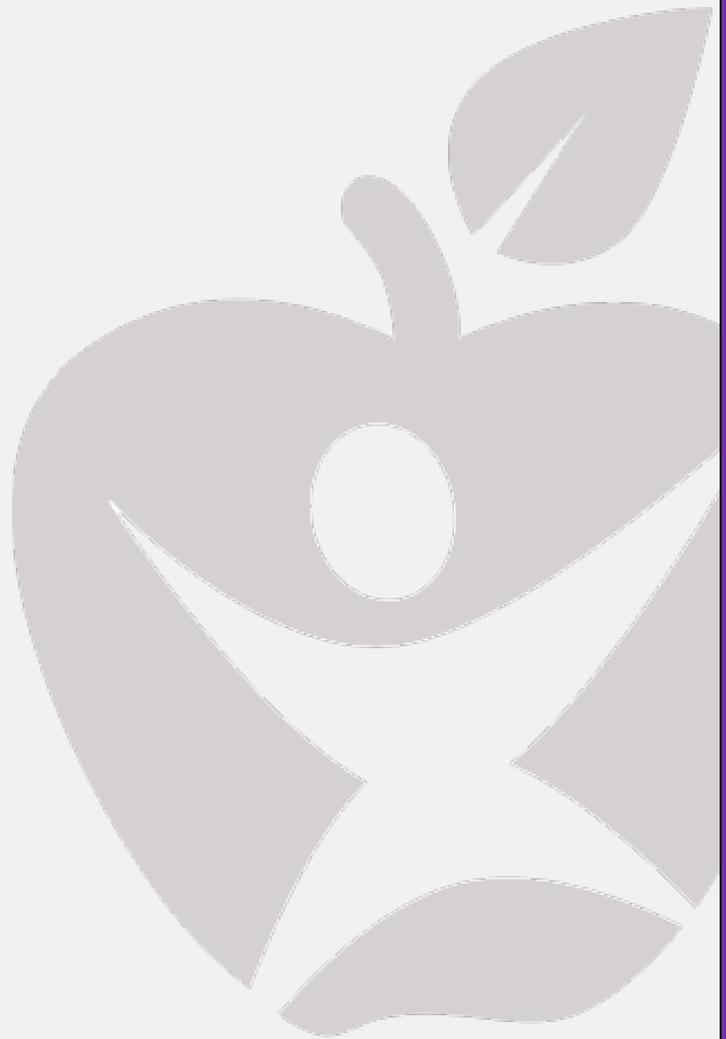


Calculating Percents

Grab and Go

Mathematical Reasoning

Lynne Ralston



Calculating Percents

Overview:

Grab and Go videos are designed as a tool for teachers to use in the classroom with their students. The videos are short, providing opportunities to incorporate them into current lesson plans. This Grab and Go video, "Calculating Percents", was created to provide a hands-on strategy for teachers to use to help students solve percent problems.

Welcome to the IPDAE Grab and Go. My name is Lynne Ralston and today I'd like to share with you some ideas for helping students calculate percents.

It's important that we remember that teaching about percents is more than just learning about how to solve a problem. Students will need to understand why learning about percents is so important in their lives.

Whether they need to calculate a tip after eating out, budgeting their paychecks, looking at credit card interest rates, or factoring in taxes, percents play an important part in all our lives.

In this Grab and Go, we will look at a hands-on strategy that can help students understand how to solve percent problems. Please note that prior to teaching this lesson, students should be familiar with the concept of percents and what constitutes the part, the whole, and the percent in a problem.

We'll be using M&Ms for this activity, but you can modify this lesson using any materials you have available in your classroom such as paper clips, coins, erasers, post-it notes, etc.

To begin, provide your students with this formula: $\frac{\textit{Part}}{\textit{Whole}} \times 100\%$

Share with students that to find the percent of each color of M&Ms in their bag, they will need to substitute the information into the formula.

For example, if we're looking for:

Red M&Ms: Divide $\frac{\textit{Red M\&Ms}}{\textit{Total M\&Ms}} \times 100\%$

Green M&Ms: Divide $\frac{\textit{Green M\&Ms}}{\textit{Total M\&Ms}} \times 100\%$

Please join me as I do this activity with my students:

Students, yesterday we learned that to find the percent of a number, we took the part and divided it by the whole. Then we multiplied that number by 100% to get our answer.

Today we will be practicing this lesson of solving for percents using M&Ms in our calculations.

Each one of you has a bag of M&Ms in front of you. Please calculate the percent of your particular color using the formula: $\frac{\text{Part}}{\text{Whole}} \times 100\%$

Here are your results:

$$\text{Red M\&Ms: } \frac{6 \text{ Red M\&Ms}}{10 \text{ Total M\&Ms}} \times 100\% = 60\%$$

$$\text{Green M\&Ms: } \frac{3 \text{ Green M\&Ms}}{9 \text{ Total M\&Ms}} \times 100\% = 33.33\%$$

$$\text{Yellow M\&Ms: } \frac{12 \text{ Yellow M\&Ms}}{25 \text{ Total M\&Ms}} \times 100\% = 48\%$$

Thank you. You all did great. I hope you enjoyed this activity. Now, I'd now like to share with you a percent word problem that you might encounter.

Sam made \$240 in tips last week.

He paid his \$80 phone bill and deposited \$60 into his savings account.

What percent of Sam's tips did he put into savings?

- A. 25%
- B. 30%
- C. 20%
- D. 15%

$$\text{Solution: } \frac{\$60 \text{ (tips deposited into savings)}}{\$240 \text{ (total amount of tips)}} \times 100\% = 25\%$$

The answer: A

What do you think now? Interested in trying this lesson in your classroom? To download this lesson, problems, and handouts, go to the Florida IPDAE website at floridaipdae.org.

That's floridaipdae.org!

Solving percent problems:

*Sam had to throw away 15 rotten apples out of a crate of 75 apples.
What percent of apples did Sam have to throw away?*

- A. 15%
- B. 30%
- C. 25%
- D. 33%

Answer: C

Problems to help students calculate the percent of increase and decrease:

Carrie bought a \$750 laptop on sale for \$450.
What percent did she save on this computer?

Help students by using this formula: $\frac{\text{Amount of Change}}{\text{Original Amount}}$

Plug in the numbers: $\frac{\$750 - \$450}{\$750} = \frac{\$300}{\$750}$

$$\$300 \div \$750 = .4$$

Change the decimal to a percent

$$.4 \times 100 = 40\%$$

- A. 80%
- B. 30%
- C. 40%
- D. 45%



Now use this same formula for finding the percent of increase:

David's TV raised the price of their store special from \$525 to \$630. What percent was the television marked up?

Use the formula: $\frac{\text{Amount of Change}}{\text{Original Amount}}$

Plug in the numbers: $\frac{\$630 - \$525}{\$525} = \frac{\$105}{\$525}$

$$\$105 \div \$525 = 0.2$$

Change the decimal to a percent
 $.2 \times 100 = 20\%$

- A. 20%
- B. 25%
- C. 30%
- D. 32%



Share with students that it doesn't matter if there is a percent of increase or decrease.

All that is necessary is to find the difference between the two numbers and divide that number by the original amount.

Then change that number to a percent.

Now that students have a formula to use for finding the percent of increase and decrease, it's time to explore some fun ways for them to practice this strategy in the classroom.

Try these ideas:

File cards: Place various percents on a table and have students choose the correct card to match their problem's answer.

Example: \$5.00 book is marked down to \$3.00. What % was saved?

The student would choose the correct % card off the table.

Have students solve problems with increases in salaries, insurance costs, rent increases, etc. Provide opportunities for students to create real-life problems for their classmates to solve.

Example: Kelly received a raise from \$24,580 a year to \$25,317.40 per year. What percent of an increase in salary did Kelly receive?

Nina's rent was increased from \$850 to \$910. If her rent increases more than 10%, Nina will have to move. Will Nina have to move?

Use newspaper sale ads to compute percent of price reductions. Students can be challenged to find the item with the greatest percentage savings.

Example: A discount store advertisement shows a \$329.99 outdoor furniture set reduced to \$249.99. What is the approximate percent saved?

Answers:

File cards: Place various percents on a table and have students choose the correct card to match their problem's answer.

Example: \$5.00 book is marked down to \$3.00. What % was saved?

Answer: The student would choose the 40 % card off the table.

Have students solve problems with increases in salaries, insurance costs, rent increases, etc. Provide opportunities for students to create real-life problems for their classmates to solve.

Example: Kelly received a raise from \$24,580 a year to \$25,317.40 per year. What percent of an increase in salary did Kelly receive?

Answer: 3%

Nina's rent was increased from \$850 to \$910. If her rent increases more than 10%, Nina will have to move. Will Nina have to move?

Answer: No. There was only a 7% increase in rent.

Use newspaper sale ads to compute percent of price reductions. Students can be challenged to find the item with the greatest percent savings.

Example: A discount store advertisement shows a \$329.99 outdoor furniture set reduced to \$249.99. What is the approximate percent saved?

Answer: Approximately 24%