Comparison Shopping

There are three key ideas in this lesson. The first is making sure you are comparing apples to apples, the second is considering all of the factors involved in a purchase, and the third is not trusting your eyes. Let's consider several examples to illustrate these points.

Apples to Apples

Recently, we had a water softener installed in our home. Periodically, I need to buy salt for this unit. Martin's Appliance installed the water softener, and I can buy 50-pound (50#) bags for $5.29 at their store. One day, I was at Home Depot and saw what appeared to be the same yellow bag for $4.79. My first thought was to buy the salt there and save 50¢ per bag, but upon closer examination, I noticed the bags weren't the same size. The Home Depot bag, which looked identical to the one at Martin's, was only 40 pounds (or 40#). When deciding between two similar products, I needed to compare apples to apples, or use a common unit of measure. I decided to find the price per pound. To do this, I divided the price by the number of pounds. When I worked it out, Martin's was $5.29 ÷ 50, which is $0.1058 or 10.58¢ per pound. Home Depot's 40# bag was $0.1198 or 11.98¢ per pound. So Martin's was the better buy, even though it didn't initially appear to be so.

Something else I have learned is that multiple stores will each offer a low-price guarantee. I shopped at two building supply stores that each claimed to offer the lowest prices. I was curious how they could each offer similar products and yet both declare they had the lowest price. I pinned down a salesman and asked him how this could be true. He taught me that even though there are Makita Drills in both stores, they don't have the same model of Makita drill. Or if they seem to be the same drill, they might not be from the same manufacturer. Once again, when doing comparison shopping, make sure you are comparing the same product or the same model. If the product comes in different sizes, be careful to divide to discover the unit pricing, as in price per pound, per ounce, or per hundred.

Transportation Factor

How far you have to drive to make a purchase is a significant factor involving time and expense. The Internal Revenue Service has a standard mileage rate for tax deduction purposes and in 2018 that was 54.5¢ per mile. If you use your car for work purposes, you can use this rate for a deduction on your income taxes. Other sources use roughly similar costs for operating a car (one that I consulted used 60.8¢ per mile). We have a unit devoted to the cost of operating a car in a subsequent lesson. For the purposes of this unit, I am setting the cost of driving to 50¢ per mile.

In the first example about the salt, I measured and found that Martin's is eight miles from our home, while the Home Depot is four miles away. If I buy 200 pounds of salt, which is the best place to make this purchase?

Martin Water

200 pounds is four 50# bags plus 16 miles (roundtrip).

$(\$5.29 \times 4) + (16 \times \$0.50) = \$21.16 + \$8.00 = \$29.16$

Home Depot

200 pounds is five 40# bags plus 8 miles (roundtrip).

$(\$4.79 \times 5) + (8 \times \$0.50) = \$23.95 + \$4.00 = \$27.95$

You are probably thinking about other factors, but the winner based on price is Home Depot. On the other hand, if you happen to be driving right past Martin Water on another errand, then they have the best price, because you are not making a separate trip.

Dollars to Dimes

My mom and dad were very thrifty when it came to items like groceries, and they were big fans of coupons. Our family would often travel across the state to be with my folks for holidays. On one occasion, my dear wife was taken shopping to help them buy groceries for the weekend. They went to four or five stores to find one that honored their coupons, which amounted to only pennies per can. On another occasion, they bought an item and then drove back and returned it because they found they had a coupon at home for a different brand. My question was, "What about the dollars you spent driving around to save the nickels and dimes?"

Buying Clubs

I enjoy shopping at Costco, which is a buying club like Sam's and BJ's. Their prices are often lower, but there is a fee to join these clubs. A quick search revealed that the fees for these three clubs are all around $50.00 per year. The first question to ask yourself is whether shopping here will save money over the course of a year. In our situation, Costco is nine miles away, and it takes me 16 minutes to drive there. Stauffers is our preferred supermarket and is 2.3 miles from home. If we drive, it takes us six minutes each way to get there. Stauffers is also near work, so we drive near it a few times each day. There is also a Target 2.6 miles and seven minutes away.

I think you can quickly see that considering the distance, the mileage expense, the extra time, and the annual fee, this buying club may not be the best place for us to shop unless we plan these trips well to make the trip profitable. Let me give one example which factors these different elements into our purchase. I am also assuming that we go to Costco twenty times a year.

Example 1

I like all-natural yogurt, cinnamon, and coconut oil. If I am about to make a fresh batch of my homemade granola, I need some of each of these items. Here is what I discovered on a recent scouting expedition to buy these items. RT stands for Round Trip.

	Yogurt	Cinnamon	Coconut Oil	RT Time	RT Distance	Club Fee
Stauffers	32 oz $3.99	6.5 oz $4.99	23 oz $10.99	12 min	4.6 mi	$0
Target	32 oz $4.99	4.1 oz $2.19	54 oz $19.99	14 min	5.2 mi	$0
Costco	48 oz $5.79	10.7 oz $2.99	84 oz $13.99	32 min	18.0 mi	$55.00

I first break down the cost as price per ounce and then compute the mileage cost. I divided

the club fee by 20, the estimated number of times I drive to Costco annually.

	Yogurt	Cinnamon	Coconut Oil	RT Time	Travel Cost	Club Fee
Stauffers	12¢/oz	77¢/oz	48¢/oz	12 min	$2.30	$0
Target	16¢/oz	53¢/oz	37¢/oz	14 min	$2.60	$0
Costco	12¢/oz	28¢/oz	17¢/oz	32 min	$9.00	$2.75

The travel cost is computed based on the round trip distance, so nine miles each way to Costco is 18 miles @ $0.50 per mile which is $9.00.

If I purchase one container of each item at each store, here is the composite cost plus my time.

Stauffers: $3.99 + $4.99 + $10.99 + $2.30 = $22.27 with 12 minutes for travel time.

Target: $4.99 + $2.19 + $19.99 + $2.60 =$29.77 with 14 minutes for travel time.

Costco: $5.79 + $2.99 + $13.99 + $9.00 + $2.75 = $34.52 with 32 minutes for travel time.

This is surprising on one level, considering how much lower the price per ounce was for cinnamon and oil at Costco. Because of the larger size containers, I also have almost a tub of coconut oil, several ounces of cinnamon, and a pound of yogurt left over if I purchased these times at Costco. When shopping I hope this helps you to see how different factors contribute to the overall expense of your shopping.

Discount Stores

A few weeks ago, John and I were in a different part of town and saw a Grocery Outlet store, so we popped in for a few items we needed. I discovered wonderful buys for some other products I knew we could use and I ended up spending over fifty dollars. One item was a tub of very good yogurt for 97¢. The expiration date was a few days away, but that didn't bother me, and I was thrilled to not have to pay $3.99 for the same product. I went back a few days later to price out the nine items I had just priced at the other stores. As I found the price per ounce for each item, I discovered that these prices were very good. There is no annual fee to shop there, and it is closer than Costco! We may be frequenting this store more in the future.

Larger Quantities

I have observed that buying clubs often package their products in larger quantities and in different sized boxes. And upon comparing the price per ounce, I discovered the product packaged in those boxes costs more per ounce than it would in a regular supermarket. Be careful to not simply choose an item because it appears to be a good deal. Compare the price per ounce, or the price per item. Many years ago, this required division, but now most stores display unit pricing, and they have already done the math for you. When there are different prices for different sizes, unit pricing will give you the price per ounce or price per 100 count. This makes it very easy to be accurate in your comparisons without having to calculate unit prices yourself. In our buying expedition, notice that the price per ounce of yogurt was the same at the grocery store as at the buying club. One was a larger amount and may have appeared to be a better buy, but they were the same per ounce.

Example 2

What is the better buy for eggs?

Stauffer's eggs are \$1.55 per dozen while the buying club is \$7.99 for 60.

Stauffer's eggs are $\dfrac{\$1.55}{12} = \$0.1291\overline{6}$

Costco eggs are $\dfrac{\$7.99}{60} = \$0.1331\overline{6}$

Stauffers was slightly cheaper, but they are close enough that the unit price doesn't matter.

As we know, it is a lot closer to Stauffers than Costco from my house, and there is the annual membership fee to consider. Another factor to think about is even if you do save on the price per ounce or price per item, if you purchase a large quantity of perishable items, you may not be able to consume them before they begin to go bad. The experienced shoppers in your family will know this!

Don't Trust Your Eyes

My first real job was at the Whitehall Dairy Mart. I had just turned 16, and my responsibilities included hand-packing ice cream, peeling potatoes for French fries, serving customers, and sweeping the floor at the end of the day. Once when I was waiting tables, I had two customers order different sizes of soda pop. At that time, a large drink cost 15¢ and the small one was 10¢, but the large glass looked much larger in comparison. The guy who had ordered the small took one look at his friend's large drink and asked me to take the small drink back and bring him a large one. I took it back and the cook smiled, picked up a large glass, poured the small into it, added an ice cube, and that was it. The drinks were virtually the same size, but the large glass, also used for milkshakes and ice cream sodas, had a fake glass bottom and gave the impression that the glass was much larger, even though it wasn't. If you are curious, you might ask how many ounces of liquid there are in each size so you can compare numbers and not be deceived by looks. When I get drinks in a restaurant, I almost always ask for no ice. Ice is filler, and the drinks are usually cold anyway. I get a lot more drink for my dollar. Although I generally just ask for water with a slice of lemon.

Apple Juice to Apple Juice

One afternoon when I was a high school teacher, I was shopping for frozen apple juice and noticed there were two cans of different sizes. The large can was 12 ounces for 84¢, and the small can was 8 ounces for 48¢. In most cases, the larger can is the better buy, but I suspected this might not be the case, so I did the division to make sure. I found the price per ounce and was surprised to learn that the large can was $84 \div 12 = 7$¢ per ounce, and the small can was $48 \div 8 = 6$¢ per ounce and therefore the better buy. I looked around to share this exciting news and saw one of my students. I called to her and showed her my recent discovery and how math had helped me be a more efficient shopper! Beware of assuming that the larger can is the best buy.

No Apples to Apples, Or Sandy Apples

One of the strangest experiences I have had in comparing apples to apples was when I was buying sand for a sandbox. I borrowed a pickup truck and went to the local lumber yard where I knew the owners. They weighed the truck, then sent me down to get a load of sand. When I came back, I was weighed again with the load of sand. The difference between the

weight of the empty truck and the full truck would be the weight of the sand, and I would pay by the pound.

It had just rained the night before and the sand was quite heavy. I mentioned this when I was checking out but was confidently assured that it didn't affect the amount of sand because you could add water without changing the volume of sand.

Do you see the flaw in their reasoning? I never was able to convince them of their error, and I finally dropped it. I recognize that you can have a five-gallon bucket of sand and still add a lot of water to the bucket and it is still the same amount of sand. But I wasn't paying by volume, but by weight, and a five-gallon bucket of sand with water is much heavier than a bucket of sand without water. I paid for the sand AND the water.

Comparison Table (for Lesson 09 Worksheets)

	Sheetz	Stauffers	Target	CVS	Costco	Grocery Outlet
Miles from home	2.6 mi	2.3 mi	2.6 mi	2.6 mi	9 mi	4.3 mi
Round Trip Travel Cost	$2.60	$2.30	$2.60	$2.60	$9.00	$4.30
Eggs, Grade A large	12 for $3.29	12 for $1.55	12 for $1.69	12 for $2.49	60 for $7.99	12 for $1.49
Milk 2% Gallon	$4.99	$3.58	$4.49	$3.59	$3.58	$3.58
Cooked Round Pizza, with diameter	7" $2.99	10" $5.55	6" $4.29		18" $9.95	
Apples, price per pound		$.99 per #	$1.53 per #		$2.00 per #	$.99 per #
Honey Nut Cheerios	1.6 oz for $1.79	15.4 oz for $3.99	19.5 oz for $3.99	19.5 oz for $5.99	55 oz for $6.79	55 oz for $6.99
Almond Butter		12 oz. for $9.79	19 oz for $6.99	12 oz for $7.49	27 oz for $7.99	16 oz for $4.99
Yogurt	5.3 oz for $1.79	32 oz for $3.99	32 oz for $4.99	5.3 oz for $1.79	48 oz for $5.79	5.3 oz for $.59
Coconut Oil		23 oz for $10.99	54 oz. for $19.99	14 oz for $10.49	84 oz for $13.99	54 oz. for $9.99
Cinnamon		6.5 oz for $4.99	4.1 oz for $2.19	2.37 oz for $1.99	10.7 oz for $2.99	3.25 oz for $.99