

Lesson | Saving Money by Finding the Better Buy

How can we use our financial resources effectively by calculating the better buy?

Objective

- Be able to make economically sound purchasing decisions by using unit pricing, calculating discounts, and analyzing fixed and variable costs

Time

60 Minutes

Materials

- Road Map to the Better Buy, printable
- Whiteboard
- Paper and pencils for calculations
- The Biggest Bang for Your Buck Game, optional

PART I—Making Purchasing Decisions by Calculating the Better Buy

1 Pose the following problem to the class: You are shopping for your favorite candy, horseradish-flavored gummy slugs, at a supermarket. A 12-ounce bag costs \$5.16 while a 9-ounce bag costs \$4.14. Which bag is the better buy?

2 Ask the class how they would determine the answer. Explain that calculating a **unit price** for each bag will make it easier to compare the value of the two bags. In this case, since both bags contain a given number of ounces, the unit price will be cost per ounce. Demonstrate that $\$5.16/12 = \$.43$ per ounce while $\$4.14/9 = \$.46$ per ounce, so the 12-ounce bag is the better buy. Point out that this is true, even though the out-of-pocket cost of the larger bag is greater.

3 Ask the class to determine the better buy in this situation: A regular-size 2.5-liter bottle of Cranky Cola costs \$1.38 while the mega-size 4-liter bottle costs \$1.98. Which is the better buy? (Note: If your class is ready to try this problem on their own, give them time to complete it, then review the answer. Otherwise, model the solution process to the class.) In this case, the unit price is cost per liter. For the regular-size bottle, the cost per liter is $\$1.38/2.5 = \$.552$. For the mega-size bottle, the cost per liter is $\$1.98/4 = \$.495$, so the mega-size bottle is the better buy.

4 Ask the class to independently (individually or in pairs) determine the better buy in this situation: Rent-a-Steamroller offers steamroller rentals for \$27.99 per day or \$209.93 per week. Which is the better buy? After students have had time to complete the problem, review the solution method. In this case, the unit price is cost per day. The weekly rental costs $\$209.93/7 = \29.99 per day, which is more than the daily cost of the daily rental, so the daily rental is the better buy.

5 To connect the math to real life, discuss with the class whether it's always best to go with the better buy. Some reasons for

not buying the better buy could include: lack of storage space, lack of available funds, perishability of or inability to use the larger quantity of the product, etc. Additionally, when comparing two different products of the same type, the one with the lower unit price might not match the more expensive product in quality, performance, life span, etc.

6 Distribute the worksheet to the class and have them complete section 1. Review the answers as a class.

PART 2: Saving Money With Discounts

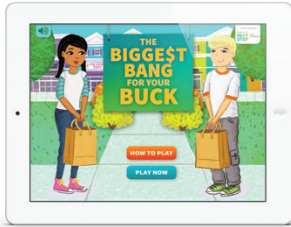
1 Ask the class if they've seen merchandise "on sale" at stores, and how the sales work. Establish that, in the case of percentage-off sales, the percentage-off is multiplied by the original selling price to determine the amount of the discount. The **discount** is then subtracted from the original price to determine the new selling price.

2 Demonstrate an example to the class. A sweater originally costing \$120 is selling for 30% off. First, convert 30% to the decimal .30 and multiply it by \$120 to determine a discount of \$36. The discounted selling price is the original price (\$120) minus the amount of the discount (\$36) or \$84.

3 Ask the class to determine the new selling price of a \$49 jar of wasabi-coated raisins on sale for 25% off. (Note: If your class is ready to try this problem on their own, give them time to complete it, then review the answer. Otherwise, model the solution process for the class.) First, convert 25% to the decimal .25 and multiply it by the original cost (\$49) to find the discount of \$12.25. The sales price is the original price of \$49 minus the \$12.25 discount or \$36.75.

4 Ask the class to independently (individually or in pairs) determine the new selling price of a \$149 fitness tracker on sale for 15% off. Convert the 15% to .15 and multiply it by \$149 to arrive at a discount of \$22.35. The original price (\$149) minus the discount (\$22.35) equals the on-sale price of \$126.65.





5 If your class is ready for a challenge, ask them to calculate the percentage discount for an anvil originally priced at \$575 that is on sale for \$460. Since the amount of the discount equals the original selling price times the discount percentage, and the amount of the discount in this case is the original selling price minus the on-sale price ($\$575 - \$460 = \$115$), then $\$575x = \115 , where x = the discount percent. Divide both sides by 575, and the discount percent = .20 or 20%.

6 Distribute the worksheet to the class and have them complete section 2. Review the answers as a class.

PART 3: Taking Fixed and Variable Costs Into Account to Determine the Better Buy

1 Pose the following problem to the class: The two coffeehouses in town have live music and serve tasty coffee drinks. One of them, Mandrake's, charges \$5 for admission and \$2.75 for each drink. The other coffeehouse, Petunia's, charges \$12 for admission and drinks are no extra charge. If you expect to drink three cups of coffee, which coffeehouse's charge structure is the better buy?

2 Ask students to explain how they would calculate the answer. The cost at Mandrake's is the \$5 admission plus three drinks at \$2.75 each (\$8.25) for a total of \$13.25. The cost at Petunia's is a flat \$12, so Petunia's is the better buy. Explain that for either coffeehouse, there is an admission charge that doesn't change, no matter how much coffee is consumed. This charge is considered a **fixed** cost because it doesn't vary. The \$2.75 cost per cup of coffee at Mandrake's is considered a **variable** cost because it changes with the number of cups of coffee consumed.

3 Ask the class if Mandrake's could ever be the better buy—the correct answer is: yes, if two or fewer cups of coffee are consumed. The admission charge of \$5 plus two cups of coffee at \$2.75 each (\$5.50) equals \$10.50, which is less than the \$12 admission cost at Petunia's.

4 Ask the class to determine the better buy for the following scenario: Your parents want to hire a clown for your little brother's birthday. Jokey Joey charges \$100 to appear plus \$2.50 for each balloon animal he makes. Sunny Susie charges \$140 to appear with no extra fee for

balloons. Your brother has invited nine guests. Assuming he wants a balloon animal too, which clown is the better buy? Joey is a little less expensive than Susie for 10 children—his fixed cost of \$100 plus variable costs of \$25 for 10 balloon animals (10 times \$2.50) is a total cost of \$125. At \$140, Susie is more expensive.

5 If your class is ready for a challenge, ask them how many guests would have to be invited for Susie to be the same price as Joey. Comparing fixed costs, Susie's fee is \$40 more (\$140 - \$100). With variable costs at \$2.50 per balloon animal, the \$40 difference/\$2.50 = 16. So with 16 guests, each clown would charge the same amount.

6 Distribute the worksheet to the class and have them complete section 3. Review the answers as a class.

Worksheet Answer Key

1. The 15-ounce size is \$.27 per ounce and the 32-ounce size is \$.26 per ounce, so the 32-ounce size is the better buy. **2.** The six-pack of 16-ounce cans is a total of 96 ounces. $\$5.76/96 = \0.06 per ounce. The 64-ounce bottle costs \$2.56. $\$2.56/64 = \0.04 per ounce, so the 64-ounce bottle is the better buy. **3.** First, convert all quantities to a common unit of measure (inches). The regular size is 18 inches for \$1.98 or \$.11 per inch ($\$1.98/18$). The economy-size pack is 2 yards for \$5.94. Two yards equals 72 inches and $\$5.94/72 = .0825$ per inch (8 1/4 cents), so the econo-pack is the better buy. **4.** The usual rate for 8 nights would be 8 times \$125 or \$1,000 in total. If Darren offers a 27% discount, the discount would be .27 times \$1,000 or \$270 in all. You would pay \$1,000 - \$270 or \$730 in all. **5.** Nights 1, 2, and 3 are full price; 3 times \$150 = \$450. 50% off a \$150 rate equals \$75. Five nights (nights 4, 5, 6, 7, and 8) times \$75 equals \$375. $\$450 + \$375 = \$825$. **6.** Eight nights at the usual rate would be \$800 (8 nights times \$100). If you paid \$560, the amount of the discount is \$240 ($\$800 - \560). The percentage discount is $240/800 = 30\%$. **7.** For an 8-day rental, Sam's would charge a fixed fee of \$200 plus variable costs of \$400 (8 days at \$50 per day). $\$200 + \$400 = \$600$, which is more than Harry's cost of \$500, so Harry offers the better buy. **8.** For a 6-day rental, Sam's would charge \$500 (\$200 flat fee plus 6 days at \$50), the same as Harry's. For any rental less than 6 days, Sam's is the better deal. **9.** The cost of renting from Harry's is \$120 (4 bikes at a flat fee of \$30). The cost of renting from Sam's is \$136 with per bike charges of \$34 (\$10 fee plus 8 days at \$3 per day) times 4 bikes. So Harry's has the better deal.

ROAD MAP TO THE Better Buy

You are planning an awesome road trip with your family! To have the money to do the things you really want to do, you've decided to seek out the better buy on your trip whenever possible.

Directions: Use a separate sheet of paper for calculations. Write your answers in the blanks.



NAME: _____



Snacks at the Rest Stop

1 Your favorite snack, peanut butter pretzels, is available in a 15-ounce size for \$4.05. The 32-ounce size sells for \$8.32.

Which size is the better buy? _____

2 You're getting thirsty! You can buy a six-pack of 16-ounce cans of juice for \$5.76 or the 64-ounce bottle for \$2.56.

Which is the better buy? _____

3 The regular-size pack of chocolate clusters is 18 pieces for \$1.98. The economy size is 72 pieces for \$5.94.

Which is the better buy? _____



Finding Discount Accommodations

4 Darren's Discount Motel offers a 27% discounted rate for stays of a week or more.

If you stay for eight nights and the usual rate is \$125 per night, how much will you pay in total? _____

5 Igloos Unlimited charges \$150 per night, with a 50% discount for every night after the third night. **If you stay for eight nights, how much will you pay?**

6 Hannah's Houseboats, which usually charges \$100 per night, is now offering a discount. **If you stay eight nights and pay a total of \$560, what percentage discount did you receive?** _____

7 **Which deal is the most cost-effective?**



Deals on Wheels!

8 To reduce wear and tear on the family vehicle, you decide to rent a car. Happy Harry's Rentals has a \$500 fee for any rental up to eight days. Smilin' Sam's offers the same car for \$200 plus \$50 per day. **Which deal is better?**

9 **If you decide to rent a car for fewer days, which deal is better?**

10 Both Harry's and Sam's offer bikes for your family of four to rent. For eight days, Harry's charges a flat fee of \$30 per bike. Sam's has a processing charge of \$10 per bike, and then charges \$3 per day per bike. **Which is the better deal?**
