Percentages Power-Up: Real-World Math!

Materials Needed: Calculator, Pencil, Paper/Notebook, Practice Worksheet

Introduction: Why Percentages Matter (10 mins)

Hey! Ever wondered what '50% off' really means when you're shopping? Or how your favorite streamer tracks their subscriber growth? Percentages are a super important math tool we see constantly – from phone battery life and loading bars to understanding news reports about surveys or health statistics. Today, we'll master percentages and see how they connect to many parts of life!

Warm-up Question: Can you think of three places you've seen a percentage used in the last week?

Part 1: What Exactly IS a Percentage? (15 mins)

The word 'percent' comes from Latin and literally means 'per hundred'. So, a percentage is just a special way of writing a fraction where the bottom number (the denominator) is always 100. For example, 30% means 30 out of 100.

Because they mean 'out of 100', percentages are easy to convert:

- **Percentage to Decimal:** Divide the percentage number by 100 (Hint: just move the decimal point two places to the left!). Example: 75% becomes 0.75.
- **Decimal to Percentage:** Multiply the decimal by 100 (Hint: move the decimal point two places to the right!). Example: 0.2 becomes 20%.
- **Percentage to Fraction:** Write the percentage number over 100 and simplify the fraction if possible. Example: 40% becomes 40/100, which simplifies to 2/5.

Quick Practice: Let's try converting these together: Convert 80% to a decimal and fraction. Convert 0.05 to a percentage. Convert 1/4 to a percentage.

Part 2: Finding the Percentage OF Something (20 mins)

This is probably the most common use! You want to find a part of a whole amount. Think about calculating a discount or a tip.

The Key: Change the percentage to a decimal, then multiply it by the 'whole' number.

Example 1: What is 15% of $80?

1. Convert 15% to a decimal: 15 / 100 = 0.15
2. Multiply: 0.15 * $80 = $12
3. So, 15% of $80 is $12. (Maybe this is the tip you leave at a restaurant!)

Example 2: A survey found that 60% of 500 students surveyed prefer action movies. How many students is that?

1. Convert 60% to a decimal: 0.60
2. Multiply: 0.60 * 500 = 300
3. So, 300 students prefer action movies.

Activity: Time to practice! Let's tackle some problems on your worksheet involving finding percentages of different numbers.

Part 3: Percent Increase and Decrease (15 mins)

Sometimes things increase (like price with tax) or decrease (like price with a discount). We can calculate the percentage change.

- **Finding the amount of change:** Subtract the smaller value from the larger value.
- **Calculating Percent Change:** (Amount of Change / Original Amount) * 100%

Example: A game console cost $400, but the price increased to $450. What was the percent increase?

1. Amount of Change: $450 - $400 = $50
2. Percent Increase: ($50 / $400) * 100% = 0.125 * 100% = 12.5%
3. The price increased by 12.5%.

Activity: Let's try some worksheet problems involving calculating percent increase (like sales tax) and percent decrease (like sale discounts).

Wrap-up & Quick Check (10 mins)

Awesome work today! Percentages help us compare, understand changes, and make sense of data all around us. We learned how to convert them, find the percent of a number, and figure out percent increases and decreases.

Check Your Understanding:

1. What is 30% of 150?
2. A pair of jeans costs $50 but is on sale for 20% off. What is the sale price?
3. If a population grew from 800 to 900, what was the percent increase?
4. Why is understanding percentages a useful skill in everyday life? Give one example.

Keep practicing, and you'll be a percentage pro in no time!