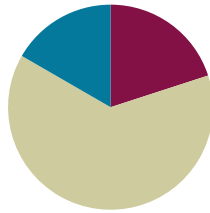


## Lesson 5

Objective: Share and critique peer strategies.

### Suggested Lesson Structure

■ Fluency Practice	(12 minutes)
■ Concept Development	(38 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>



### Fluency Practice (12 minutes)

- Sprint: Convert Length Units **4.MD.1** (9 minutes)
- Convert Time Units **4.MD.2** (3 minutes)

#### Sprint: Convert Length Units (9 minutes)

Materials: (S) Convert Length Units Sprint

Note: This fluency activity reviews Lesson 1.

#### Convert Time Units (3 minutes)

Note: This fluency activity reviews Lesson 3.

T: (Write  $1 \text{ hr} = \underline{\quad} \text{ min.}$ ) How many minutes are in 1 hour?

S: 60 minutes.

Repeat the process with 2, 3, and 10 hours.

T: (Write  $1 \text{ min} = \underline{\quad} \text{ sec.}$ ) How many seconds are in 1 minute?

S: 60 seconds.

Repeat the process with 2, 3, and 10 minutes.

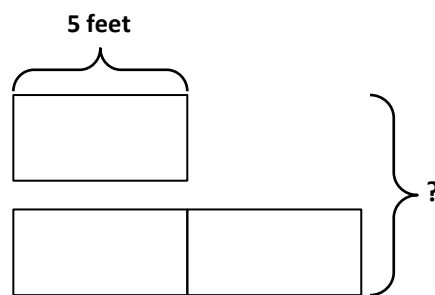
**Concept Development (38 minutes)**

Materials: (S) Problem Set, peer share and critique form (Template)

Note: In Problem 1, students work in pairs to create a word problem to match the tape diagram and analyze the work using the share and critique form. The Problem Set is used in Problem 2 of the Concept Development for students to write and solve problems and then to share and critique strategies with their peers using the share and critique form.

**Problem 1: Create and analyze student work using the share and critique form.**

Display the following:



- T: What information do we know by looking at this diagram?
- S: One unit is 5 feet long. → The other tape is twice as long. → We are looking for the total value of all 3 units. → The value of the second tape diagram is 2 times the length of the first. It's 10 feet, so the value of both is 15 feet.
- T: With your partner, think about a word problem that would go with this diagram. Take into consideration the units we are using when creating your word problem. Express your final answer in inches. (Answers will vary.)

**Student A**

Joe is 5 feet tall.  
 Bill is twice as tall.  
 How tall are they together?  
 $2 \times 5 \text{ feet} = 10 \text{ feet}$   
 $10 + 5 = 15$   
 $15 \times 12 \text{ inches} = 180 \text{ inches}$   
 Together they are 180 inches.

$$\begin{array}{r} 15 \\ \times 12 \\ \hline 30 \\ 150 \\ \hline 180 \end{array}$$

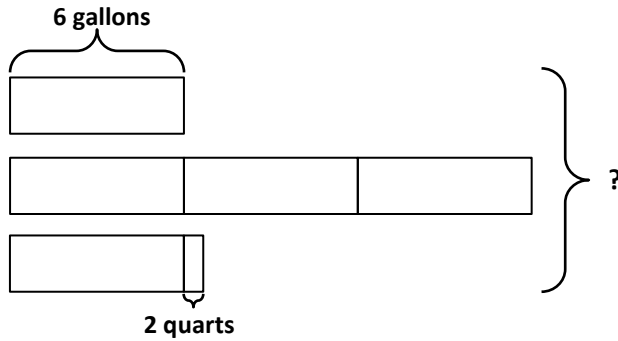
**Student B**

Mariana's kite has a string 5 feet long.  
 Heather's kite's string is twice as long.  
 How long are their strings all together?  
 $5 \text{ feet} \times 3 = 15 \text{ feet}$   
 $15 \times 12 \text{ inches} = 180 \text{ inches}$   
 Mariana and Heather's strings are 180 inches all together.

$$\begin{array}{r} 15 \\ \times 12 \\ \hline 30 \\ 150 \\ \hline 180 \end{array}$$

Debrief the problem using questions from the share and critique form. Ensure students notice that in Solution A, it is not realistic for Bill to be 10 feet tall. Have them generate a more realistic modification.

Display:



T: Turn to your partner, and share what information you know from looking at this diagram. Then, create a word problem that goes with this diagram to solve for the number of quarts.



**NOTES ON  
MULTIPLE MEANS  
OF ACTION AND  
EXPRESSION:**

English language learners may need scaffolds for writing word problems. Provide a word bank or sentence frames, and allow students to discuss their thoughts before writing. Some possible sentence frames are given below.

- \_\_\_ had 6 gallons of \_\_\_ .
- \_\_\_ had 3 times as much.
- \_\_\_ had 2 quarts more than \_\_\_.

**Student A**

For the holiday party, the Kindergarten had 6 gallons of juice. The first grade had 3 times as much juice as the Kindergarten. The second grade had 2 quarts more juice than the Kindergarten. How much juice did the Kindergarten, first grade, and second grade have all together?

$$\begin{aligned}
 &K: 6 \text{ gal} \\
 &1^{\text{st}}: 3 \times 6 \text{ gal} = 18 \text{ gal} \\
 &2^{\text{nd}}: 6 \text{ gal } 2 \text{ qt} \\
 &6 \text{ gal} + 18 \text{ gal} + 6 \text{ gal} = 30 \text{ gal} \\
 &30 \text{ gal} = 120 \text{ qt} \\
 &120 \text{ qt} + 2 \text{ qt} = 122 \text{ qt}
 \end{aligned}$$

The Kindergarten, 1<sup>st</sup>, and 2<sup>nd</sup> grade classes had 122 quarts of juice all together.

**Student B**

Peter filled his car with 6 gallons of gasoline. Doug filled his car with 3 times as much gas as Peter filled his car with. Wesley filled his car with 2 quarts gas more than the amount of gas Peter filled his car with. What is the total number of quarts of gas filled into the three cars?

$$\begin{aligned}
 6 \times 4 \text{ qt} &= 24 \text{ qt} \\
 3 \times 24 \text{ qt} &= 72 \text{ qt} \\
 24 \text{ qt} + 2 \text{ qt} &= 26 \text{ qt} \\
 24 \text{ qt} + 72 \text{ qt} + 26 \text{ qt} &= 122 \text{ qt}
 \end{aligned}$$

122 quarts of gas were filled into the three cars.

Debrief the problem using questions from the share and critique form. Students might notice that gasoline is often measured in gallons rather than quarts. However, it is not unrealistic or wrong to state the capacity in quarts.



**NOTES ON MULTIPLE MEANS OF ENGAGEMENT:**

In the interest of cultivating a non-threatening atmosphere in which all students feel confident and comfortable sharing and receiving feedback, you may want to discuss goals, set guidelines, and model positive giving and receiving of balanced feedback.

**Problem 2: Share and critique work.**

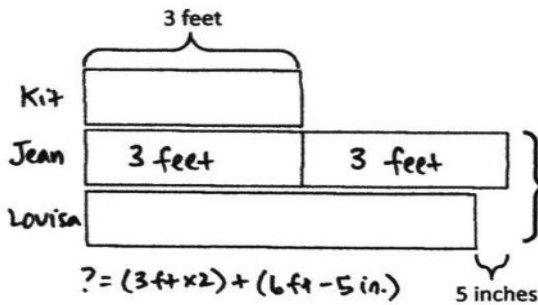
Distribute the Problem Set and share and critique form.

**MP.3**

T: Work with a partner to complete the Problem Set. When you are finished solving and creating a word problem to go along with each diagram, turn to your partner and share. Use the peer share and critique form to take notes about your work and your partner's work.

Student equations and responses will vary. Circulate and assist students as necessary.

1. a. Label the rest of the tape diagram below. Solve for the unknown.



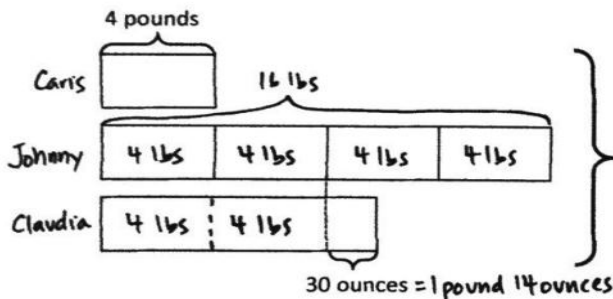
Louisa:  
 $6 \text{ feet} = 72 \text{ inches}$   
 $72 \text{ in} - 5 \text{ in} = 67 \text{ in}$  or  $6 \text{ ft} - 5 \text{ in} = 5 \text{ ft } 7 \text{ in}$

Louisa and Jean:  
 $? = 6 \text{ feet} + 5 \text{ feet } 7 \text{ inches}$   
 $? = 11 \text{ feet } 7 \text{ inches}$   
 The combined length of Jean and Louisa's scarves is 11 feet 7 inches.

- b. Write your own problem that could be solved using the diagram above.

Kit knitted a scarf that was 3 feet long.  
 Jean knitted a scarf two times as long as Kit's.  
 Louisa's scarf was 5 inches shorter than Jean's.  
 How long were Jean and Louisa's scarves combined?

2. Create your own problem using the diagram below and solve for the unknown.



$? = 4 \text{ pounds} + 16 \text{ pounds} + 9 \text{ pounds } 14 \text{ ounces}$   
 $? = 29 \text{ pounds } 14 \text{ ounces}$   
 Caris, Johnny, and Claudia weigh 29 pounds 14 ounces altogether.

Caris weighs 4 pounds.  
 Johnny weighs four times as much as Caris.  
 Claudia weighs 30 ounces more than half of Johnny's weight.  
 How much do they weigh altogether?

### Problem Set

Please note that the Problem Set is completed as part of the second half of the Concept Development for this lesson.

### Student Debrief (10 minutes)

**Lesson Objective:** Share and critique peer strategies.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- What did your partner do well in solving Problem 1? Problem 2?
- Did you and your partner use different strategies to solve Problem 1? If so, how were they different?
- How might you improve your work in solving and creating a word problem for Problem 2?
- What do we learn by analyzing different strategies for solving a problem?

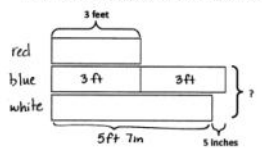
### Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 5 Problem Set 4•7

Name Jack Date \_\_\_\_\_

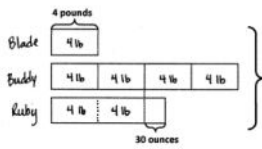
1. a. Label the rest of the tape diagram below. Solve for the unknown.



6 ft - 5 in = 5 ft 7 in  
5 ft 12 in  
5 ft 7 in + 6 ft = 11 ft 7 in  
The blue and white ribbons are 11 feet 7 inches long.

b. Write a problem of your own that could be solved using the diagram above.  
The red ribbon is 3 feet long. The blue ribbon is twice as long as the red ribbon. The white ribbon is 5 inches shorter than the blue ribbon. How long are both the blue and white ribbons together?

2. Create a problem of your own using the diagram below, and solve for the unknown.



4 pounds  
Blade 4 lb  
Buddy 4 lb 4 lb 4 lb 4 lb  
Ruby 4 lb 4 lb     
30 ounces

4 lb × 7 = 28 lb  
28 lb + 30 oz = 29 lb 14 oz  
1 lb 14 oz  
Altogether, my dogs weigh 29 lb 14 oz.

I have 3 dogs. Blade weighs 4 pounds. Buddy weighs four times as much as Blade weighs. Ruby weighs 30 ounces more than twice that of Blade's weight. Altogether, how much do my dogs weigh?

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Number Correct: \_\_\_\_\_

# A

## Convert Length Units

1.	1 km =	m
2.	2 km =	m
3.	3 km =	m
4.	7 km =	m
5.	5 km =	m
6.	1 m =	cm
7.	2 m =	cm
8.	3 m =	cm
9.	9 m =	cm
10.	6 m =	cm
11.	1 yd =	ft
12.	2 yd =	ft
13.	3 yd =	ft
14.	10 yd =	ft
15.	5 yd =	ft
16.	1 ft =	in
17.	2 ft =	in
18.	3 ft =	in
19.	10 ft =	in
20.	4 ft =	in
21.	9 km =	m
22.	4 km =	m

23.	6 km =	m
24.	5 m =	cm
25.	7 m =	cm
26.	4 m =	cm
27.	8 m =	cm
28.	4 yd =	ft
29.	8 yd =	ft
30.	6 yd =	ft
31.	9 yd =	ft
32.	5 ft =	in
33.	6 ft =	in
34.	1,000 m =	km
35.	8,000 m =	km
36.	100 cm =	m
37.	600 cm =	m
38.	3 ft =	yd
39.	24 ft =	yd
40.	12 in =	ft
41.	72 in =	ft
42.	8 ft =	in
43.	84 in =	ft
44.	9 ft =	in

**B**

Number Correct: \_\_\_\_\_

Improvement: \_\_\_\_\_

Convert Length Units

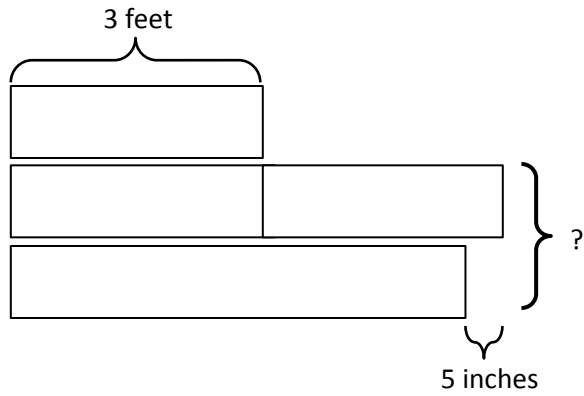
1.	1 m =	cm
2.	2 m =	cm
3.	3 m =	cm
4.	7 m =	cm
5.	5 m =	cm
6.	1 km =	m
7.	2 km =	m
8.	3 km =	m
9.	9 km =	m
10.	6 km =	m
11.	1 yd =	ft
12.	2 yd =	ft
13.	3 yd =	ft
14.	5 yd =	ft
15.	10 yd =	ft
16.	1 ft =	in
17.	2 ft =	in
18.	3 ft =	in
19.	10 ft =	in
20.	4 ft =	in
21.	9 m =	cm
22.	4 m =	cm

23.	6 m =	cm
24.	5 km =	m
25.	7 km =	m
26.	4 km =	m
27.	8 km =	m
28.	6 yd =	ft
29.	9 yd =	ft
30.	4 yd =	ft
31.	8 yd =	ft
32.	5 ft =	in
33.	6 ft =	in
34.	100 cm =	m
35.	800 cm =	m
36.	1,000 m =	km
37.	6,000 m =	km
38.	3 ft =	yd
39.	27 ft =	yd
40.	12 in =	ft
41.	84 in =	ft
42.	9 ft =	in
43.	72 in =	ft
44.	8 ft =	in

Name \_\_\_\_\_

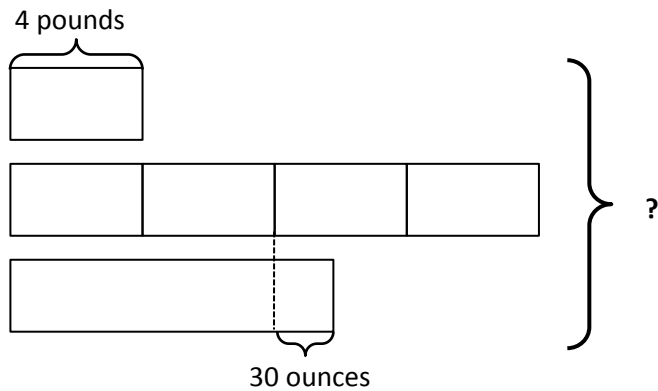
Date \_\_\_\_\_

1. a. Label the rest of the tape diagram below. Solve for the unknown.



- b. Write a problem of your own that could be solved using the diagram above.

2. Create a problem of your own using the diagram below, and solve for the unknown.





Name \_\_\_\_\_

Date \_\_\_\_\_

Caitlin ran 1,680 feet on Monday and 2,340 feet on Tuesday. How many yards did she run in those two days?

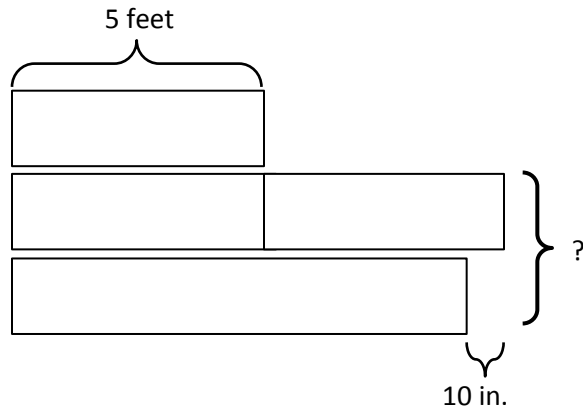
Name \_\_\_\_\_

Date \_\_\_\_\_

Draw a tape diagram to solve the following problems.

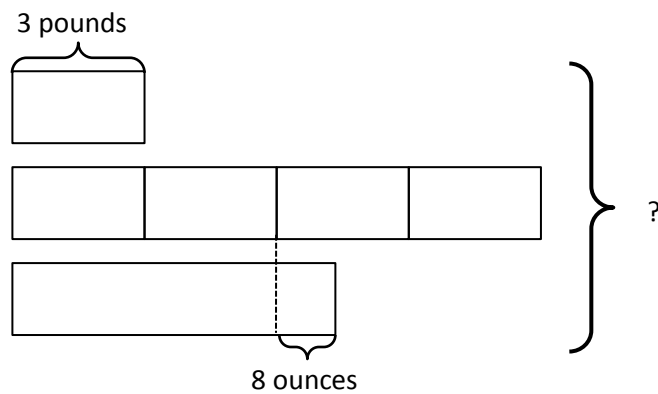
1. Timmy drank 2 quarts of water yesterday. He drank twice as much water today as he drank yesterday. How many cups of water did Timmy drink in the two days?
2. Lisa recorded a 2-hour television show. When she watched it, she skipped the commercials. It took her 84 minutes to watch the show. How many minutes did she save by skipping the commercials?
3. Jason bought 2 pounds of cashews. Sarah ate 9 ounces. David ate 2 ounces more than Sarah. How many ounces were left in Jason's bag of cashews?

4. a. Label the rest of the tape diagram below. Solve for the unknown.



- b. Write a problem of your own that could be solved using the diagram above.

5. Create a problem of your own using the diagram below, and solve for the unknown.



<b>Classmate:</b>		<b>Problem Number:</b>	
Strategies my classmate used:			
Things my classmate did well:			
Suggestions for improvement:			
Changes I would make to my work based on my classmate’s work:			

<b>Classmate:</b>		<b>Problem Number:</b>	
Strategies my classmate used:			
Things my classmate did well:			
Suggestions for improvement:			
Changes I would make to my work based on my classmate’s work:			

peer share and critique form