

CENTSible Business and Budgeting

Grade Level: 4

Approximate Length of Activity: 45-60 minutes

Objectives

Students

1. Describe basic egg production steps and how they relate to quality and costs.
2. Calculate food costs and determine cost-saving procedures for meal-planning and buying foods.

Michigan Content Standards: (Math) N.FL.04.08; N.FL.04.10; N.FL.04.11; N.MR.04.14; N.ME.04.15; N.MR.04.19; N.ME.04.20

Introduction

In the grading process, eggs are examined for both interior and exterior quality and sorted according to weight (size). Grade quality and size are not related to one another. In descending order of quality, egg grades are AA, A and B. No matter the grade, eggs of the same size all have the same nutrition value.

Because production and marketing methods are very efficient, eggs move rapidly from laying house to market. So, you'll find very little difference in quality between grade AA and A eggs. Although grade B eggs are just as wholesome to eat, they rate lower in appearance when broken out. Almost no grade Bs find their way to food stores. Some go to bakeries or foodservice operations, but most go to egg breakers, firms which break eggs out of their shells and turn them into egg products.

Egg products include various forms of refrigerated liquid, frozen and dried eggs; hard-cooked and pickled eggs; egg salad; mixed for scrambled eggs, omelets and quiches; precooked egg dishes, including fried and scrambled eggs, egg patties, plain or filled omelets and crepes, French toast and quiches and a number of other items; even precooked and freeze-dried scrambled eggs for campers. Most egg products are used by food manufacturers, bakeries, delis and various other types of food service operations and find their way into our diets through these outlets.

Foods that supply protein are among the most expensive in the typical food budget. Nutrient-dense eggs supply high-quality protein and a variety of other needed nutrients, but they do it at a very low price. In fact, even when high demand raises prices, eggs remain one of the most economical protein foods. A dozen Large eggs weighs 1½ pounds (24 ounces) so, at \$1.20 a dozen, Large eggs are only 80 cents a pound (16 ounces) or 10 cents each, a great buy compared to other protein foods. Over many decades, eggs have remained a bargain because egg producers use highly effective production and management techniques to keep production high and costs low.

Other protein foods from the meat and meat alternates group include lean meats (such as beef, pork and lamb), poultry (such as chicken and turkey), fish (such as salmon, tuna, bass and trout), seafood (such as shrimp, crabs, clams and oysters), legumes (such as dry beans and peas, like navy and pinto beans and split peas) and peanut butter. To compare the price of eggs to any of these other protein foods by the pound, remember that the price per pound of Large eggs equals 2/3 of the price of a dozen.

Another budget plus is that eggs go very well with other economical foods to make a nutritious meal. It's easy to combine eggs with grain foods, milk foods and seasonal fruits and vegetables. For menu planning, 1 egg = 1 ounce of lean meat. As a bonus, most egg dishes are easy to cook without expensive special equipment.

Materials Needed

- 'Frank and Freda Farmer Explain Egg Production' article
- 'Cut Your Food Costs' article

Activity Outline

1. Distribute copies of the article 'Frank and Freda Farmer Explain Egg Production.' Review the information in the article and sidebars with students.
2. Have students access www.aeb.org/kidsandfamily/eggproduction and follow the activity instructions. After they've completed the activity, have students, individually or in groups, EGGSpres what they've learned by acting as investigative reporters on one or more of the egg production steps, presenting their information as newspaper articles or as TV or radio reports OR by drawing a map or chart or creating a poster of eggs going through the production process. Have students present their reports, maps, charts or posters to the class.
3. Progressive writing: Working in teams, have students EGGSpres themselves by writing a short paragraph on what they've learned about egg production steps, starting with laying and ending with selling. Have each team write about one step and pass it to the next team to continue the report. When all the steps are complete, have students share the report with the class. Was it accurate?
4. Distribute copies of the 'Cut Your Costs' and review with students. Ask students to EGGSpres themselves by suggesting additional cost-cutting tips they and their families use, such as: checking store ads for sales to stock up on foods that won't spoil quickly; using coupons; storing foods properly to prevent spoilage; planning to use up leftovers, rather than wasting them (hint: omelets, skillet scrambles, quiches, stratas and dishes like fried rice are good ways to use small amounts of leftover foods as flavorings/fillings); allowing more time for cooking less tender cuts of meat, such as beef chuck and sirloin, or beans into soups, stews, pasta sauces and chilies; planting a home garden; canning or freezing fresh fruits and vegetables to preserve them for out-of-season months, etc.
5. Individually or in teams, have students EGGSpres themselves by choosing their favorites from among the cost-cutting tips and planning a meal around them. Using store ads, store Internet sites or food-buying Internet sites, such as www.netgrocer.com, www.aulsuperstore.com, www.albertsons.com or www.sundaysaver.com/#3, have students figure the cost of that meal for however many servings they need for their families.
6. Have students EGGSpres themselves by changing the main protein ingredient in the meal they planned and figuring the costs again. Have students EGGSpres themselves by writing their own consumer column to report their findings. Note: A USDA list of protein foods from which students may choose is at www.nal.usda.gov/fnic/foodcomp/search/ (click 'nutrient lists', click 'protein sorted by nutrient content'), and the average U.S. prices of a dozen Large eggs for each month of any given year are provided at the Bureau of Labor Statistics at <http://data.bls.gov/cgi-bin/surveymost?ap>.
7. Using the Food Guide, have students EGGSpres themselves by listing their favorite types of meat/meat alternates. Have them EGGSpand their lists by adding food from the USDA protein-food list (see link in activity 3 above). Using store ads, store Internet sties or food-buying Internet sites (see activity 2 above), have students compare the prices of 2 or 3 ounce servings of several of these foods, including some favorite and some new protein foods. Have students EGGSpres themselves by charting the costs of these foods from least expensive to most expensive. (For an abbreviated activity, use the figures on ground beef, chicken and eggs at <http://data.bls.gov/cgi-bin/surveymost?ap> and/or calculate only by the pound.)

8. Have students EGGSpres themselves by picking a favorite family recipe that doesn't use eggs as the protein ingredient. Have students change the recipe to include half the original protein and half eggs and compare the costs of the two recipes. Does using eggs make the recipe less expensive? Have students try the recipes at home with parental help or supervise preparation in class or through your school food service department. Acting as food reporters, have students EGGSpres themselves by sharing their taste and cost findings with the class.

Discussion Questions

1. Ask students what they have learned about egg production and quality, food costs and controlling food budgets. Have students EGGSpres themselves by mapping the points they learned.
2. What do we know about egg production and quality?
3. What do we need to know about food costs and controlling food budgets?

Related Activities

In teams, have students EGGSpres themselves by sharing ideas on economical eating by using the ads, articles and recipes they've found to compare and contrast their ideas. Have student teams creatively EGGSpres these shared ideas to others in their own way by writing a newspaper article, TV or radio report or by designing a flier or poster on economical eating for a particular audience, such as parents, grandparents, younger or older siblings, other school classes, etc. Distribute the fliers or posters.

Acknowledgment

This lesson was provided and adapted courtesy of the American Egg Board. Additional teaching materials are available through the "EGGSpres Yourself" curriculum. For more information or materials, visit www.aeb.org

Daily EGGSpres

Serving Fitford

Today's Weather: Sunny Side Up

Frank & Freda Farmer Explain Egg Production

by Manny Nichols

Daily EGGSpres Business Reporter

Getting eggs from the farm to the table takes a lot of hard work. Frank Farmer and his wife Freda, co-owners of Frank and Freda Farmer's Famous Egg Farm of Fitford, both get up around sunrise every day to keep their farm running smoothly.



"It takes a hen about 24 to 26 hours to form and lay an egg. Since the laying hens work around the clock, we need to work many hours, too," Frank Farmer says. He adds, "Our hens need water, the right amount of the right foods and comfortable living conditions to lay eggs. Unhealthy hens don't produce eggs at all. So, we feed our hens carefully and protect them from too much heat or cold and other things that might make them unwell. The only way we can earn any money for our eggs is to invest our time and money in the health of our hens."

It's a big job to keep up with the demand for eggs, but the Farmer's farm is only one part of the process of getting eggs on our plates. Freda Farmer lists many steps that are involved in getting eggs from the hens to our homes:

Laying – In a controlled environment, hens get lots of water, eat a healthful diet of specially mixed grain and then lay eggs.

Collecting – At today's egg farms, eggs drop automatically from the hens' cages to a conveyor belt or are mechanically collected from special nests.

Washing – Collected eggs are carefully washed and sanitized.



Oiling – Washed eggs are sometimes lightly coated with an edible, invisible oil to seal shell pores. This slows down aging and helps prevent bacteria from entering the eggs through the shells.

Candling/Grading – Eggs pass over an intense light and are rotated mechanically so a candler, or grader, can examine the contents without cracking the shells. The candler checks the condition of the shells, whites and yolks. Eggs that don't meet grade requirements are removed. Eggs that pass the candling test are graded AA, A or B.

Frank and Freda Farmer Explain Egg Production, continued

Sizing – Graded eggs are weighed to determine their size. Eggs of a similar weight are combined to make up a carton that has a specific minimum weight per dozen.

Packing – To minimize breakage and maintain quality, eggs are packed in specially designed cartons marked with their grade and size.

Cooling – Packaged eggs are placed in a cooling room at a temperature of 45° F. This lowers the eggs' inside temperature, which helps maintain quality.

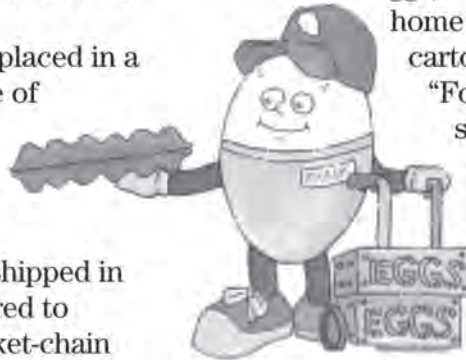
Shipping – Cooked eggs are shipped in refrigerated trucks and delivered to individual stores or supermarket-chain

warehouses. It takes only a few days from the time eggs are laid until they reach these outlets.

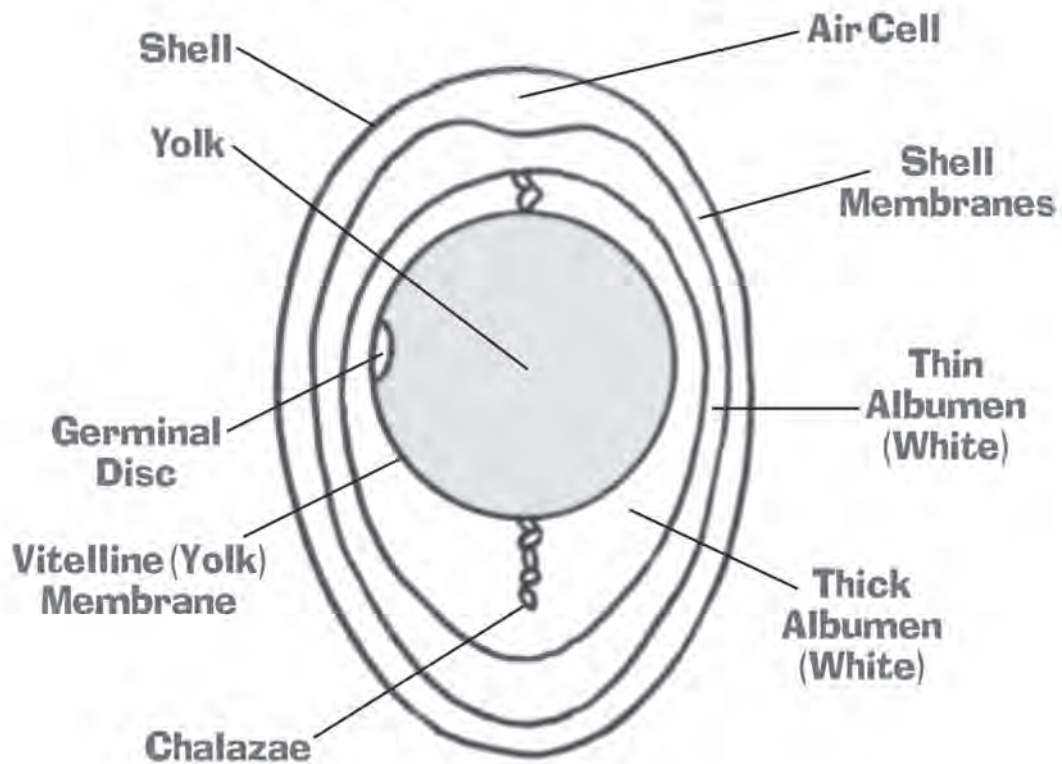
Selling – Stores and warehouses keep eggs under refrigeration to maintain quality.

According to Freda Farmer, once customers buy eggs, they should quickly bring the eggs home and store them in their original cartons on an inside refrigerator shelf.

“For the best quality,” she suggests, “you should cook eggs within 4 to 5 weeks of the pack date or 3 to 4 weeks of buying them.” ○



Eggs are a simple, self-contained food made up of several parts:





How Eggs Make the Grade



Just as in school, it pays for an egg to get a good grade. An egg has to get a grade of B or higher in order to pass grading requirements and be sold.

To get the **AA grade**, an egg's **shell** must be unbroken and clean with a smooth texture and a normal oval shape. A grade-AA **white** must cover a small area and be firm with mostly thick white and a small amount of thin white. The **yolk** must be firm and upstanding and the **air cell** must be no deeper than $\frac{1}{8}$ of an inch.

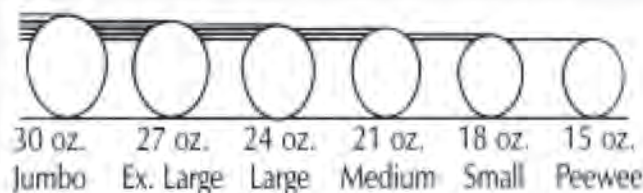
A **grade-A** egg has an unbroken, clean **shell** with a smooth texture and practically a normal oval shape. A grade-A **white** covers a moderate area and is reasonably firm with a considerable amount of thick white and a medium amount of thin white. The **yolk** is round and upstanding, while the **air cell** is no deeper than $\frac{3}{16}$ of an inch.

For a **grade-B** egg, the **shell** must be unbroken and clean, but it might be slightly stained or have an irregular shape with bumps, ridges, thin spots or rough areas. A grade-B **yolk** is flattened and enlarged and the **white** covers a wide area and is weak and watery with a large amount of thin white. The **air cell** is more than $\frac{3}{16}$ of an inch deep. A grade-B egg is just as wholesome to eat as a grade-AA or -A egg, but rates lower in appearance. ○

Eggs Weigh In

In egg production, size and grade are two completely different things. Any grade of egg can be any one of six different sizes. The USDA set up these size categories of eggs by the minimum weight per dozen.

The egg sizes you find most in supermarkets are extra large, large and medium. Why? Frank and Freda Farmer explain that those are the sizes hens lay most often. ○





You Be the Judge

Recently, Fitford farmers held their annual EGGStravaganza, an event anticipated throughout the state. “We’re proud of the high-quality eggs we produce,” claims Freda Farmer, co-owner of Frank and Freda Farmer’s Famous Egg Farm of Fitford. “We’re not just farmers, we’re agri-business people. It takes both agricultural knowledge and business skill to have a successful, profitable egg farm these days.”

Frank Farmer agrees. The Farmer farm is one of three farms in the Fitford area which have donated eggs for the EGGStravaganza egg-judging event. For this event, members of the public vie to find the eggs that meet the coveted grade AA, the highest mark an egg can get in the candling process. Frank Farmer assures the contestants that, no matter the grade, all the eggs are tasty. All are nutritious. But, says Frank, “The eggs which deserve being graded AA will be of EGGSceptional quality!”

At this time every year, readers tell the *Daily EGGSpres* staff that they’re interested in how the amateur graders judge the eggs. So, here’s a quiz you can take to try your hand. Use the following facts about three of the eggs in this year’s EGGStravaganza to test your EGG-Q. Only one of the three eggs described below has the right stuff to be a double-A star in the egg world. Be the judge and give grades to each of these eggs.



This egg covers a small area and its white is firm. It has a lot of thick white around the yolk and a small amount of thin white. The egg’s yolk is round and stands up tall.



This egg covers a wide area when broken out and its white is thin and watery. The egg’s yolk is wide and flat.



When broken out of its shell, this egg covers a medium area. Its white is pretty firm and it has a good amount of thick white and a medium amount of thin white. The egg’s yolk is round and stands up tall.

Based on these descriptions, can you match the findings of this year’s EGGStravaganza judges? ○

Answers: EGGSample 1 is Grade AA;
EGGSample 2 is Grade B; EGGSample 3 is
Grade A.

Daily EGGSpres

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Today's Weather: Sunny Side Up

Cut Your Food Costs

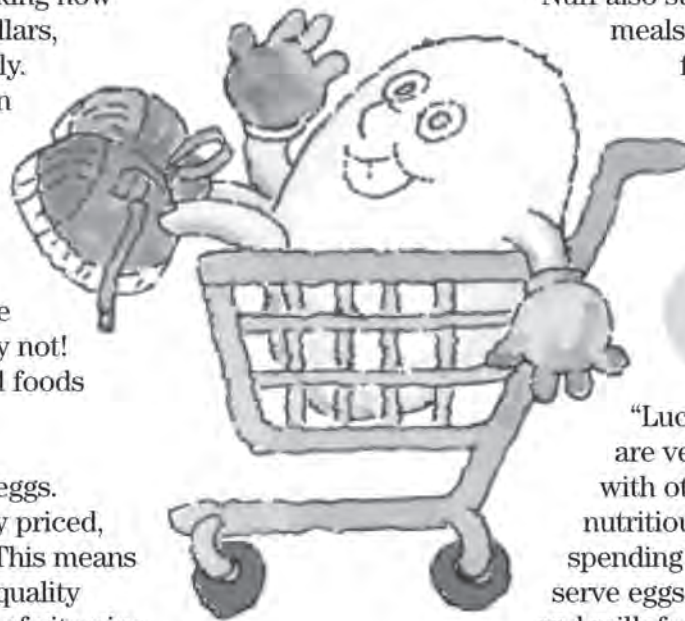
by Nicole N. Dime

Daily EGGSpres Consumer Columnist

Readers have been asking how they can save food dollars, but still dine deliciously. Keeping good health in mind, we need a variety of foods to meet our daily nutrient needs. Does this mean a healthful diet has to be expensive? Absolutely not! In fact, many healthful foods are inexpensive.

One good example is eggs. "Eggs are a reasonably priced, nutrient-dense food. This means that eggs supply high-quality protein and a number of vitamins and minerals for relatively few calories," says dietitian Etta E. Nuff, a nutrition expert from Egghead University Hospital. "Even though eggs provide good nutrition, they cost less than most other protein foods, such as meats, poultry, fish and seafood."

"Fresh, whole vegetables and fruits are a particularly good source of vitamins, minerals and fiber. Especially when you buy them in season, fruits and veggies are less expensive than many high-fat, processed foods and they make good snacks," adds Nuff.



Nuff also suggests, "To round out meals, look for sales on grain foods (like bread, pasta, rice and tortillas) and on milk foods (including milk, cheese and yogurt)."



"Luckily," claims Nuff, "eggs are versatile and go very well with other foods to make a nutritious meal. Without spending a lot of money, you can serve eggs with sale-priced grain and milk foods and seasonal fruits and vegetables to make well-balanced menus. You can also use eggs as a substitute for meat in many recipes. Just remember that one egg is equal in protein to one ounce of lean meat." ○





Nicole N. Dime's Cost-Cutting Tips

Our *Daily EGGSpres*s consumer columnist offers these easy-to-use suggestions for putting your grocery bill on a diet. You can copy this article to share with your family and friends.

\$ Make sure you eat before you shop. It's best to avoid grocery shopping on an empty stomach because people buy more food when they're hungry!

\$ Buy fresh foods that you and your family can prepare yourselves, instead of packaged foods that are already sliced and diced or mixed and cooked. Part of the price of convenience foods is the cost of preparation.

\$ Buy a big package of food if your family can use all the food in the package before it spoils. This reduces packaging costs and the unit cost of many items.

\$ Try store brands of foods, rather than national brands. Buy them again if your family likes them. If they don't, the food will only be wasted.

\$ Buy fresh fruits and vegetables when they're in season. Other times of the year, compare the prices of fresh produce with canned, dried and frozen

fruits and veggies to find the best value. The nutrition is about the same. In fact, sometimes canned, dried and frozen products are more nutritious than fresh. If fresh fruits and vegetables are shipped a long way to your market, they can lose nutrients during the shipping and storage time.

\$ Substitute eggs or dried beans or peas for more expensive meat, poultry, fish or seafood in recipes. Even replacing half the meat in a recipe can save money. For example, for a fajita, spoon half the amount of cooked beef or chicken you usually use onto a veggie-topped tortilla. Then finish filling the tortilla with scrambled eggs.

\$ Become your family's healthful snack maker. Chances are, you'll enjoy being in the kitchen and your family will save on the cost of packaged snacks. To get plenty of nutrients and good taste, too, use foods such as fresh, in-season fruits and vegetables, breads and crackers, bagels and tortillas, skim milk and low-fat yogurt, lean meats and hard-cooked eggs. ○



The Nicole N. Dime Save-Money, Healthful-Eating Challenge

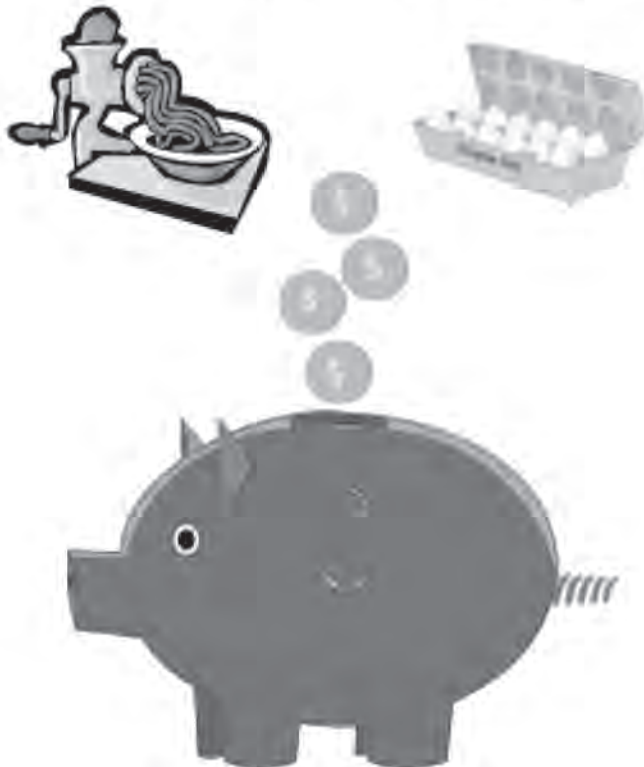


Check out how much money you can save by using my handy "Save-Money, Healthful-Eating Challenge" sheet:

There are plenty of ways to cut costs and still get the nutrients you need in your diet. For example, on a recent trip to the Fitford Fabulous Foods Market, I found that eggs are less expensive than ground beef. One egg has as much protein as one ounce of lean meat.

I have a casserole recipe that calls for half a pound of ground beef. If you calculate the savings when you substitute eggs for a quarter pound of beef, you'll be amazed!

- Price of 1 pound (16 ounces) ground beef \$3.50
- Price of 1 dozen (24 ounces) Large eggs \$1.20



a. There are 16 ounces of meat in 1 pound. However, a 2-ounce Large egg equals 1 ounce of lean meat. Calculate your savings when you replace 4 ounces of meat (1/4 pound) with the equivalent in eggs (8 ounces of eggs or 4 eggs).

b. How much would you save if you replaced the whole 1/2 pound of meat (8 ounces) in the recipe with eggs (16 ounces of eggs or 8 eggs)?

When you finish figuring, keep in mind that, the bigger the recipe, the more your savings will be. For example, you'll save double if you use 16 eggs for 1 pound of ground beef in a bigger recipe. You can make the same changes in other recipes, too. You'll save money every time you substitute inexpensive eggs for a more expensive protein food. *Answers below.* ○

Here are our calculations and the answers. Do yours match ours?

- 1/2 pound ground beef = \$1.75
- 1/4 pound ground beef = \$0.875
- 8 ounces eggs = 4 Large eggs = 4 ounces (1/4 pound) lean meat = \$0.40
- 16 ounces eggs = 8 Large eggs = 8 ounces (1/2 pound) lean meat = \$0.80
- 1/4 pound ground beef + 4 Large eggs = \$1.275
- 1/2 pound ground beef (\$1.75) minus 1/4 pound ground beef + 4 Large eggs (\$1.275) = \$0.475 savings
- 1/2 pound ground beef (\$1.75) minus 8 Large eggs (\$0.80) = \$0.95 savings

a. savings are about \$0.47
b. savings are \$0.95