4-6: Learning Goals

- Let's use percentages to describe increases and decreases.

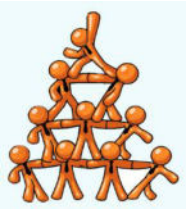
4-6-1: Improving Their Game

Here are the scores from 3 different sports teams from their last 2 games.

sports team	total points in game 1	total points in game 2
football team	22	30
basketball team	100	108
baseball team	4	12

1. What do you notice about the teams' scores? What do you wonder?

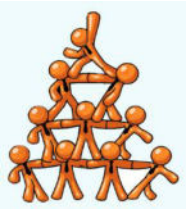
2. Which team improved the most? Explain your reasoning.



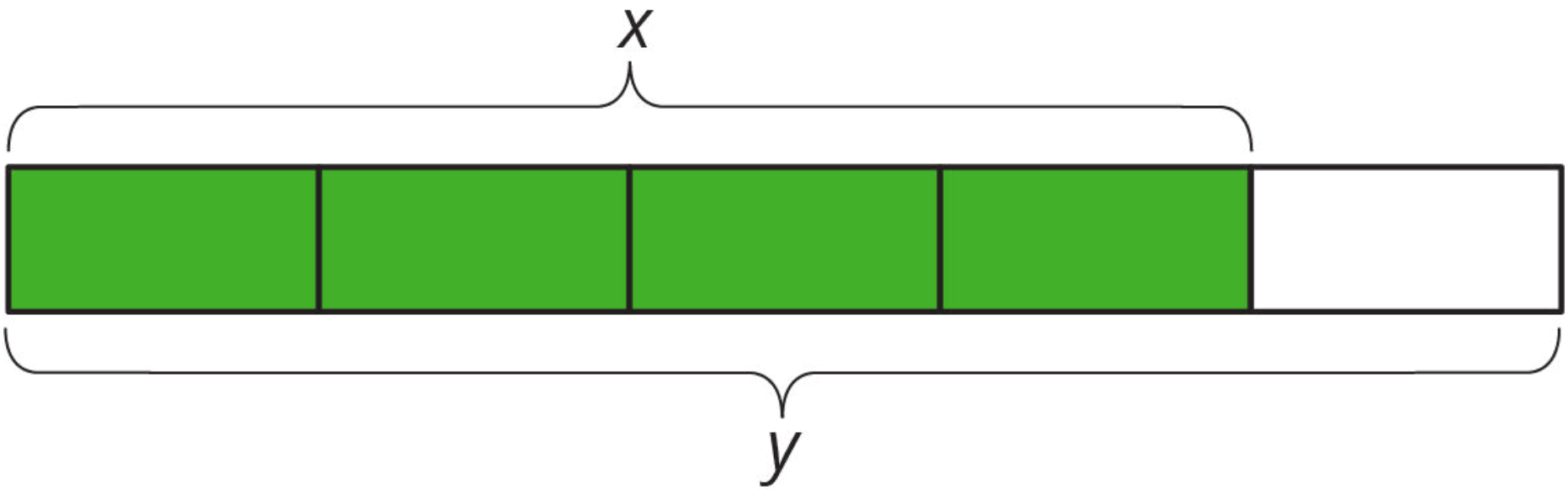
4-6-2: More Cereal and a Discounted Shirt

1. A cereal box says that now it contains 20% more. Originally, it came with 18.5 ounces of cereal. How much cereal does the box come with now?

2. The price of a shirt is $18.50, but you have a coupon that lowers the price by 20%. What is the price of the shirt after using the coupon?



4-6-3: Using Tape Diagrams

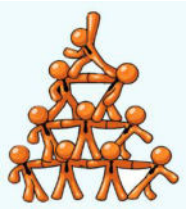


1. $x + \frac{1}{4}x$

2. $y = 1.25x$

3. 125%

4. An increase of 25%



4-6-3: Using Tape Diagrams

1. Match each situation to a diagram. Be prepared to explain your reasoning.

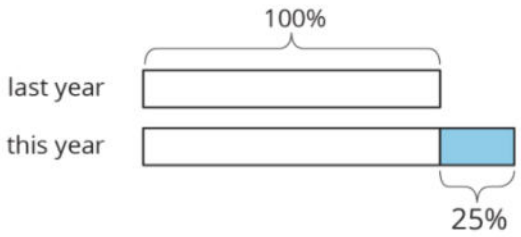
   a. Compared with last year's strawberry harvest, this year's strawberry harvest is a 25% increase.

   b. This year's blueberry harvest is 75% of last year's.

   c. Compared with last year, this year's peach harvest decreased 25%.

   d. This year's plum harvest is 125% of last year's plum harvest.

A



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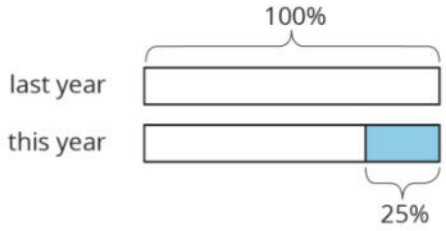


2. Draw a diagram to represent these situations.

   a. The number of ducks living at the pond increased by 40%.

   b. The number of mosquitoes decreased by 80%.

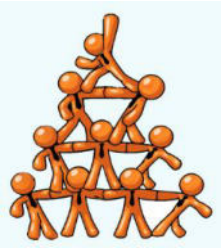
4-6-4: Agree or Disagree: Percentages

Do you agree or disagree with each statement? Explain your reasoning.

1. Employee A gets a pay raise of 50%. Employee B gets a pay raise of 45%. So Employee A gets the bigger pay raise.
2. Shirts are on sale for 20% off. You buy two of them. As you pay, the cashier says, “20% off of each shirt means 40% off of the total price.”

4-6: Lesson Synthesis

- What is another way to describe a 25% percent increase or decrease?
- When a quantity is increased or decreased, what percent describes the original or starting value?
- What strategies have we used to help us calculate percent increase and decrease?



4-6: percentage increase

Given an initial amount, and a final amount which is larger than the initial amount, the percentage increase is the difference (final amount minus initial amount) expressed as a percentage of the initial amount.

4-6: percentage decrease

Given an initial amount, and a final amount which is smaller than the initial amount, the percentage decrease is the difference (initial amount minus final amount) expressed as a percentage of the initial amount.

4-6: Learning Targets

- I can draw a tape diagram that represents a percent increase or decrease.
- When I know a starting amount and the percent increase or decrease, I can find the new amount.

4-6-5: Fish Population

The number of fish in a lake decreased by 25% between last year and this year. Last year there were 60 fish in the lake. What is the population this year? If you get stuck, consider drawing a diagram.