because our fractions come from the same size whole
- Discuss fraction addition real world scenarios
- Explain fraction strip activity

Assessment: Students will complete the fraction strip activity located in Appendix A & Appendix B

Rotation 2: Technology

Add Fractions (Sums up to 1): https://www.splashmath.com/fraction-games-for-4th-graders

Rotation 3: Activity/ Game

Adding fractions clip card activity- students will place a clothes pin on the answer (example in Appendix E)

High Flyers:

Rotation 1: Teacher Time

- Tell students our lesson today is adding and subtracting fractions with like denominators
- Ask students what I mean when I say “like denominators”
- Ask students when you might need to add or subtract fraction with like denominators
- Explain to students that when we add or subtract fractions with like denominators all we have to do is add the numerator, or top number because our fractions come from the same size whole
- Discuss fraction addition and subtraction real world scenarios
- Explain fraction strip activity

Assessment: Students will complete the fraction strip activity located in Appendix A & Appendix C

Rotation 2: Technology

Subtract Fractions game: https://www.splashmath.com/fraction-games-for-4th-graders?page=2

Rotation 3: Activity/ Game

Adding and Subtracting fractions clip card activity- students will place a clothes pin on the answer (example in Appendix E)

Day 2

	Rotation 1	Rotation 2	Rotation 3
Striving Learners	Adding Fractions with like denominators	Add Fractions (Sums up to 1) game https://www.splashmath.com/fraction-games-for-4th-graders	Adding fraction clip card activity
Grade Level	Fraction tile manipulatives activity	Decomposing fractions into a sum of fractions with the same denominator	Fraction Nation
High Flyers	Fraction Nation	Fraction tile manipulatives activity	Decomposing fractions into a sum of fractions with the same denominator in more than one way

Materials: fraction strips, crayons, computer/ iPad, clip card game, whiteboard, markers, fraction tile manipulatives

Appendix A, B, F, G, H

Striving Learners:

Rotation 1: Teacher Time:

- Tell students our lesson today is adding fractions with like denominators
- Ask students what I mean when I say “like denominators”

- Ask students when you might need to add fractions with like denominators
- Explain to students that when we add fractions with like denominators all we have to do is add the numerator, or top number because our fractions come from the same size whole
- Discuss fraction addition real world scenarios
- Explain fraction strip activity

Assessment: Students will complete the fraction strip activity located in Appendix A & Appendix B

Rotation 2: Technology

Add Fractions (Sums up to 1): https://www.splashmath.com/fraction-games-for-4th-graders

Rotation 3: Activity/ Game

Adding fractions clip card activity- students will place a clothes pin on the answer (example in Appendix E)

Grade Level:

Rotation 1: Teacher Time

- Tell students that today we will decompose fractions into sums of fractions
- Demonstrate fraction decomposition on a white board
- "I have 4/8 of a Hershey's chocolate bar. How can I write an addition equation to show the amount of the chocolate bar that I will eat?"
- Write an addition equation on the white board for the problem based on student response
- Draw a model of the addition equation on the white board
- Give students Teresa's Pizza Task worksheet located in Appendix G

Assessment: Students will complete Teresa's Pizza Task worksheet located in Appendix G

Rotation 2: Technology

Students will do Fraction Nation

Fraction Nation- district program leveled for individual learners

Rotation 3: Activity/ Game

Students will use fraction tile manipulatives to come up with addition equations to add the given fraction cards found in Appendix F

High Flyers:

Rotation 1: Teacher Time

- Tell students that today we will decompose fractions into sums of fractions
- Demonstrate fraction decomposition on a white board
- "I have 4/8 of a Hershey's chocolate bar. How many addition equations can I write to show the amount of the chocolate bar that I will eat?"
- Write the addition equations on the white board for the problem based on student response
- Draw a model of the addition equations on the white board
- Give students Teresa's Pizza Task worksheet located in Appendix H

Assessment: Students will complete Teresa's Pizza Task worksheet located in Appendix H

Rotation 2: Technology

Students will do Fraction Nation

Fraction Nation- district program leveled for individual learners

Rotation 3: Activity/ Game

Students will use fraction tile manipulatives to come up with fraction equations to add the given fraction cards found in Appendix F

Day 3

	Rotation 1	Rotation 2	Rotation 3
Striving Learners	Modeling adding mixed numbers using shape manipulatives (simple modeling tasks)	Add Mixed Numbers Using Models game https://www.splashmath.com/fraction-games-for-4th-graders?page=2	Adding Fractions and Mixed Numbers game
Grade Level	Adding Fractions and Mixed Numbers game	Modeling adding mixed numbers using shape manipulatives (average ability modeling tasks)	Add Mixed Numbers game https://www.splashmath.com/fraction-games-for-4th-graders?page=2
High Flyers	Mixed Numbers as Fractions game https://www.splashmath.com/fraction-games-for-4th-graders	Adding Fractions and Mixed Numbers game	Modeling adding mixed numbers using shape manipulatives (more complex modeling tasks & figuring out how much each shape is worth on their own)

Materials: computer/ iPad, shape manipulatives

Game materials (game board, cupcake board, record sheets, dry erase markers, game piece, die)

Appendix I

Striving Learners:

Rotation 1: Teacher Time:

- Tell students we are going to learn about adding mixed numbers with like denominators
- "A mixed number is a whole number part and a fractional part"

- "We practiced adding fractions with like denominators yesterday, so the only thing we are adding is the whole number today"
- Review fraction addition basics (only add the numerator or top number when adding fractions)
- Tell students they will model adding mixed numbers by using shape manipulatives
- Tell students how much each shape is worth (hexagon is one whole)
- Have each student model adding mixed numbers by using shape manipulatives with simple tasks given by the teacher

Assessment: Students are showing me they know how to add mixed numbers by modeling with shape manipulatives.

Rotation 2: Technology

Add Mixed Numbers Using Models game: https://www.splashmath.com/fraction-games-for-4th-graders?page=2

Rotation 3: Activity/ Game

Students will play the Adding Fractions and Mixed Numbers game with their peers.

(Game and directions for playing are found in Appendix I by double clicking on the document)

Grade Level:

Rotation 1: Teacher Time

- Tell students we are going to learn about adding mixed numbers with like denominators
- "Can someone explain to me what a mixed number is?"
- "A mixed number is a whole number part and a fractional part"
- "Since we already know how to add fractions with like denominators, the only thing new is adding in the whole number"
- Tell students they will model adding mixed numbers by using shape manipulatives
- Tell students how much each shape is worth (hexagon is one whole)
- Have each student model adding mixed numbers by using shape manipulatives with average ability tasks given by the teacher

Assessment: Students are showing me they know how to add mixed numbers by modeling with shape manipulatives.

Rotation 2: Technology

Add Mixed Numbers game: https://www.splashmath.com/fraction-games-for-4th-graders?page=2

Rotation 3: Activity/ Game

Students will play the Adding Fractions and Mixed Numbers game with their peers.

(Game and directions for playing are found in Appendix I by double clicking on the document)

High Flyers:

Rotation 1: Teacher Time

- Tell students we are going to learn about adding mixed numbers with like denominators
- "Can someone explain to me what a mixed number is?"
- "A mixed number is a whole number part and a fractional part"
- "Since we already know how to add fractions with like denominators, the only thing new is adding in the whole number"
- Tell students they will model adding mixed numbers by using shape manipulatives
- Tell students that they will have to figure out how much each shape is worth (if it's a whole, half, fourth etc...)
- Have each student model adding mixed numbers by using shape manipulatives with more complex tasks given by the teacher

Assessment: Students are showing me they know how to add mixed numbers by modeling with shape manipulatives.

Rotation 2: Technology

Mixed Numbers as Fractions Game: https://www.splashmath.com/fraction-games-for-4th-graders

Since these students understand how to add mixed numbers, they will begin to convert mixed numbers to improper fractions and vice versa.

Rotation 3: Activity/ Game

Students will play the Adding Fractions and Mixed Numbers game with their peers.

(Game and directions for playing are found in Appendix I by double clicking on the document)

Day 4

	Rotation 1	Rotation 2	Rotation 3
Striving Learners	Solving Fraction Addition word problems	Fraction Nation	Adding Fractions Bump Game #1
Grade Level	Adding Fractions Bump Game #1	Solving Fraction Addition and Subtraction word problems	Fraction Nation
High Flyers	Fraction Nation	Adding Fractions Bump Game #1 or #2	Solving Fraction Addition and Subtraction word problems

Materials: computer/ iPad, white board, markers,

Game materials bump game boards, 20 counters (10 in one color and 10 in a different color), 2 dice

Appendix J, K, L

Striving Learners:

Rotation 1: Teacher Time:

- Tell students we will be solving word problems involving fraction addition
- Tell students they will need to be problem solvers
- Present a couple fraction addition word problems and work through them step by step with the students
- Tell students some helpful strategies
- Have students use visual fraction models to draw out the equation on their whiteboards as we walk through it
- Students will complete the fraction word problem worksheet found in Appendix J

Assessment: Fraction word problem worksheet found in Appendix J

Rotation 2: Technology

Students will do Fraction Nation

Fraction Nation- district program leveled for individual learners

Rotation 3: Activity/ Game

Students will play the Adding Fractions Bump Game #1 with their peers.

(Game and directions for playing are found in Appendix L by double clicking on the document)

Grade Level:

Rotation 1: Teacher Time

- Tell students that we will be solving word problems involving fraction addition and subtraction
- Tell students they will need to be problem solvers
- Present a couple fraction addition and subtraction word problems

- Ask students what strategies we could use to solve the word problem
- Use the suggested strategies to work through a couple word problems with the students
- Have students use visual fraction models to draw out the equations on their white boards
- Students will choose 6 problems to complete on the fraction word problem worksheet found in Appendix K

Assessment: Fraction word problem worksheet (6 problems) found in Appendix K

Rotation 2: Technology

Students will do Fraction Nation

Fraction Nation- district program leveled for individual learners

Rotation 3: Activity/ Game

Students will play the Adding Fractions Bump Game #1 with their peers.

(Game and directions for playing are found in Appendix L by double clicking on the document)

High Flyers:

Rotation 1: Teacher Time

- Tell students that we will be solving word problems involving fraction addition and subtraction
- Tell students they will need to be problem solvers
- Present a couple fraction addition and subtraction word problems
- Ask students what strategies we could use to solve the word problem
- Use the suggested strategies to work through a couple word problems with the students
- Have students use visual fraction models to draw out the equations on their white boards
- Students will complete the fraction word problem worksheet found in Appendix K

Assessment: Fraction word problem worksheet found in Appendix K

Rotation 2: Technology

Students will do Fraction Nation

Fraction Nation- district program leveled for individual learners

Rotation 3: Activity/ Game

Students will play the Adding Fractions Bump Game #1 or #2 with their peers.

(Game and directions for playing are found in Appendix L by double clicking on the document)

Day 5

	Rotation 1	Rotation 2	Rotation 3
Striving Learners	Explain Fraction Mosaic Team Challenge	Fraction Nation	Fraction Mosaic Team Challenge (Level A task cards)
Grade Level	Fraction Mosaic Team Challenge (Level B task cards)	Discuss Fraction Mosaic Team Challenge while looking at the pictures of students' designs	Fraction Nation
High Flyers	Fraction Nation	Fraction Mosaic Team Challenge (Level C task cards)	Discuss Fraction Mosaic Team Challenge while looking at the pictures of students' designs

Materials: iPad, square tiles (red, yellow, green, blue),

Appendix M, N, O, P

Fraction Mosaic example found on Appendix P

Assessment: Students will take pictures on the iPad of their mosaic designs.

Striving Learners:

Rotation 1: Teacher Time:

- Explain today's Fraction Mosaic Team Challenge activity to the students
- Tell students they will be working on one challenge card at a time going in order
- Show students the challenge cards
- Tell students that they will be get into teams of 3 and each team member will build a design to match the card description
- Tell students that once all team members have built their mosaic design they will discuss their designs together
- Tell students that they will choose one team members design and take a picture of it on the iPad
- Tell students that we will practice doing the first challenge card together
  Build a design that is…
  One fourth red
  One fourth green
- Have each student build a mosaic design with the square tiles based on the challenge and help them through it

Rotation 2: Technology

Students will do Fraction Nation

Fraction Nation- district program leveled for individual learners

Rotation 3: Activity/ Game

Students will work as a team of 3 to do the Fraction Mosaic Team Challenge by working through one challenge card at a time.

Level A task cards located in Appendix M

Student directions:

1. Work on 1 challenge card at a time, going in order
2. Each team member builds a design to match the description on your card
3. Once all team members have built their mosaics, share and discuss your designs together
   How did you decide what to do to create your mosaic design?
   Can you prove your mosaic matches the task card?
   What does your design teach us about fractions?
4. Choose one of your team member's mosaics to take a picture of on the iPad

Assessment: Students will take pictures on the iPad of their mosaic designs

Grade Level:

Rotation 1: Teacher Time

- Look at the design picture for each task card on the iPad together
- Discuss what each design teaches us about fractions?
- Discuss the Fraction Mosaic Team Challenge (strategies used, struggles)

Rotation 2: Technology

Students will do Fraction Nation

Fraction Nation- district program leveled for individual learners

Rotation 3: Activity/ Game

Students will work as a team of 3 to do the Fraction Mosaic Team Challenge by working through one challenge card at a time.

Level B task cards located in Appendix N

Student directions:

1. Work on 1 challenge card at a time, going in order
2. Each team member builds a design to match the description on your card
3. Once all team members have built their mosaics, share and discuss your designs together
   How did you decide what to do to create your mosaic design?
   Can you prove your mosaic matches the task card?
4. Choose one of your team member's mosaics to take a picture of on the iPad

Assessment: Students will take pictures on the iPad of their mosaic designs

High Flyers:

Rotation 1: Teacher Time

- Look at the design picture for each task card on the iPad together
- Discuss what each design teaches us about fractions?
- Discuss the Fraction Mosaic Team Challenge (strategies used, struggles)

Rotation 2: Technology

Students will do Fraction Nation

Fraction Nation- district program leveled for individual learners

Rotation 3: Activity/ Game

Students will work as a team of 3 to do the Fraction Mosaic Team Challenge by working through one challenge card at a time.

Level C task cards located in Appendix O

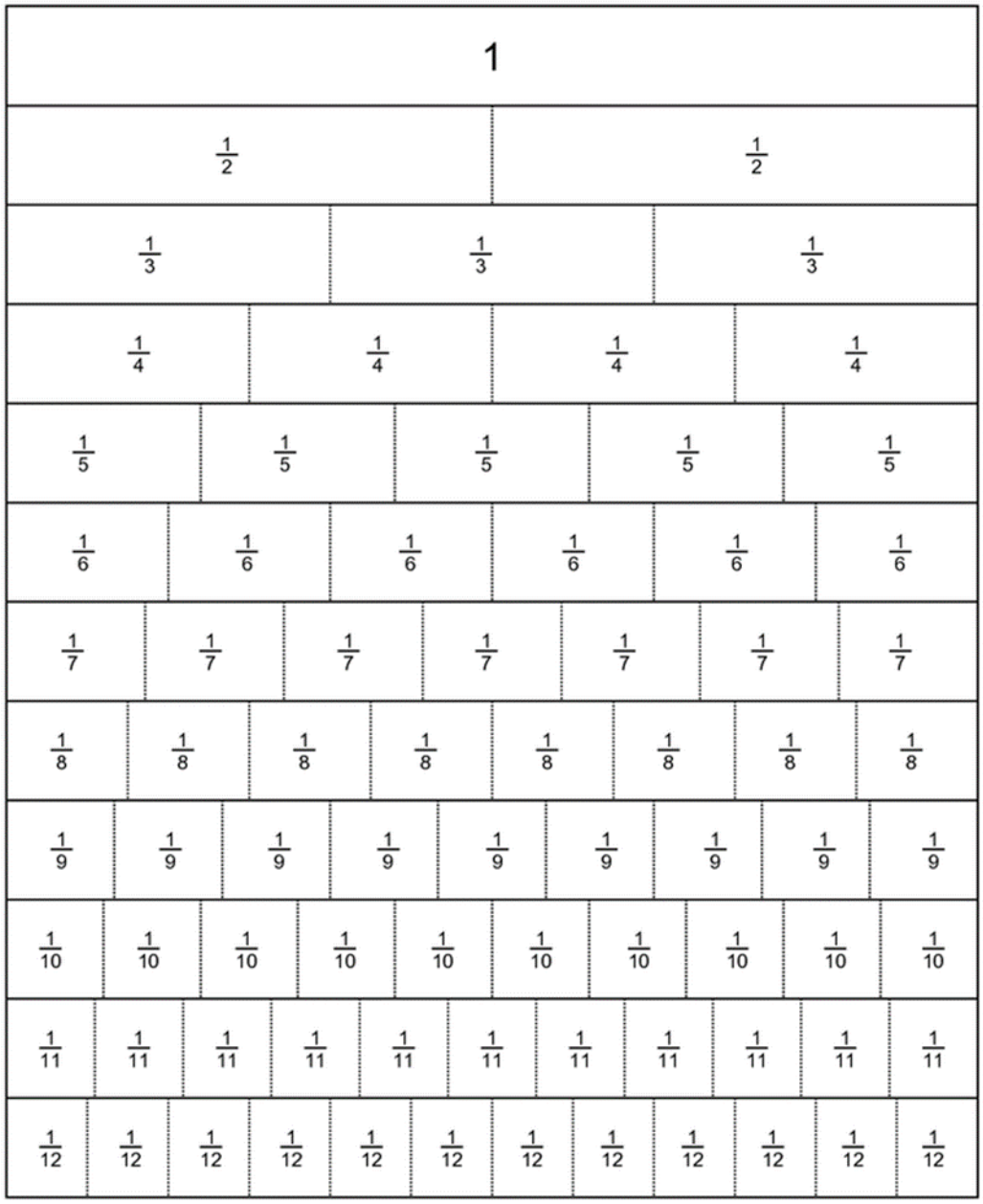
Student directions:

1. Work on 1 challenge card at a time, going in order
2. Each team member builds a design to match the description on your card
3. Once all team members have built their mosaics, share and discuss your designs together
   How did you decide what to do to create your mosaic design?
   Can you prove your mosaic matches the task card?
   What does your design teach us about fractions?
4. Choose one of your team member's mosaics to take a picture of on the iPad

Assessment: Students will take pictures on the iPad of their mosaic designs

Appendix A

Fraction Strips (to twelfths labelled)



Appendix B

Add Fractions with Like Denominators

Directions: Each student should take 2 crayons and a fraction strip handout. Add the fractions using the fraction strips. Shade the 1st fraction in one color and the 2nd fraction in another color. Add all of the shaped parts.

1. 1/5 + 3/5=

2. 5/8 + 2/8=

3. 2/6 + 2/6=

Appendix C

Add and Subtract Fractions with Like Denominators

Directions: Each student should take 2 crayons and a fraction strip handout. Add the fractions using the fraction strips. Shade the 1st fraction in one color and the 2nd fraction in another color. Add all of the shaped parts. To subtract fractions, shade the 1st fraction in one color, then mark an "X" through the shaded fraction pieces that represent the second number. To find your answer, count all of the fraction pieces that are not marked with an "X."

1. 1/5 + 3/5=

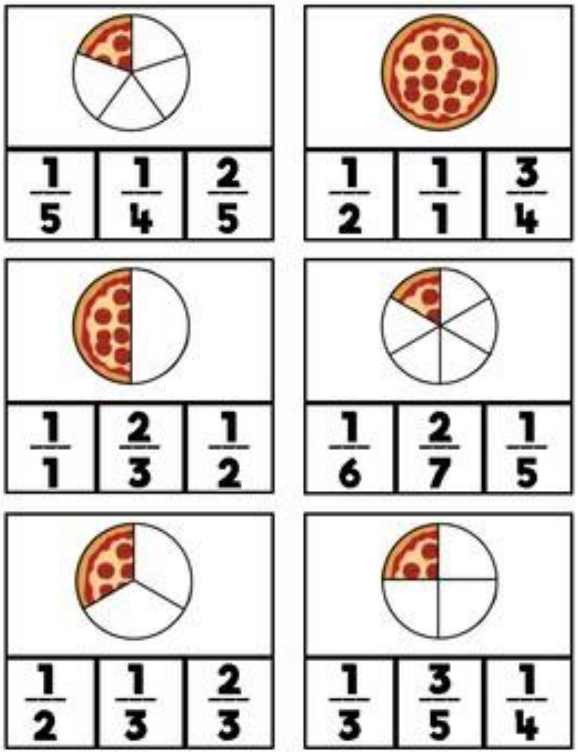
2. 4/9 – 3/9=

3. 5/8 + 2/8=

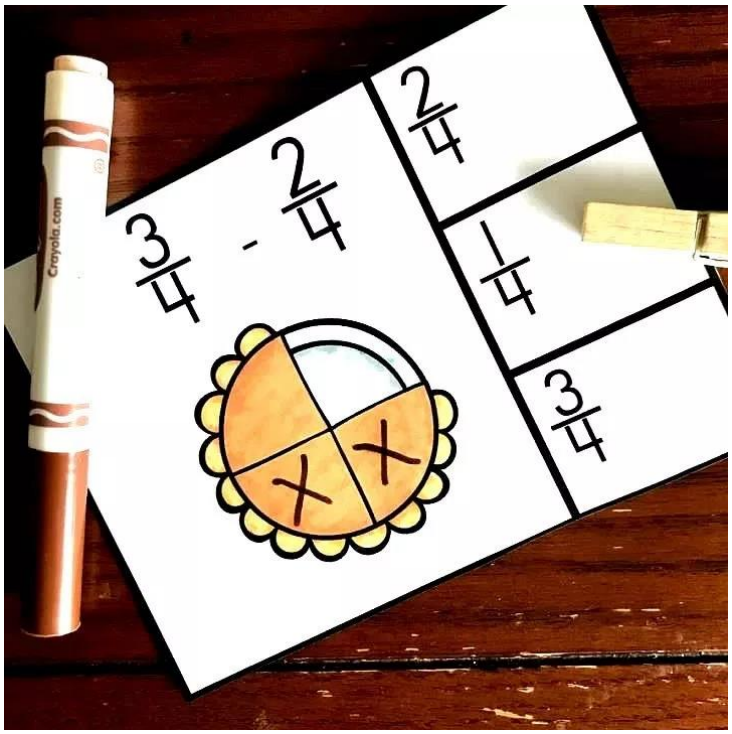
4. 7/12 – 3/12=

5. 2/6 + 2/6=

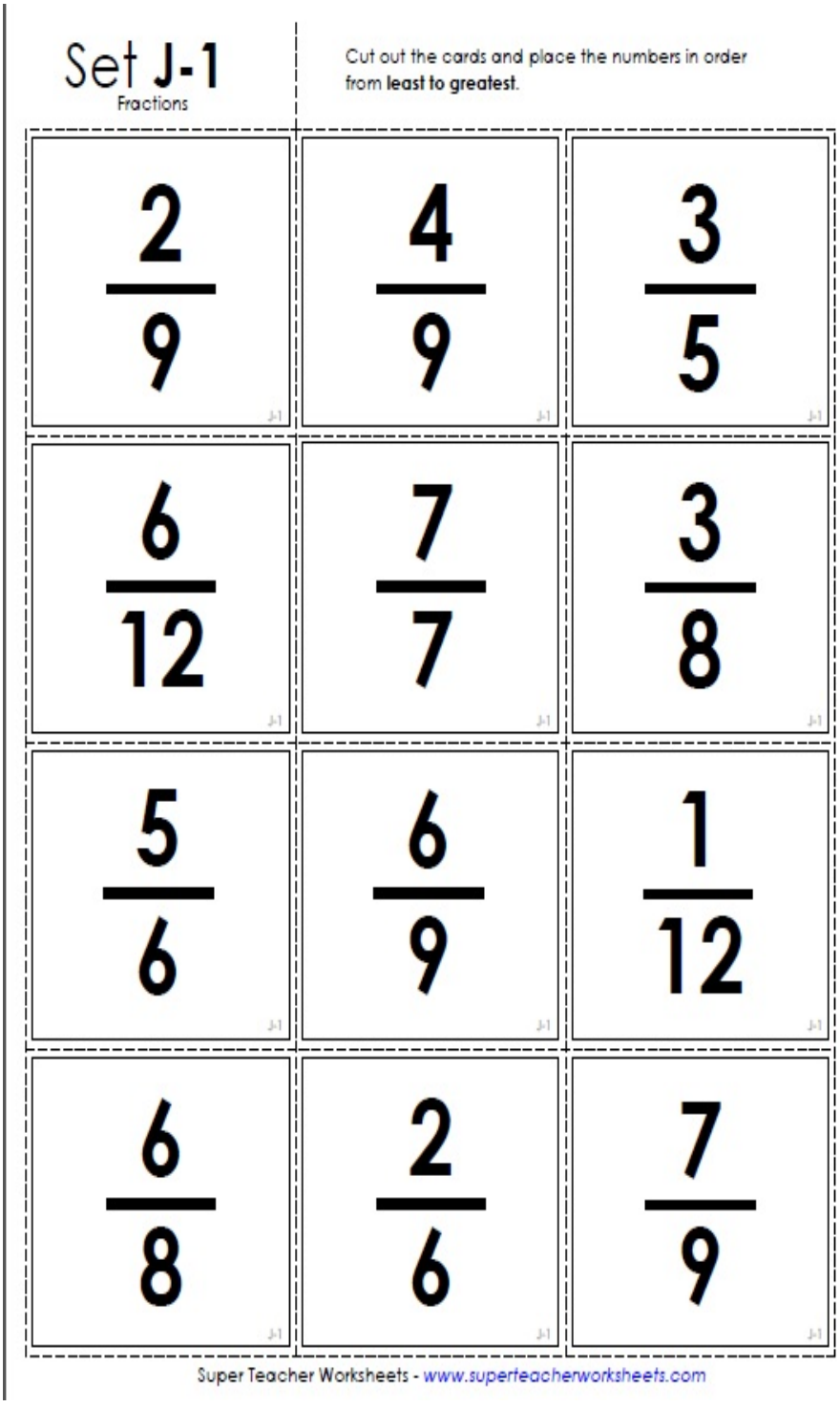
Appendix D



Appendix E



Appendix F



Set **J-1**
Fractions

Cut out the cards and place the numbers in order from **least to greatest.**

$\frac{2}{9}$ J-1	$\frac{4}{9}$ J-1	$\frac{3}{5}$ J-1
$\frac{6}{12}$ J-1	$\frac{7}{7}$ J-1	$\frac{3}{8}$ J-1
$\frac{5}{6}$ J-1	$\frac{6}{9}$ J-1	$\frac{1}{12}$ J-1
$\frac{6}{8}$ J-1	$\frac{2}{6}$ J-1	$\frac{7}{9}$ J-1

Super Teacher Worksheets - www.superteacherworksheets.com

Appendix G

Teresa's Pizza Task:

Teresa has ¾ of a pizza. How can Tersia write an addition equation that shows the amount of pizza she will eat?

1. Write an addition equation using fourths that show the amount of pizza that Teresa will eat.

2. Draw a model of the addition equation.

3. Write to Explain. Use words and numbers to explain how you solved this problem.

Appendix H

Teresa's Pizza Task:

Teresa has ¾ of a pizza. How can Tersia write 2 addition equations that shows the amount of pizza she will eat?

4. Write 2 addition equation using fourths that show the amount of pizza that Teresa will eat.

5. Draw a model of each addition equation.

6. Write to Explain. Use words and numbers to explain how you solved this problem.

Appendix I

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Appendix J

Of the pizzas sold last week at Tamir's Pizzeria, 3/5 were large pizzas and 1/5 were extra-large pizzas. What fraction of the pizzas sold were either large or extra-large?

Hannah added 1/6 of a cup of yellow raisins and 4/6 of a cup of black raisins to a batch of trail mix. How many cups of raisins did Hannah add in all?

In making macaroni and cheese, Henry used 2/5 of a cup of cheddar and 1/5 of a cup of parmesan. How much cheese did Henry use in all?

Vivian poured 1/5 of a gallon of water into a bucket. Later, she added 1/5 of a gallon more. How much water is in the bucket now?

Appendix K

At the farmers' market, Ann Marie bought 4/5 of a bag of Red Delicious apples and 2/5 of a bag of Gala apples. How many more bags of Red Delicious apples did Ann Marie purchase?

Jan’s milkshake recipe calls for 2/3 of a scoop of ice cream and Mary’s recipe calls for 1/3 of a scoop. How many more scoops of ice cream are used in Ashley's recipe than in Vondra's recipe?

Leah filled a measuring cup with 4/6 of a cup of vegetable oil. Then she poured 3/6 of a cup of the oil into a frying pan. How much oil isleft in the measuring cup?

Of the pizzas sold last week at Tamir's Pizzeria, 3/5 were large pizzas and 1/5 were extra-large pizzas. What fraction of the pizzas sold were either large or extra-large?

A marine biologist measured one fish that was 2/4 ofa foot long and a second fish that was 1/4 of a foot long. How much longer was the first fish?

Hannah added 1/6 of a cup of yellow raisins and 4/6 of a cup of black raisins to a batch of trail mix. How many cups of raisins did Hannah add in all

While hiking, Derrick ate 2/8 of a cup of nuts. Nate ate 1/8 ofa cup of nuts. How much more did Derrick eat than Nate

In making macaroni and cheese, Henry used 2/5 of a cup of cheddar and 1/5 of a cup of parmesan. How much cheese did Henry use in all?

Scott filled a measuring cup with 3/4 of a cup of vegetable oil. Then he poured 2/4 of a cup of the oil into a frying pan. How much oil is left in the measuring cup?

Vivian poured 1/5 of a gallon of water into a bucket. Later, she added 1/5 of a gallon more. How much water is in the bucket now?

Appendix L

Adding Fractions
BUMP GAMES
FREEBIE
Adding Fractions: Bump Game #1
Adding Fractions: Bump Game #2
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Appendix M

Team A

Card A **Build a design that is …** • One fourth red • One fourth green	**Card B** **Build a design that is …** • Two thirds yellow
Card C **Build a design that is …** • One eighth yellow • Four eighths green	**Card D** **Build a design that is …** • One third blue • Two thirds red

Created by Alycia Zimmerman for classroom use.

Appendix N

Team B

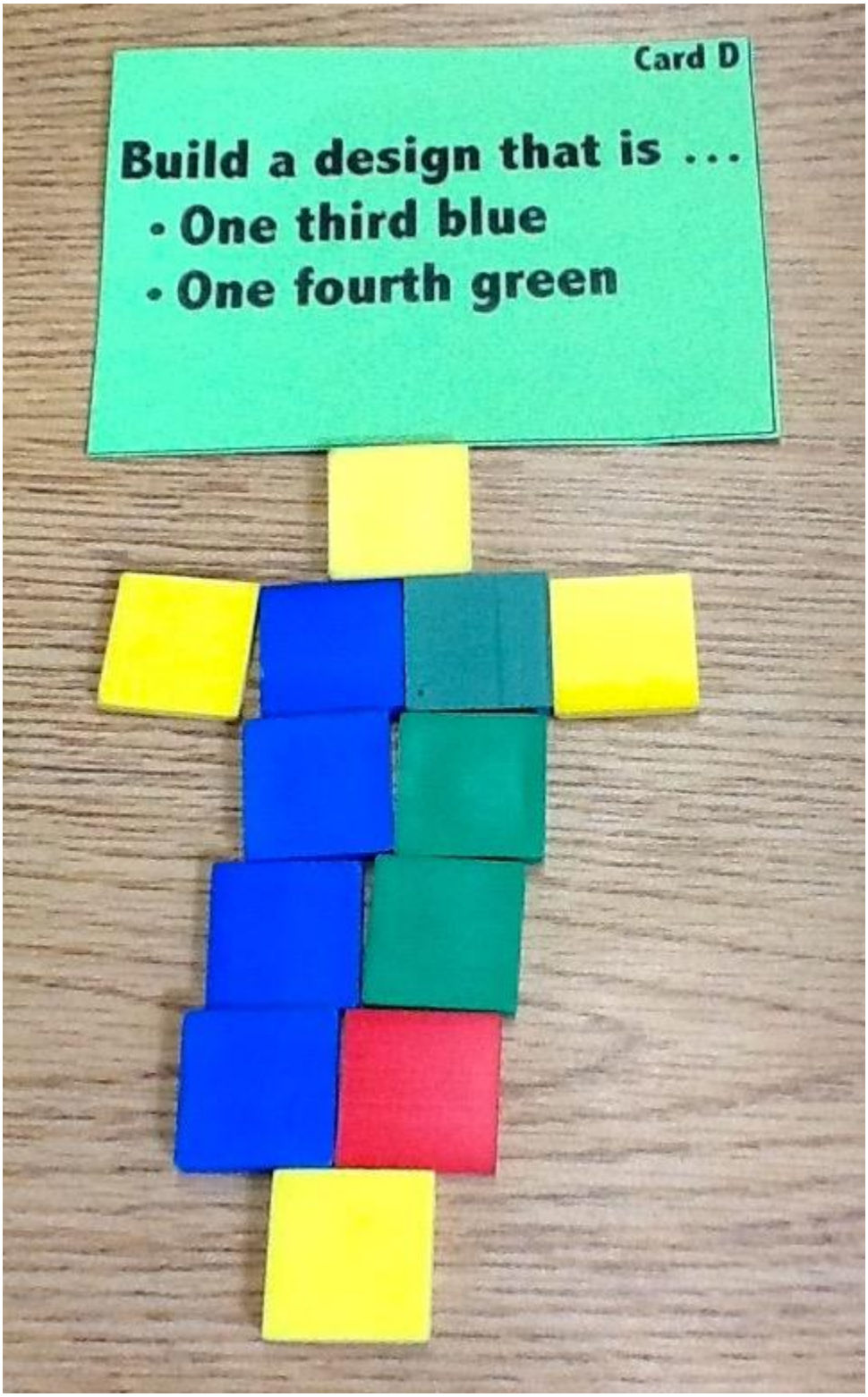
Card A **Build a design that is …** • One fourth red • One eighth green	**Card B** **Build a design that is …** • Two thirds yellow
Card C **Build a design that is …** • One fifth yellow • Three tenths green	**Card D** **Build a design that is …** • One third blue • One fourth green

Created by Alyda Zimmerman for classroom use.

Appendix O

Team C

Card A **Use square tiles to:** **Build a design that is …** • **One third blue** • **One fourth green**	**Card B** **Use square tiles to:** **Build a design that is …** • **One third red** • **One eighth green**
Card C **Use square tiles to:** **Build a design that is …** • **Less than one third blue** • **One fifth red** • **More than one half green**	**Card D** **Use pattern blocks to:** **Build a triangle that is …** • **Two thirds red** • **One ninth green** • **Two ninths blue**

Created by Alycia Zimmerman for classroom use.

Appendix P