Grade 4 Work Station
Strip Diagrams and Equations

#ThankATeacher
#TeacherDay
#TeacherAppreciationWeek

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Materials
For the folder
- Yellow folder
- Yellow cardstock
- Velcro® dot
- Packing tape
- Plastic sandwich bag

For each student
- Strip Diagrams and Equations Recording Sheet

1. Print the document.
2. Cut out, arrange, and glue the Cover and the Content Objective, Language Objective, and Key Questions to the front of the folder.
3. Cut out and glue the Folder Tab Label to the tab of the folder.
4. Cut out and glue the *Answer Key* to the back of the folder. Use packing tape and cardstock to make a cover for the *Answer Key*. Use a Velcro® dot to keep the cover closed until needed.
5. Cut out, arrange, and glue the Instructions, Task 2: Fact First, and Task 3: STAAR® Connection to the inside of the folder.

6. Print the Representing Problems Cards for Task 1 on cardstock. Cut out the cards and place them in a plastic bag. Staple one side of the bag to the folder so that the bag can still be opened once attached. Tape the label for Task 1 to the outside of the plastic bag.

7. The student recording sheet is not attached to the folder. Place copies for your students inside the folder.
Reporting Category 2
Computations and Algebraic Relationships

TEKS 4(5)(A)

Strip Diagrams and Equations

Content Objective
I can represent multi-step problems involving the four operations using strip diagrams and equations with a letter standing for the unknown quantity.

Language Objective
I can explain how an equation represents a word problem.

Key Questions
1. How do you represent multi-step problems using an equation?
2. How do you represent multi-step problems using a strip diagram?
3. What variable can be used to represent the unknown?
Strip Diagrams and Equations

Task 1: Representing Problems
- Match the Representing Problem Cards so that each matched set includes—
  - a problem card
  - a strip diagram card
  - an equation card
- Not all strip diagram cards and equation cards will be used.

Task 2: Fact First
- The equation shown represents the problem.
- Explain why the given equation represents the problem.

Task 3: STAAR® Connection
- Read and work through the assessment question.

A book store sold 625 fiction books last week. The book store sold 200 less non-fiction books than fiction books last week. Which equation can be used to find x, the total number of fiction and non-fiction books sold by the book store last week?

A \( x = 625 - 200 \)
B \( x = 625 + 625 + 200 \)
C \( x = 625 + 200 \)
D \( x = 625 + 625 - 200 \)
Problem A
Romero read a total of 133 pages in four days. He read 25 pages on the first day. On the remaining days Romero read the same number of pages each day. Which equation and strip diagram can be used to find \( y \), the number of pages Romero read on the third day?

\[
76 - 4 = 25 + y
\]

Problem B
Mrs. Marco purchased 4 rolls of ribbon for a craft project. Each roll of ribbon has 25 yards of ribbon. Mrs. Marco used a total of 76 yards of ribbon for her craft project. Which equation and strip diagram can be used to find \( y \), the amount of ribbon Mrs. Marco has remaining?

\[
y = 25 \times 3 + 133
\]

Problem C
Patrick downloaded 128 songs on his music player. Daryl downloaded twice as many songs as Patrick on his music player. Daryl downloaded 12 additional songs. Which equation and strip diagram can be used to find \( y \), the amount of songs Daryl downloaded on his music player?

\[
128 \times 2 + 12 = y
\]

Problem D
Tamara sold 64 silver bracelets at a fair. She sold 36 more gold bracelets than silver bracelets. Which equation and strip diagram can be used to find \( y \), the number of silver and gold bracelets Tamara sold at the fair?

\[
64 \times 2 + 12 = y
\]
133 = 25 + y + y + y

y = 64 + 64 + 36

y + y + 12 = 128

y = 25 \times 4 - 76

y + 36 = 64 + 64
Task 2: Fact First

The equation $51 + b = 3 \times 48$ represents the word problem below.

Justin has 3 boxes of books. Each box contains 48 books. He placed 51 of the books on shelves in the morning. Which equation can be used to find $b$, the number of books Justin has left to place on the shelves?

How does the equation represent the word problem?
Answer Key

Task 1

Problem A

\[ 133 = 25 + y + y + y \]

| 25 | y | y | y |

Problem B

\[ y = 25 \times 4 - 76 \]

| 76 | 25 | 25 | 25 |

Problem C

\[ 128 \times 2 + 12 = y \]

| 128 | 128 | 12 |

Problem D

\[ y = 64 + 64 + 36 \]

| 64 | 64 | 36 |

Task 2

Possible Answer.

One expression in the equation is \( 3 \times 48 \), which represents the 48 books in each of the 3 boxes. The other expression in the equation is \( 51 + b \), which represents the 51 books Justin placed on the shelf and the books he has left to place on the shelf, \( b \).

Task 3

D
Strip Diagrams and Equations

Task 2: Fact First

How does the equation represent the word problem?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Task 3: STAAR® Connection

The answer is _____ because . . .