LESSON 16: Add Fractions – Like Denominators

[Objective]

The student will work with adding fractions with like denominators.

[Prerequisite Skills]

basic addition facts, knowledge of fractions

[Materials]

Student pages **S152–S161**
Transparencies **T481, T483, T485, T487, T489, T491, and T493**
Fraction Kits 1–3
Overhead fraction strips
Colored pencils
Foldable from Lesson 15

[Essential Questions]

1. How does building with concrete materials help us understand fractions?
2. How does drawing fractions as pictures help our understanding of them?
3. How can we add fractions with like denominators?

[Words For Word Wall]

addend, sum, denominator, numerator, equivalent, simplify, simplest form, legal trade

[Grouping]

Cooperative Pairs (CP), Whole Group (WG), Individual (I)
*For Cooperative Pairs (CP) activities, assign the roles of Partner A and Partner B to students. This allows each student to be responsible for designated tasks within the lesson.

[Levels of Teacher Support]

Modeling (M), Guided Practice (GP), Independent Practice (IP)

[Multiple Representations]

SOLVE, Verbal Description, Pictorial Representation, Concrete Representation, Graphic Organizer.

[Warm-Up] (5 minutes – IP, CP, WG) S152 (Answers on T480.)

- Have students turn to S152 in their books to begin the Warm-Up. Students will practice legal trades. Monitor students to see if any of them need help during the Warm-Up. Give students 3 minutes to complete the problems and then spend 2 minutes reviewing the answers as a class. **{Verbal Description, Concrete Representation, Pictorial Representation}**

[Homework] (5 minutes)

Take time to go over the homework from the previous night.

[Lesson] (60 minutes – M, GP, IP, I, WG, CP)

SOLVE Problem **(3 minutes – GP, WG) T481, S153 (Answers on T482.)**

Have students turn to S153 in their books, and place T481 on the overhead. The first problem is a SOLVE problem. You are only going to complete the S step with students at this point. Tell students that during the lesson they will learn how to add fractions with like denominators. They will use this knowledge to complete this SOLVE problem at the end of the lesson. **{SOLVE, Graphic Organizer}**

Add Fractions – Like Denominators - Concrete **(14 minutes – M, GP, IP, WG, CP) T481, T483, S153, S154 (Answers on T482, T484.)**

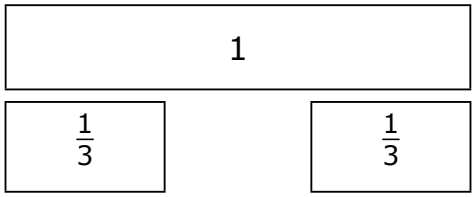
7 minutes – M, GP, WG, CP: Have students take out all three fraction kits. Use the overhead fraction strips and the following modeling activity to help students investigate adding fractions with like denominators using their fraction strips. **{Verbal Description, Concrete Representation, Graphic Organizer}**

MODELING

Add Fractions – Like Denominators – Concrete

Step 1: Direct students' attention to Problem 1 on S153 (T481). Explain to students that they will use their fraction kits to find the **sum** of $\frac{1}{3}$ and $\frac{1}{3}$. Have students put the whole unit at the top of their workspace as you model on the overhead using the whole unit fraction strip.

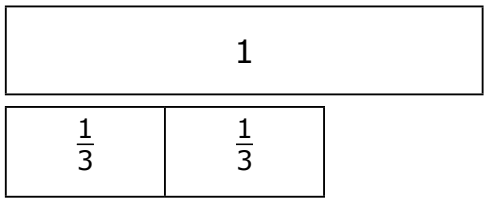
Step 2: Have students place the fractions $\frac{1}{3}$ and $\frac{1}{3}$ underneath the whole unit as shown below.



- Partner A, identify the color of the fraction strip that represents the first **addend**. (green)
- Partner B, identify the color of the fraction strip that represents the second addend. (green)

Have students discuss how they can demonstrate adding the two fraction strips. (Ex: by combining them, pushing them together)

- Have students push the fraction strips together and identify the sum. (2 green or $\frac{2}{3}$)



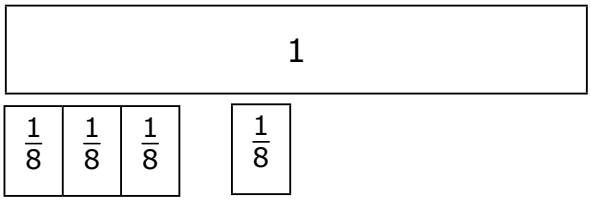
Step 3:
- Partner A, explain what happened to each **denominator** when the fractions were added. (They remained the same.)
- Partner B, explain what happened to each **numerator** when the fractions were added. (The numerators were added together to find the sum.)

Step 4: Ask students if they can make a **legal trade** of the sum for fewer fraction strips in another color. (No.) Tell students this indicates that the sum is in **simplest form**.

Step 5: Direct students' attention back to the graphic organizer for Problem 1. Discuss each step and fill in the boxes using the answers on T482.

Step 6: Direct students' attention to Problem 2. Explain to students that they will use their fraction kits to find the sum of $\frac{3}{8}$ and $\frac{1}{8}$.

Step 7: Have students create the fractions $\frac{3}{8}$ and $\frac{1}{8}$ underneath the whole unit as shown below.



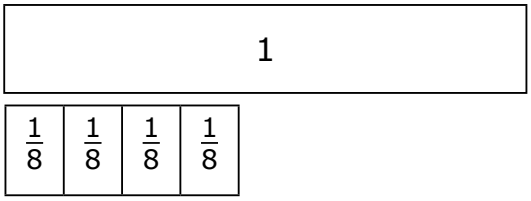
- Partner A, identify the color of the fraction strips that represent the first addend. (red)
- Partner B, identify the color of the fraction strip that represents the second addend. (red)

Have students discuss how they can demonstrate adding the two fraction strips. (Ex: by combining them, pushing them together)

- Have students push the fraction strips together and identify the sum. $\left(4 \text{ red or } \frac{4}{8}\right)$

Step 8:
- Partner A, explain what happened to the denominators when the fractions were added. (The denominator remained the same.)
- Partner B, explain what happened to the numerators when the fractions were added. (The numerators were added together to find the sum.)

Step 9: Ask students if they can legally trade the sum for fewer fraction strips in another color. (Yes.) Trade the four eighth pieces for a one-half piece. Tell students that by legally trading for the fewest fraction strips in another color, they **simplify** the sum.



Step 10: Direct students' back to the graphic organizer for Problem 2. Discuss each step and fill in the boxes using the answers on T482.

5 minutes – IP, CP: Have students work in partners to complete Problems 3–4 on S154. Tell students to make sure they use their fraction strips to check if they can legally trade the solutions for fewer pieces in another color. **{Verbal Description, Concrete Representation, Graphic Organizer}**

2 minutes – WG: Have students come back together as a class and share their results. They should be able to justify the sums using fraction strips. **{Verbal Description, Concrete Representation, Graphic Organizer}**

Add Fractions – Like Denominators – Move to Pictorial

(10 minutes – M, GP, CP, WG, IP) T485, T487, S155, S156 (Answers on T486, T488.)

5 minutes – M, GP, CP, WG: Have students turn to S155 in their books, and place T485 on the overhead. Pass out colored pencils to each student. Use the overhead fraction strips and the following modeling activity to help students investigate adding fractions with like denominators at the pictorial level. **{Verbal Description, Concrete Representation, Pictorial Representation, Graphic Organizer}**

MODELING

Add Fractions – Like Denominators - Move to Pictorial

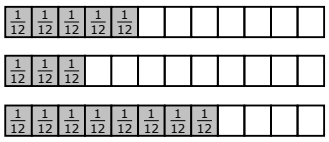
Step 1: Have students take out their fraction kits and build $\frac{5}{12} + \frac{3}{12}$ using pink fraction strips.

- Partner A, identify the sum of these two fractions. $\left(\frac{8}{12}\right)$
- Partner B, model the legal trade of $\frac{8}{12}$ for $\frac{2}{3}$ to put the sum in simplest form.

Step 2: Tell students that they will be moving to the pictorial representation of the fraction strips. Direct students' attention to Problem 1 on S155 (T485) and explain that students will now model adding $\frac{5}{12} + \frac{3}{12}$ pictorially.

Step 3:
- Partner A, identify how many strips there are in Problem 1. (4) Tell students that the first two strips will represent each of the addends and the third strip will represent the sum.
- Partner B, explain how many sections the first three strips are divided into. (12) Model for students how to shade $\frac{5}{12}$ on the first strip using a pink colored pencil to represent the first addend. Model for students how to shade $\frac{3}{12}$ on the second strip using a pink colored pencil to represent the second addend.

Step 4: Remind students that the third strip represents the sum. Model for students how to shade the sum of $\frac{5}{12} + \frac{3}{12}$ on the third strip as students record on S155. The completed shading is shown below.



- Partner A, identify the fraction shaded on the third strip. $\left(\frac{8}{12}\right)$ Tell students this means that $\frac{5}{12} + \frac{3}{12} = \frac{8}{12}$. Record in the "Add fractions" box on T485 as students record on S155.
- Partner B, determine if this fraction can be traded for fewer strips in another color. (Yes.)
- Have students use their fraction kits as you model using the overhead fraction strips to legally trade $\frac{8}{12}$ for $\frac{2}{3}$. Tell students that the fraction is now in simplest form. Record the fraction in the "Simplest form" box as students record. In the second column, model how to complete the picture using the last strip pictured in the box.

Step 5: Have students look at Problem 3 on S156 (T487).

How does this problem compare with Problems 1 and 2? (There are no fraction marks in the fraction strips.)

- Have students discuss how they can apply what they have learned in Problem 1 to complete Problem 3. (Ex: Follow the same steps as in Problem 1 with the shading of the addends and the sum. Be sure to simplify if necessary.)

4 minutes – IP, CP: Have students work in partners to complete Problems 2 and 4–5 on S155 and S156. Tell students to make sure they use their fraction strips to check if they can legally trade the solutions for fewer pieces in another color in order to put the solution in simplest form. **{Verbal Description, Concrete Representation, Pictorial Representation, Graphic Organizer}**

1 minute – WG: Have students come back together as a class and share their results. They should be able to justify their sums using the pictorial models. **{Verbal Description, Pictorial Representation, Concrete Representation, Graphic Organizer}**

Add Fractions - Like Denominators - Move to Abstract

(11 minutes – M, GP, IP, CP, WG) T489, S157 (Answers on T490.)

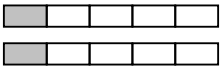
5 minutes – M, GP, CP, WG: Have students turn to S157 in their books, and place T489 on the overhead. Use the overhead fraction strips and the following modeling activity to help students investigate adding fractions with like denominators at the abstract level. **{Concrete Representation, Verbal Description, Graphic Organizer, Pictorial Representation}**

MODELING

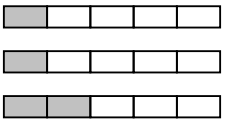
Add Fractions – Like Denominators – Move to Abstract

Have students take out Fraction Kits 1–3.

Step 1: Direct students' attention to Problem 1. Have students build $\frac{1}{5} + \frac{1}{5}$ using their fraction strips. Then have students draw a pictorial model of the problem in the Picture Column on S157 as you model on T489. Shade the fractions in light green to show fifths.

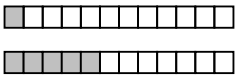


Step 2: Have students push their fraction strips together to find the sum of $\frac{1}{5}$ and $\frac{1}{5}$. $\left(\frac{2}{5}\right)$ Have students draw the solution as shown below.



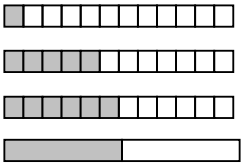
Step 3: Ask students if they can legally trade to get fewer strips in another color. (No.) Tell students that the fraction is in simplest form. Have students write the problem and solution numerically in the third column to represent what is in the second column.

Step 4: Direct students' attention to Problem 2. Have students build $\frac{1}{12} + \frac{5}{12}$ using their fraction strips. Then, have students draw a pictorial model of the problem in the "Picture" column as you model. Shade the fractions in pink to show twelfths.



Step 5: Have students push their fraction strips together to find the sum of $\frac{1}{12}$ and $\frac{5}{12}$. $\left(\frac{6}{12}\right)$ Have students draw the solution as shown below.

Step 6: Ask students if they can legally trade to get fewer strips in another color. (Yes.) Have students trade $\frac{6}{12}$ for $\frac{1}{2}$. Draw a pictorial model of the legal trade to show the answer to the problem and shade the answer in brown to show halves.



Step 7: Tell students that the fraction is in simplest form. Have students write the problem and solution numerically in the third column to represent what is modeled pictorially in the second column.

4 minutes – IP, CP: Have students work in partners to complete Problems 3–4 on S157. Students may use fraction strips as needed. **{Verbal Description, Pictorial Representation, Graphic Orgnizer}**

2 minutes – WG: Have students come back together as a class and share their results. Students should be able to justify their sums using the pictorial models. **{Verbal Description, Pictorial Representation, Graphic Orgnizer}**

Adding Fractions – Without Models

(10 minutes – M, GP, IP, CP, WG)
T491, S158 (Answers on T492.)

4 minutes – M, GP, CP, WG: Have students turn to S158 in their books, and place T491 on the overhead. Use the following activity to help students add fractions with like denominators without using models. (Some students may still need to draw pictures.) **{Verbal Description, Graphic Organizer}**

MODELING

Adding Fractions – Without Models

Step 1: Look at the first problem.

- Partner A, explain what it asks us. (What is $\frac{2}{8} + \frac{5}{8}$?)
- Partner B, in the problems with the pictures, what did we do with the numerators when we added? (Added them) Record.
- Partner A, explain what we did with the denominators. (Left them the same.) Record.
- We will add the numerators together and the denominators will remain the same. (Use the fraction strips if students need clarification.)
- Rewrite the problem horizontally and find the sum. Record.
- Partner B, identify the sum. $\left(\frac{7}{8}\right)$
- Partner A, determine if we need to simplify this fraction. (No.) Use the fraction strips if students need clarification.

Step 2:

- Partner B, explain what Problem 2 asks us. (What is $\frac{2}{6} + \frac{3}{6}$?)
- Partner A, explain what we do with the numerators. (add) Record.
- Partner B, explain what we do with the denominators. (Leave them the same.) Record.
- Rewrite the problem horizontally and find the sum. Record.
- Partner A, determine the sum. $\left(\frac{5}{6}\right)$
- Partner B, determine if we need to simplify this fraction. (No.)

4 minutes – IP, CP: Have students work in partners to complete Problems 3–4 on S158. **{Verbal Description, Graphic Organizer}**

2 minutes – WG: Have students come back together as a class and share their results. They should be able to justify their sums using pictorial models. **{Verbal Description, Graphic Organizer}**

Fraction Foldable **(5 minutes – M, GP, WG)**

Have students take out the fraction foldable they created in Lesson 15. Use the following activity to help students continue to add to the fraction foldable. **{Verbal Description, Graphic Organizer}**

MODELING

Fraction Foldable

Step 1: Have students take out their fraction foldables.

Step 2: Create a transparency to model for students what should be included on the page for Addition – Like Denominators.

Step 3: On page 2 of the Fraction foldable, model for students how to label the section: Addition – Like Denominators. Discuss with students what they have to do to add fractions with like denominators and then list the steps. Use your foldable to reference what you want written in the students' foldables.

SOLVE Problem **(5 minutes – GP, WG) T493, S159 (Answers on T494.)**

Have students turn to S159 in their books, and place T493 on the overhead. Remind students that the SOLVE problem is the same one from the beginning of the lesson. Complete the SOLVE problem with your students. Ask them for possible connections from the SOLVE problem to the lesson. (Students will work with the addition of fractions.) **{SOLVE, Verbal Description, Graphic Organizer}**

If time permits... **(10 minutes – IP, I) S160 (Answers on T495.)**

Have students complete Problems 1–10 on S160.

[Closure] (2 minutes)

To wrap up the lesson, go back to the essential questions and discuss them with students.

- How does building with concrete materials help us understand fractions? *(Using concrete materials helps us see and touch the fractions.)*
- How does drawing fractions as pictures help our understanding of them? *(Using pictures helps us see the fractions.)*
- How can we add fractions with like denominators? *(Represent both fractions, push together and simplify - use the fewest pieces of one color.)*

[Homework] Assign S161 for homework. (Answers on T496.)

[Quiz Answers] T497–T498

1. **C** 2. **D** 3. **B** 4. **A** 5. **D** 6. **C** 7. **B** 8. **C** 9. **C** 10. **D**

The quiz can be used at any time as extra homework or to see how students progress with the skill of adding fractions with like denominators.

Here is the key to **S152.**

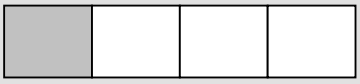
Warm–Up

Directions: Work with your partner to find legal trades for the fraction strips below. Use your fraction kits and draw the legal trades.

Answers will vary. LEGAL TRADE

1. 

2. 

3. 

4. 

TRANSPARENCY MASTER for S153

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

Mayo's mother is pouring drinks for the family dinner. She poured $\frac{1}{4}$ cup of milk for Mayo's little sister and $\frac{3}{4}$ cup of milk for her brother. How many cups of milk did Mayo's mother pour?

S Underline the question.
This problem is asking me to find _____

_____.

Directions: Complete this page with your teacher and partner.

1.

Problem: $\frac{1}{3} + \frac{1}{3}$

↓

What color are the fraction strips?

↓

Think about this:
Numerators?

Denominators?

↓

Legally trade for fewer fraction pieces, if possible.

2.

Problem: $\frac{3}{8} + \frac{1}{8}$

↓

What color are the fraction strips?

↓

Think about this:
Numerators?

Denominators?

↓

Legally trade for fewer fraction pieces, if possible.

LESSON 16: Add Fractions – Like Denominators

Here is the key to **S153**.

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

Mayo's mother is pouring drinks for the family dinner. She poured $\frac{1}{4}$ cup of milk for Mayo's little sister and $\frac{3}{4}$ cup of milk for her brother. How many cups of milk did Mayo's mother pour?

S Underline the question.
This problem is asking me to find **the number of cups of milk Mayo's mother poured.**

Directions: Complete this page with your teacher and partner.

1.

Problem:
$\frac{1}{3} + \frac{1}{3} = \mathbf{\frac{2}{3}}$

↓

What color are the fraction strips?

green

↓

Think about this:

Numerators? **added**

Denominators? **remain the same**

↓

Legally trade for fewer fraction pieces, if possible.

2.

Problem:
$\frac{3}{8} + \frac{1}{8} = \mathbf{\frac{4}{8}} = \mathbf{\frac{1}{2}}$

↓

What color are the fraction strips?

red

↓

Think about this:

Numerators? **added**

Denominators? **remain the same**

↓

Legally trade for fewer fraction pieces, if possible.

4 red = 1 brown or $\frac{1}{2}$

TRANSPARENCY MASTER for S154

Directions: Complete this page with your teacher and partner.

3.

Problem:
$\frac{3}{6} + \frac{1}{6}$

What color are the fraction strips?

Think about this:
Numerators?

Denominators?

Legally trade for fewer fraction pieces, if possible.

4.

Problem:
$\frac{2}{4} + \frac{1}{4}$

What color are the fraction strips?

Think about this:
Numerators?

Denominators?

Legally trade for fewer fraction pieces, if possible.

Here is the key to **S154**.

Directions: Complete this page with your teacher and partner.

3.

Problem:
$\frac{3}{6} + \frac{1}{6} = \mathbf{\frac{4}{6} = \frac{2}{3}}$

↓

What color are the fraction strips?

orange

↓

Think about this:

Numerators? **added**

Denominators? **remain the same**

↓

Legally trade for fewer fraction pieces, if possible.

4 orange = 2 green or $\frac{2}{3}$

4.

Problem:
$\frac{2}{4} + \frac{1}{4} = \mathbf{\frac{3}{4}}$

↓

What color are the fraction strips?

yellow

↓

Think about this:

Numerators? **added**

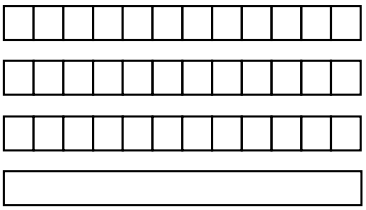
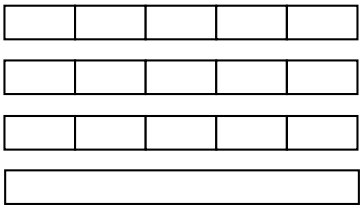
Denominators? **remain the same**

↓

Legally trade for fewer fraction pieces, if possible.

TRANSPARENCY MASTER for S155

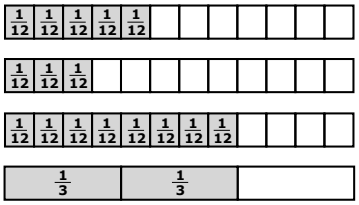
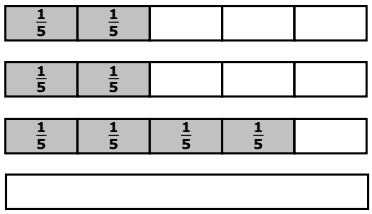
Directions: Complete this page with your teacher and partner.

Problem	Picture	Add fractions	Simplest form
1. $\frac{5}{12} + \frac{3}{12}$		$\frac{5}{12} + \frac{3}{12} =$	
2. $\frac{2}{5} + \frac{2}{5}$		$\frac{2}{5} + \frac{2}{5} =$	

LESSON 16: Add Fractions – Like Denominators

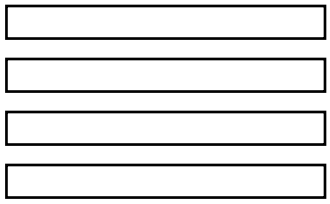
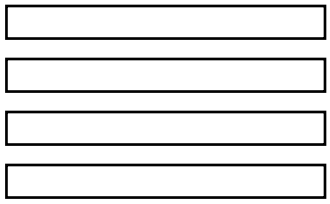
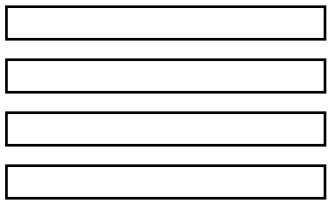
Here is the key to **S155**.

Directions: Complete this page with your teacher and partner.

Problem	Picture	Add fractions	Simplest form
1. $\frac{5}{12} + \frac{3}{12} =$		$\frac{5}{12} + \frac{3}{12} = \mathbf{\frac{8}{12}}$	$\mathbf{\frac{8}{12} = \frac{2}{3}}$
2. $\frac{2}{5} + \frac{2}{5}$		$\frac{2}{5} + \frac{2}{5} = \mathbf{\frac{4}{5}}$	

TRANSPARENCY MASTER for S156

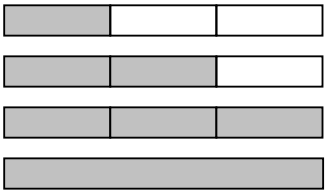
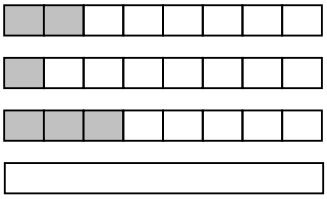
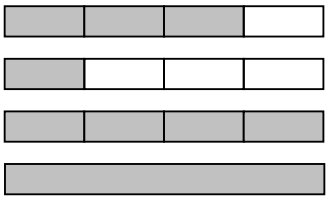
Directions: Complete this page with your partner.

Problem	Picture	Add fractions	Simplest form
3. $\frac{1}{3} + \frac{2}{3}$		$\frac{1}{3} + \frac{2}{3} =$	
4. $\frac{2}{8} + \frac{1}{8}$		$\frac{2}{8} + \frac{1}{8} =$	
5. $\frac{3}{4} + \frac{1}{4}$		$\frac{3}{4} + \frac{1}{4} =$	

LESSON 16: Add Fractions – Like Denominators

Here is the key to **S156**.

Directions: Complete this page with your partner.

Problem	Picture	Add fractions	Simplest form
3. $\frac{1}{3} + \frac{2}{3}$		$\frac{1}{3} + \frac{2}{3} = \mathbf{\frac{3}{3}}$	$\mathbf{\frac{3}{3} = 1}$
4. $\frac{2}{8} + \frac{1}{8}$		$\frac{2}{8} + \frac{1}{8} = \mathbf{\frac{3}{8}}$	
5. $\frac{3}{4} + \frac{1}{4}$		$\frac{3}{4} + \frac{1}{4} = \mathbf{\frac{4}{4}}$	$\mathbf{\frac{4}{4} = 1}$

TRANSPARENCY MASTER for S157

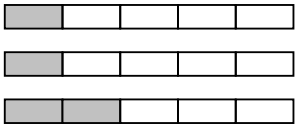
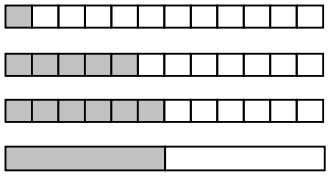
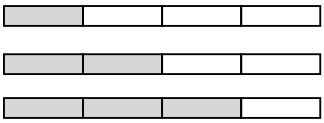
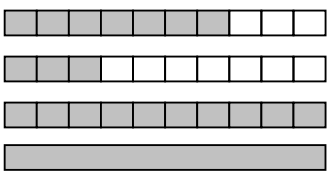
Directions: Complete this page with your teacher and partner.

Problem	Picture	Add fractions and determine simplest form.
1. $\frac{1}{5} + \frac{1}{5} =$		
2. $\frac{1}{12} + \frac{5}{12} =$		
3. $\frac{1}{4} + \frac{2}{4} =$		
4. $\frac{7}{10} + \frac{3}{10} =$		

LESSON 16: Add Fractions – Like Denominators

Here is the key to **S157**.

Directions: Complete this page with your teacher and partner.

Problem	Picture	Add fractions and determine simplest form.
1. $\frac{1}{5} + \frac{1}{5} =$		$\mathbf{\frac{1}{5} + \frac{1}{5} = \frac{2}{5}}$
2. $\frac{1}{12} + \frac{5}{12} =$		$\mathbf{\frac{1}{12} + \frac{5}{12} = \frac{6}{12} = \frac{1}{2}}$
3. $\frac{1}{4} + \frac{2}{4} =$		$\mathbf{\frac{1}{4} + \frac{2}{4} = \frac{3}{4}}$
4. $\frac{7}{10} + \frac{3}{10} =$		$\mathbf{\frac{7}{10} + \frac{3}{10} = \frac{10}{10} = 1}$

TRANSPARENCY MASTER for S158

Directions: Complete this page with your teacher and partner.

1. $\frac{2}{8}$ $+\frac{5}{8}$ What do we do with the numerators? What do we do with the denominators? Rewrite number sentence:	**2.** $\frac{2}{6}$ $+\frac{3}{6}$ What do we do with the numerators? What do we do with the denominators? Rewrite number sentence:
3. $\frac{1}{2}$ $+\frac{1}{2}$ What do we do with the numerators? What do we do with the denominators? Rewrite number sentence:	**4.** $\frac{3}{10}$ $+\frac{5}{10}$ What do we do with the numerators? What do we do with the denominators? Rewrite number sentence:

Here is the key to **S158**.

Directions: Complete this page with your teacher and your partner.

1. $\frac{2}{8} + \frac{5}{8}$

What do we do with the numerators?

add

What do we do with the denominators?

Leave them the same.

Rewrite number sentence:

$\mathbf{\frac{2}{8} + \frac{5}{8} = \frac{7}{8}}$

2. $\frac{2}{6} + \frac{3}{6}$

What do we do with the numerators?

add

What do we do with the denominators?

Leave them the same.

Rewrite number sentence:

$\mathbf{\frac{2}{6} + \frac{3}{6} = \frac{5}{6}}$

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

What do we do with the numerators?

add

What do we do with the denominators?

Leave them the same.

Rewrite number sentence:

$\mathbf{\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1}$

4. $\frac{3}{10} + \frac{5}{10}$

What do we do with the numerators?

add

What do we do with the denominators?

Leave them the same.

Rewrite number sentence:

$\mathbf{\frac{3}{10} + \frac{5}{10} = \frac{8}{10} = \frac{4}{5}}$

TRANSPARENCY MASTER for S159

Directions: Complete the following SOLVE problem with your teacher.

Mayo's mother is pouring drinks for the family dinner. She poured $\frac{1}{4}$ cup of milk for Mayo's little sister and $\frac{3}{4}$ cup of milk for her brother. How many cups of milk did Mayo's mother pour?

S Underline the question.

This problem is asking me to find _____

_____.

O Identify the facts.
Eliminate the unnecessary facts.
List the necessary facts.

L Choose an operation or operations.
Write in words what your plan of action will be.

V Estimate your answer.
Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

Here is the key to **S159**.

Directions: Complete the following SOLVE problem with your teacher.

~~Mayo's mother is pouring drinks for the family dinner.~~ | She poured $\frac{1}{4}$ cup of milk for Mayo's little sister | and $\frac{3}{4}$ cup of milk for her brother. | How many cups of milk did Mayo's mother pour?

S Underline the question.

This problem is asking me to find **the number of cups of milk Mayo's mother poured.**

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts. **Poured $\frac{1}{4}$ cup of milk for sister**

Poured $\frac{3}{4}$ cup of milk for brother

L Choose an operation or operations. **Addition**

Write in words what your plan of action will be. **Add the amount of milk poured for the sister to the amount of milk poured for the brother.**

V Estimate your answer. **1 cup**

Carry out your plan.

$$\frac{3}{4} + \frac{1}{4} = \frac{4}{4} = 1 \text{ cup}$$

E Does your answer make sense? (Compare your answer to the question.)
Yes, because I am looking for how many cups of milk Mayo's mother poured.

Is your answer reasonable? (Compare your answer to the estimate.)
Yes, because it matches my estimate of 1 cup.

Is your answer accurate? (Check your work.) **Yes.**

Write your answer in a complete sentence. **Mayo's mother poured 1 cup of milk.**

LESSON 16: Add Fractions – Like Denominators

Here is the key to **S160**.

Directions: Complete the following problems. Draw pictures if needed. All sums should be simplified.

1. $\frac{1}{4} + \frac{1}{4} = \mathbf{\frac{2}{4} = \frac{1}{2}}$

2. $\frac{3}{12} + \frac{4}{12} = \mathbf{\frac{7}{12}}$

3. $\frac{2}{10} + \frac{4}{10} = \mathbf{\frac{6}{10} = \frac{3}{5}}$

4. $\frac{4}{6} + \frac{2}{6} = \mathbf{\frac{6}{6} = 1}$

5. $\frac{1}{12} + \frac{1}{12} = \mathbf{\frac{2}{12} = \frac{1}{6}}$

6. $\frac{4}{8} + \frac{2}{8} = \mathbf{\frac{6}{8} = \frac{3}{4}}$

7. $\frac{1}{6} + \frac{1}{6} = \mathbf{\frac{2}{6} = \frac{1}{3}}$

8. $\frac{2}{5} + \frac{1}{5} = \mathbf{\frac{3}{5}}$

9. $\frac{3}{5} + \frac{1}{5} = \mathbf{\frac{4}{5}}$

10. $\frac{1}{10} + \frac{3}{10} = \mathbf{\frac{4}{10} = \frac{2}{5}}$

Here is the key to **S161**.

Homework

Name _____ **Date** _____

Directions: Solve the following problems. Draw pictures if needed to solve. All sums should be simplified.

1. $\frac{1}{10} + \frac{2}{10} = \mathbf{\frac{3}{10}}$

2. $\frac{1}{8} + \frac{1}{8} = \mathbf{\frac{2}{8} = \frac{1}{4}}$

3. $\frac{1}{5} + \frac{4}{5} = \mathbf{\frac{5}{5} = 1}$

4. $\frac{1}{6} + \frac{2}{6} = \mathbf{\frac{3}{6} = \frac{1}{2}}$

5. $\frac{1}{12} + \frac{2}{12} = \mathbf{\frac{3}{12} = \frac{1}{4}}$

6. $\frac{1}{6} + \frac{2}{6} = \mathbf{\frac{3}{6} = \frac{1}{2}}$

7. $\frac{1}{8} + \frac{4}{8} = \mathbf{\frac{5}{8}}$

8. $\frac{2}{5} + \frac{3}{5} = \mathbf{\frac{5}{5} = 1}$

9. $\frac{1}{6} + \frac{5}{6} = \mathbf{\frac{6}{6} = 1}$

10. $\frac{3}{8} + \frac{2}{8} = \mathbf{\frac{5}{8}}$

Name _____ Date _____

Quiz

Add. All sums should be in simplest form.

1. $\frac{1}{10} + \frac{4}{10} =$

A. $\frac{3}{10}$

B. $\frac{2}{5}$

C. $\frac{1}{2}$

D. 1

2. $\frac{2}{8} + \frac{6}{8} =$

A. $\frac{1}{4}$

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

C. $\frac{1}{2}$

D. 1

3. $\frac{2}{10} + \frac{3}{10} =$

A. $\frac{5}{20}$

B. $\frac{1}{2}$

C. $\frac{6}{10}$

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

4. $\frac{1}{10} + \frac{5}{10} =$

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

B. $\frac{7}{10}$

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

D. 1

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

A. $\frac{2}{8}$

B. $\frac{1}{2}$

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

D. 1

6. $\frac{4}{12} + \frac{4}{12} =$

A. $\frac{6}{12}$

B. $\frac{7}{12}$

C. $\frac{2}{3}$

D. 1

7. $\frac{8}{12} + \frac{1}{12} =$

A. $\frac{2}{3}$

B. $\frac{3}{4}$

C. $\frac{11}{12}$

D. 1

8. $\frac{1}{8} + \frac{5}{8} =$

A. $\frac{1}{2}$

B. $\frac{2}{3}$

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

D. 1

9. $\frac{1}{10} + \frac{7}{10} =$

A. $\frac{8}{20}$

B. $\frac{2}{5}$

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

D. 1

10. $\frac{8}{10} + \frac{2}{10} =$

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

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

C. $\frac{9}{10}$

D. 1