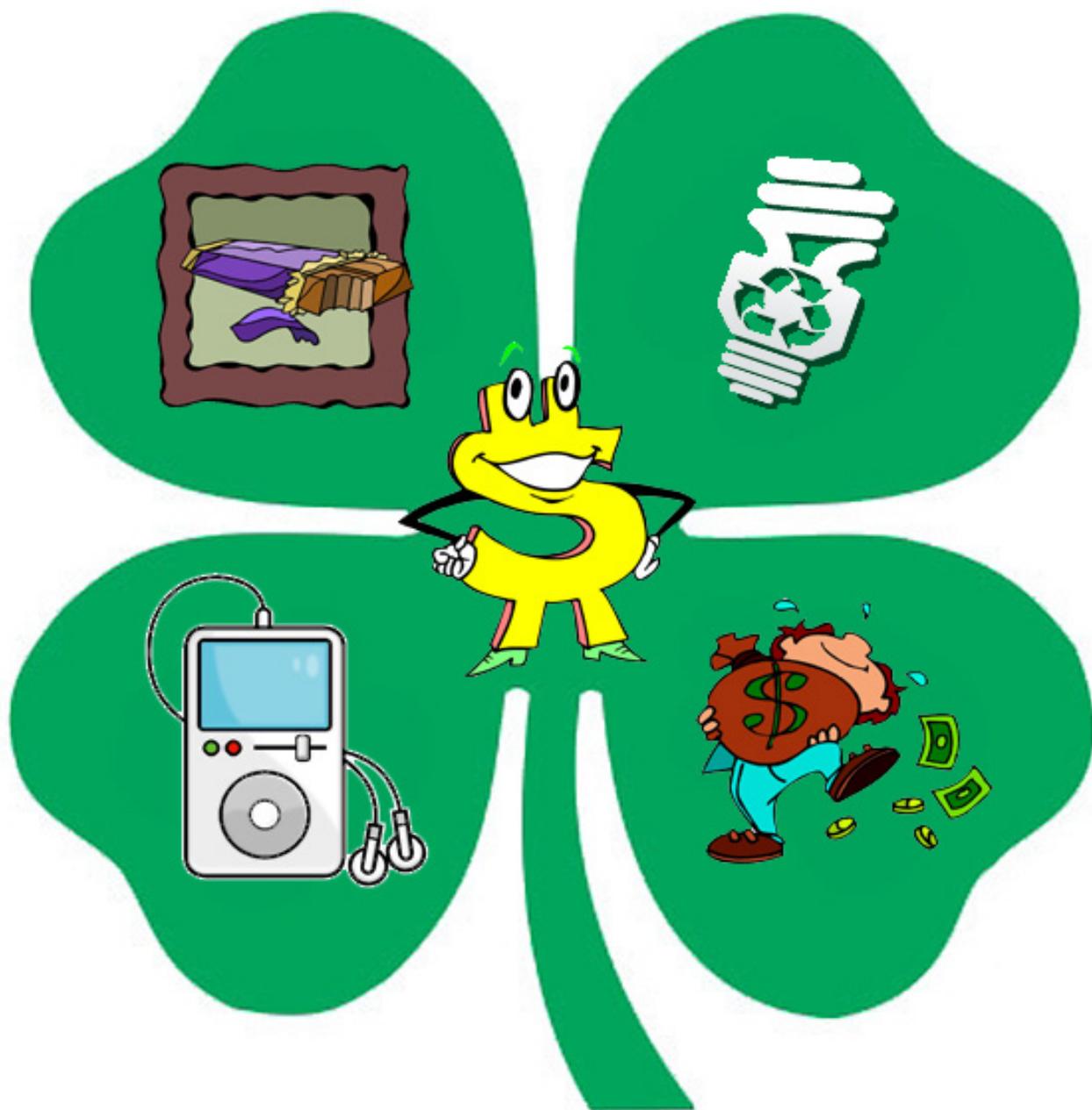


Florida 4-H Consumer Choices

Youth Manual
SENIORS



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Consumer Choices: Energy Bars

Introduction and Background

Have you or your friends ever eaten an energy bar? If so, did it make you feel more energetic? Grocery stores, health food stores, and even vending machines market a variety of energy bars as quick snacks, meal replacements, or workout supplements. Their claim is that eating one bar will increase your level of energy. While these energy bars may be a healthier snack option than candy bars, it is important for consumers to understand what they are purchasing and decide whether these energy bars are actually beneficial to them.¹



Today, there are many different types of energy bars that are being marketed, including protein bars, cereal bars, snack bars, and diet bars of all kinds. The marketing approach is to claim that these are “energy bars,” not just a meal replacement or a snack like breakfast bars or granola bars.¹

Where Did Energy Bars Come From?

Energy bars were originally created in 1987 to keep endurance athletes from “crashing” during long events such as marathons. They have come a long way in the last 15 to 20 years. Energy bars were designed to provide the extra carbohydrates that the athlete’s body needs to compete for long periods of time (i.e. more than one hour of intense exercise). As other people became interested in using these energy bars, manufacturers began to add additional ingredients such as nuts, oats, and fruit, to make the original taffy-like bars better tasting, similar to granola bars or cookies. Today there are a multitude of types and brands of energy bars, with advertised purposes ranging from weight loss to muscle gain to a simple boost in energy.² According to Consumer Reports, Americans have recently spent over \$1.4 billion a year on “energy bars.”¹

What Is “Energy,” Anyway?

As we start to learn about energy bars, there are several questions that consumers should be asking. Among those questions are “What is energy?” and “How does my body use energy that I get from food?” In the world of nutrition, the word “energy” means “calories.” Your body processes the calories taken in by the food you eat and then uses this “energy” to fuel the body’s activities. Thus, any food containing calories could be considered an energy food. The three nutrients that provide calories are carbohydrate, protein, and fat. When we eat more calories than we use, the extra calories are stored as fat. This is important to understand, because it helps us to see that while “energy” bars may supply 200 to 300 calories per serving, they may not actually make us feel any more energetic² and in most situations may not be the healthiest choice.

Types of Energy Bars³

While there are many different brands of energy bars, most of them can be broken down into just three categories based on the amount of carbohydrates and protein that they contain.

High Carbohydrate Bars

Like the original energy bar, these high carbohydrate bars marketed by PowerBar™, Clif™ and Boulder™, among others, are aimed at endurance athletes. The extra carbohydrates are supposed to give the body the extra fuel needed to compete in persistent strenuous exercise that lasts one hour or longer (like a cross country race or a marathon). For people who are not endurance athletes, however, these bars could add more calories to their diet than they will use by exercising. Also, a study conducted by David Pearson and colleagues at Ball State University showed that there was no difference in performance between athletes who ate a bagel and those who ate a high carbohydrate energy bar before an hour of running.



40-30-30 Bars

These bars, such as Balance™, Ironman™, and ProZone™, replace some of the high fructose corn syrup found in high carbohydrate bars with protein and fat to create a 40-30-30 ratio of carbohydrates to protein to fat. The protein in these bars usually comes from whey or soy protein, while the fat often comes from palm kernel oil. This oil is saturated enough that it will stay solid at room temperature (so you don't get it all over your hands), but it is also important to note that this form of oil is twice as saturated as lard. So, while eating one of these bars for lunch is a better alternative than eating a fast food cheeseburger and more closely resembles normal dietary ratios of carbohydrates, protein, and fat than the high carbohydrate bars, it is probably still best to limit your intake.



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High Protein Bars

High protein bars, such as Ultimate Lo Carb™, Met-Rx Protein Plus™, and Promax™, are typically aimed at body builders. They usually contain milk or soy protein and are usually larger in size than other energy bars (about 3 ounces instead of 2) and higher in calories. There really is not any proof that there is a difference in the effects on performance between high protein bars and high carbohydrate bars. Also, the protein in these bars can be obtained from other foods, so it is not necessary to eat them if you are already getting your recommended amount of protein.



Energy Bars vs. Candy Bars

According to a study conducted by Steve Hertzler of The Ohio State University, the effects of energy bars on athletes do not significantly differ from the effects of candy bars. He tested four “meals” on athletes who had been fasting for twelve hours. The four meals were: four slices of white bread, a Snickers™ bar, an IronMan PR Bar™, or a PowerBar™. Results showed that there was not a significant difference in their effects on the athletes’ blood glucose levels.⁴ (Blood glucose is a source of readily available energy for performance.)

As far as calorie content, both candy bars and energy bars usually contain between 200 and 300 calories. On the other hand, energy bars usually contain some extra vitamins and nutrients that candy bars don’t have, which are also available from foods eaten throughout the day.³

Energy Bars vs. Whole Foods



While energy bars are convenient to grab and eat if you are on the go, they do not contain any secret ingredients that can’t be found in whole foods. In fact, if you use energy bars as meal replacements, you can miss out on nutrients and phytochemicals that are available in whole foods but not energy bars.

Research has shown that an athlete’s performance may be enhanced by an extra supply of carbohydrates during strenuous exercise lasting more than one hour, but it is the type of carbohydrates, not the source that is important. This means that it does not matter whether the carbohydrates come from bread or from an energy bar, as long as they are the right types of carbohydrates.²



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According to Consumer Reports, there may also be a difference in the quality of nutrition you get from energy bars in comparison to whole foods. For example, some energy bars contain low-quality sources of protein like collagen or gelatin, which lack essential amino acids that are available in other food proteins. In addition, many energy bars contain highly saturated fats such as palm-kernel oil, which often contribute to clogged arteries. So, if you choose to use energy bars, be sure to look for ones with high-quality sources of protein, such as milk, egg, or soy, and ones that are low saturated fat and trans fat.



The Bottom Line

Energy bars can be convenient sources of calories and some vitamins and nutrients, especially if you would otherwise skip a meal or pick up fast food. They are conveniently packaged and most contain a variety of nutrients. Convenience may come at a high price, though, with energy bars typically ranging from one to three dollars per bar.

It is important to remember, however, that “energy,” in nutritional terms, simply means “calories” and that “energy bars” may not necessarily provide you with an energy boost. In effect, any food containing calories is considered an “energy” food. Also, energy bars usually contain between 200 and 300 calories in a two ounce bar, making them very calorie-dense. For the same amount of calories, you could eat a larger amount of fruits, vegetables, and other foods that would keep you full longer and provide a variety of needed nutrients. In addition, many bars contain highly saturated oils that are used to increase the shelf-life of the product, but do not provide healthy fat choices. Many also contain 100% or more of the daily value of several vitamins and minerals, which is unnecessary since you also get these from other foods that you eat. According to Consumer Reports, chronic overconsumption of certain vitamins and minerals can lead to health problems.¹

In the end, no energy bar beats the nutritional value of whole foods, like fruits, vegetables, whole grain foods, and dairy needed for good health.^{5,6} The important thing to understand, however, is that whether you choose to eat energy bars or not, getting the proper amount of protein, carbohydrates, and fats from a variety of foods to fuel your body, as well as exercising, are the keys to a healthy lifestyle.³ For more information on creating a balanced diet that fits your lifestyle, you can go to www.mypyramid.gov.

Energy Bars - Prepared by Selena Garrison, Graduate Assistant and Michael Gutter, Assistant Professor, Department of Family, Youth and Community Sciences, IFAS, University of Florida. Contents reviewed by Linda Bobroff, IFAS, University of Florida.

References and Sources

- ¹ Consumer Reports: *Energy Bars*; <http://www.consumerreports.org/cro/food/food-shopping/snacks-sweets/energy-bars/energy-bars-705/index.htm>
- ² Brehm, B.J.; *Energy Bars: Better Than a Candy Bar?*; NetWellness <http://www.netwellness.uc.edu/healthtopics/diet/nutribyte2003oct.cfm>
- ³ Liebman, B. & Schardt, D.; *Bar Exam: Energy Bars Flunk*. Nutrition Action Healthletter. http://www.cspinet.org/nah/12_00/barexam.html
- ⁴ Hertzler, S.; *Candy Bars Not That Much Different Than Energy Bars for Athletes*. MD Sports Weblog. <http://mdsports.wordpress.com/2007/11/30/candy-bars-not-much-different-than-energy-bars-for-athletes/>
- ⁵ USDA. CNPP. *My Pyramid*. <http://www.mypyramid.gov>
- ⁶ USDA, USDHHS. *Dietary Guidelines for Americans, 2005*. <http://www.cnpp.usda.gov/dietaryguidelines.htm>

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Make Your Own Energy Bars

While energy bars may offer some convenience while on the run, they can be rather expensive, with an average of about \$1 per bar. With a little advanced planning, you can make your own energy bars for about half the price.

Search the web for a variety of recipes for energy, cereal or protein bars. Study the variety of ingredients to look for those that provide the nutritive needs to fit your situation. For example, compare those that use granola and whole grains for sources of carbohydrates. Take a close look at the amount and types of sugar as well. Most bars use dried fruits for natural sources of sugar. Nuts, peanut butter, eggs are also ingredients added for protein sources. Take your list of desired ingredients to the grocery store to read labels before you finalize your choice of a recipe.

Questions:

- Based on the price of the ingredients and the number of bars yielded from the recipe, what is the price per bar for the bars that you made?
- How does this price compare with the prices you would pay in stores for an energy bar?
- Calculate the nutritive values —grams of carbohydrates (including sugar/fiber), fat and protein — and compare the results to your favorite energy bar.



Try this recipe!

Granola Energy Bar

- 1 cup of granola
- 1/2-3/4 cup slivered almonds (or other nut of your choice)
- 1/2 c. raisins
- 1 1/2 ounces, approximately 1/3 cup each of coarsely chopped dried pineapple, dried cranberries or other fruits of your choice.
- 1/2 c. white chocolate chips (or similar product)
- 1 large egg
- 1/2 c. unsweetened applesauce
- 1/3 c powdered milk (optional)

Preheat the oven to 350 degrees. Lightly coat the inside of a 8 x 8 inch pan using a nonstick baking spray.

Mix together the granola, nuts, dried fruit and chocolate chips. Place the egg in medium bowl and beat well, add the applesauce. Stir in the dry milk, followed by the grains, nuts and dried fruit mixture. Spread and press in your oiled pan. Bake for 30 minutes.

Once the mixture has cooled completely, cut into squares, wrap individually or store in an airtight container for 1 to 2 days.



Energy Bars vs. Candy Bars

Brand Name	Net Weight	Calories	Total Fat	Saturated Fat	Protein	Carbohydrates	Fiber	Cost
Energy Bar #1								
Energy Bar #2								
Energy Bar #3								
Candy Bar #1								
Candy Bar #2								
Candy Bar #3								

Which product is the most expensive?

Which product is the least expensive?

Let's analyze. Which product has the highest:

- Net Weight _____
- Calories _____
- Total Fat _____
- Saturated Fat _____
- Protein _____
- Carbohydrates _____
- Fiber _____

Which product has the lowest:

- Net Weight _____
- Calories _____
- Total Fat _____
- Saturated Fat _____
- Protein _____
- Carbohydrates _____
- Fiber _____

So, based on this information, which product do you think would be the best choice for you personally?

Consumer Choices: Energy Efficient Light Bulbs



Introduction and Background

How many times a day do you flip a light switch? Have you ever thought about it? Have you ever thought about how many light bulbs you have in your house or how much electricity they use? When you picture a light bulb in your head, what do you see? Most people probably picture the incandescent light bulb, invented by Thomas Edison in 1879, but a new kind of light bulb is being seen more and more in both homes and work environments. This new light bulb, which you might recognize by its spiral-like shape, is called the compact fluorescent light bulb, or CFL for short.³

In reality, the concept of the CFL is not all that new. The idea actually dates all the way back to 1856 when Henry Geissler, a glassblower and physicist, sealed gas in a metal tube and used an induction coil to excite the gas and create a bluish glow. Later, in 1894, D. McFarlane Moore created a commercial gas discharge lamp, which used nitrogen and carbon dioxide gases to create a pink and white light. Peter Cooper Hewitt, in 1901, created a mercury-vapor lamp that emitted a bluish green glow and was used in photography. Finally, in 1926, Edmund Germer and some of his coworkers used a fluorescent tube coated inside with a fluorescent powder to turn ultraviolet light into a more normal and uniform white colored light. General Electric bought the patent from Mr. Germer in 1938 and brought the fluorescent lamp into commercial application. These are the long slender fluorescent lights that we see in office buildings today.³

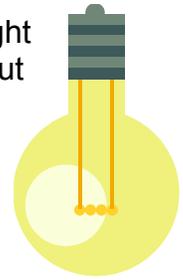


After years of having fluorescent lights in the workplace, these light bulbs are now available in a compact version that is about the size of a regular incandescent light bulb. When CFLs first became available in the early 1980s, they were expensive to make and sold for about \$15 each.⁴ Today, these light bulbs can be purchased for as little as \$1 to \$3 a piece, with the price increasing based on the size, shape, wattage and use of the bulb.

Compact Fluorescent Light Bulbs vs. Incandescent Light Bulbs

In 1992, the US Environmental Protection Agency (EPA) introduced a voluntary labeling system called ENERGY STAR®, which was created to both identify and promote energy-efficient products in an effort to reduce greenhouse gas emissions, which are currently linked to global warming. In order to achieve the ENERGY STAR® status, products must pass rigorous inspections and meet criteria set by the US government.¹

One of the products evaluated by ENERGY STAR® is the compact fluorescent light bulb. Only those CFLs that meet ENERGY STAR® standards receive the label, but there are other CFLs available. According to ENERGY STAR®, approved CFLs use about 75 percent less energy and last up to 10 times longer than the incandescent bulbs. Consumers can also save \$30 or more in electricity costs over the lifetime of each bulb, which are available in different shapes and sizes to fit both indoor and outdoor light fixtures. In addition, approved CFLs produce 75 percent less heat than incandescent bulbs, so they can cut energy costs associated with home cooling.²



Approved compact fluorescent light bulbs are especially useful in fixtures that are turned on for at least 15 minutes at a time or for several hours a day, because continually turning the bulb on and off can result in shortening the life of the bulb. These fixtures can usually be found in places such as family and living rooms, kitchens, dining rooms, bedrooms, and outdoors.⁵

There are a few downsides to CFLs. The first and most obvious is that they initially cost more than incandescent light bulbs. This problem, however, quickly resolves itself when you consider the 10,000 hour life span and the reduced electricity costs. The second problem is that CFLs do not automatically reach full brightness like incandescent bulbs do. While the color and brightness of the two types of bulbs are similar, CFLs can take up to a couple of minutes to reach their full brightness potential.

Caution!



Did you know that CFLs contain trace amounts of mercury? Mercury has been shown to have negative side effects on both people and the environment if handled incorrectly.⁵ Fortunately, the amount of mercury is so small that it can easily be prevented from causing problems with proper use and disposal. In addition, using CFLs actually reduces the amount of mercury being released into the air by power plants because they use so much less electricity than incandescent bulbs. While CFLs contain about 4mg of mercury, power plants emit about 10mg of mercury to produce the electricity to run an incandescent bulb and only 2.5mg to run a CFL for the same amount of time.⁵

For information about disposing of broken CFLs, turn to page 13.



What Does That Mean?

Terms to Look For When Purchasing Compact Fluorescent Light Bulbs⁶

When going to purchase compact fluorescent light bulbs, there are several terms that you should understand:

Lumen

A lumen is the unit of measurement that tells you the brightness of the light issued by your CFL: the higher the number of lumens, the brighter the light. For example, a candle produces only 13 lumens, while a 100-watt incandescent bulb produces about 1,750 lumens.

Watt

A watt is the unit of measurement that tells you how much electrical power is consumed by your CFL. For instance, a 100-watt light bulb consumes 100 watts of electricity in order to function. Different energy use levels may produce different brightness levels, however, so it is not accurate to compare only watts when judging energy efficiency of different light bulbs.



Lumens per Watt (LPW or efficacy)

This is the real measure of energy efficiency. The LPW is the brightness that can be generated by one watt of energy use; the higher the LPW, the greater the efficiency. LPW is calculated by dividing the number of lumens by its wattage. CFLs have much higher lumens per watt than incandescent light bulbs, which is why they are more energy efficient.

Color Correlated Temperature (CCT)

This term refers to the tone of the light provided by the bulb. In other words, it is how “warm” or “cool” the light color is. While the CCT may be indicated by a number, not all packaging displays the CCT number for the bulb. Instead, the CCT may be indicated by words such as “bright white,” “soft white,” or “daylight.” The lower the CCT, the warmer (more yellow) the light color will be. As the CCT number goes up, the cooler (bluer) the light color will be. If you are not satisfied by the color of light produced by your CFL, try buying one with a different CCT.



Types of Compact Fluorescent Light Bulbs⁷

There are many different shapes and sizes of compact fluorescent light bulbs, and each type is designed for specific uses. In order to decide which types of CFLs you should use in your home and in which light fixtures you should use them, it is important to become familiar with the type of CFLs and their uses:

Spiral Bulbs probably look familiar. That's because they are the most popular type of CFL. They emit about the same amount of light as incandescent bulbs while using less energy and can be used in most places in the home that traditional incandescent lights can be used, such as ceiling fans and lamps. They also come in a variety of colors, from warm to cool. Some can be used with dimmers and three way switches, but check the package.



For those who do not like the look of the Spiral bulbs, **A-Shape Bulbs** combine the look of incandescent bulbs with the efficiency of spiral bulbs and can be used anywhere that incandescent bulbs are used. Some can be used with dimmers and three way switches, but check the package.

A **Globe Bulb** is basically just a spiral bulb with a globe-like decorative cover. They provide the same efficiency of spiral bulbs and are ideal for places where the bulbs are seen, such as bathroom vanity bars and ceiling pendant lights.



Tube Bulbs are basically straight versions of the spiral bulbs and were some of the first CFLs qualified by ENERGY STAR[®]. They are especially useful in lamps that have slender covers, such as wall sconces, but can be used in other lamps as well.

Three-Way Bulb are typically spiral shaped and are designed specifically for use in three-way lamps. They are a little larger than their incandescent counterparts and may be a little difficult to install, but they still use only one third as much electricity. They usually come in the Soft White color temperature.



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Candle Bulbs are useful in decorative fixtures where the light bulb can be seen. The shape of these bulbs also makes them useful in tight fitting light fixtures where a covered globe will not fit.

Indoor Reflectors are perfect for recessed ceiling lights in kitchens or ceiling fans. They are much smaller than the outdoor versions, and some can be used with a dimmer, but you must check the packaging to find out.



Outdoor Reflectors are larger than the indoor reflectors and are designed specifically for outdoor use to protect them from rain and snow. They should not be used with photocells, timers, or motion sensors, because this type of use will shorten the life of the bulb.

Only **Dimmable** CFLs can be used with dimmable light fixtures. These come in several shapes and sizes as previously indicated, but you must check the package to make sure that the light bulbs are dimmable. While incandescent light bulbs dim smoothly from 100 percent of their light output to no output, dimmable CFLs dim to 10% to 40% of their original brightness. Also, dimmable incandescent bulbs change from a bright white to a warmer yellow as they dim, but dimmable CFLs maintain light color more consistently.

Purchasing Compact Fluorescent Light Bulbs

For the most part, you should be able to find CFLs anywhere that you can find regular incandescent light bulbs: grocery stores, hardware stores (ex. Lowe's and Home Depot), retail stores (ex. Wal-Mart, Target), bulk purchasing warehouses (ex. Sam's Club, Costco), and online versions of all of these places, just to name a few.

When purchasing CFLs, it is important to make sure that you are getting the most that you can for your money. Many times, if you purchase items in packs of two or more, you may pay less per item than you would if you bought individual bulbs. If you are going to be purchasing a large number of CFLs, checking prices at a bulk purchasing warehouse would be a good idea because they often offer discounted prices with large purchases.



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You should also check prices between different brands of CFLs. If two CFLs are both ENERGY STAR[®] approved and have exactly the same size, shape, use, wattage, etc., and one costs more than the other, you may be paying extra for nothing more than the brand name on the label.

How Do Compact Fluorescent Light Bulbs Work?

In order to understand how CFLs reduce energy use, we have to understand how they function differently from incandescent light bulbs. In traditional incandescent bulbs, there is a piece of resistive wire inside of a glass bulb. An electric current is passed through this wire, which causes it to become very hot and glow. The light gets brighter as the temperature of the wire increases.⁸ A typical incandescent light bulb emits on 10% of its energy as light, while wasting 90% of its energy as heat.⁹

Compact fluorescent lights function in a completely different manner. In CFLs, a long sealed glass tube is either bent into a zigzag or a circular cork screw. The inside of this tube is covered with a fluorite coating and filled with a very small amount of mercury. Each end of the tube has a small heating element that warms the mercury into a vapor, since mercury is electrically conductive. When the electric current flows through this vapor, the atoms begin to move around quickly and give off ultraviolet light. The fluorite coating on the inside of the tube then absorbs the light, causing it to give off visible light, also known as fluorescence.⁸

As a result of the difference in the way that they produce light, compact fluorescent light bulbs use less electricity to function, as well as produce less heat as a bi-product.

How Do I Dispose of Compact Fluorescent Light Bulbs and What Do I Do If a CFL Breaks?

As we found out earlier, CFLs contain trace amounts of mercury and must be handled carefully. The Environmental Protection Agency recommends that consumers take advantage any available local recycling options for CFL bulbs, but many places do not have such facilities. According to EPA, if your state permits it, you should put used CFLs in two plastic bags and put it in the regular outside garbage. Do not incinerate CFLs, because this will release mercury into the air. If an ENERGY STAR[®] qualified CFL has burned out within its warrant period, visit the manufacturer's website and contact customer service about a refund or replacement bulb.²

Remember that compact fluorescent lights are made out of glass and are just as fragile as incandescent light bulbs. In the case that a CFL breaks in your home, there EPA provides specific instructions on how to clean it up. Visit <http://www.epa.gov/mercury/spills/index.htm#fluorescent> to view these instructions in case of a CFL break in your home.

Energy Efficient Light Bulbs - Prepared by Selena Garrison, Graduate Assistant and Michael Gutter, Assistant Professor, Department of Family, Youth and Community Sciences, IFAS, University of Florida. Contents reviewed by Hyun-Jeong Lee, IFAS, University of Florida.

References and Sources

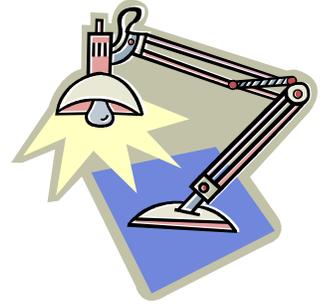
- ¹ ENERGY STAR: *History of ENERGY STAR*; http://www.energystar.gov/index.cfm?c=about.ab_history
- ² ENERGY STAR: *Compact Florescent Light Bulbs*; http://www.energystar.gov/index.cfm?c=cfls.pr_cfls
- ³ *A Short History of Compact Fluorescent Lamps*; <http://www.brightfluorescentlighting.com/history.htm>
- ⁴ *Compact Fluorescent: The Challenge of Manufacturing*; <http://inventors.about.com/gi/dynamic/offsite.htm?site=http://americanhistory.si.edu/lighting/20thcent/invent20.htm%23in4>
- ⁵ Environmental Defense Fund: *Tips for Buying and Using Energy-Efficient Bulbs*; <http://www.edf.org/page.cfm?tagid=609>
- ⁶ Lee, H., Ruppert, K. C., Porter, W. A., & Allen, K. K. (2008). *Energy efficient homes: Fluorescent lightings* (EDIS FCS3262). Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. <http://edis.ifas.ufl.edu/FY1023>
- ⁷ ENERGY STAR: *Choose a Light Guide*; http://www.energystar.gov/index.cfm?c=cfls.cfls_choose_guide
- ⁸ Energy 4 You: *About Compact Fluorescent Light Bulbs*; <http://www.energy4you.net/aboutcfl.htm>
- ⁹ GE Consumer and Industrial Lighting: *Compact Fluorescent Light Bulb FAQ's*; http://www.gelighting.com/na/home_lighting/ask_us/faq_compact.htm#heat_rads

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- p. 11 - Photos of CFL types (spiral, A-shape, globe, three-way, candle) - www.greenmarketfundraising.com
- p. 11 - Photo of CFL type (tube) - www.servicelighting.com
- p. 12 - Photos of CFL types (indoor and outdoor reflectors) - www.greenmarketfundraising.com



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Matching Bulbs with Fixtures

For this exercise, you will have to use the ENERGY STAR® Choose a Light Guide found at www.energystar.gov/index.cfm?c=cfls.pr_cfls. Use this guide to help you determine which types of CLFs will work with the different fixtures in your house. Using the following chart, determine how many of each type of fixture you have in your house, as well as the types of CFLs that can be used with each fixture.

Fixture	Total number in home	How many dimmable?	How many three-way?	Type(s) of CFLs
Ceiling Fixtures				
Recessed Cans				
Pendant Fixtures				
Ceiling Fans				
Wall Sconces				
Floor Lamps				
Motion Detected Outdoor Exposed Fixtures				
Regular Outdoor Exposed Fixtures				
Motion Detected Outdoor Covered Fixtures				
Regular Outdoor Covered Fixtures				

Now, Review Your Findings...

Use the information that you have gathered, as well as the information from your Member Guide, to answer the following questions.

Which type of CFL is compatible with the most fixtures in your home?

Which fixture in your home is compatible with the most types of CFLs?

Which fixtures in your home are used for at least 15 minutes at a time?

Why is it important to know the amount of time that each fixture is turned on when you are choosing between CFLs and incandescent bulbs?

Based on your answers to numbers 3 and 4, would it be economical to replace every incandescent light bulb in your house with a CFL?

Thinking about question 5, which light fixtures in your home would be the *most* economical choices for CFLs?

Why is it important to know whether or not your fixtures are dimmable or three-way?

Why is it important to know if your outside lights are motion detected?

Comparison Shopping



Use the following chart to comparison shop between compact fluorescent light bulbs and incandescent light bulbs. After completing the chart, answer the questions and determine which type of light bulb would be the best choice for your family. Find the following information on the light bulb package:

Incandescent Light Bulbs					
Size/Shape	Price	Watts	Lumens	Lumens per Watt	Lifespan (hrs)
Regular					
Globe					
Outdoor					
Other Type					
Compact Fluorescent Light Bulbs					
Size/Shape	Price	Watts	Lumens	Lumens per Watt	Lifespan (hrs)
Regular (Spiral)					
Globe					
Outdoor					
Other Type					

Now, Review Your Findings...

Which light bulb is the most energy efficient?
(Hint: Look for the highest number of lumens per watt.)

Which light bulb is the least energy efficient?
(Hint: Look for the lowest number of lumens per watt.)

Overall, between incandescent light bulbs and CFLs, which type is more expensive to purchase.

Overall, between incandescent light bulbs and CFLs, which type saves you the most money over its lifespan? (Hint: Divide the price by the lifespan.)

So, from the information that you have gathered, which type of light bulb, incandescent or CFL, would be the best choice for your home?

Consumer Choices: MP3 Media Players

Introduction and Background

How many times a day do you or your friends use an iPod™ or some other brand of MP3 player? It seems that they are all over the place these days, but you have probably noticed that MP3 players are turning into much more than just devices to store and listen to your music. In recent years, MP3 players have evolved into multimedia devices, with features including full color displays, the ability to transfer and view digital photos from your computer, and the ability to playback movies, music videos, and TV shows downloaded from the internet. Some models even allow you to watch videos recorded on your camcorder, download and share content wirelessly over a Wi-Fi connection, and make recordings directly from a TV.¹



With all of the options available to consumers, it is important to understand what features you are paying for when you purchase an MP3 media player. Although iPod is dominating the scene, there are other brands available, all at different prices with different features. There are also different subscription services depending on which brand of media player you purchase. In order to choose which player meets your consumer needs, it is important to look at all the options available and think about the ways in which you plan to use your player.¹

This guide will provide you with an overview on MP3 media players, including a short introduction on the technology, a review of the different options available to consumers, and a discussion about several common brands of MP3 players.

The MP3 Format

While MP3 players have been around for quite a while, many people do not really understand what an MP3 file actually is. Before we move on to more complicated media players, we will go over the basics. In the late 1990s, music distribution was revolutionized by the MP3 file format, at which time, file-swapping services and the first portable MP3 players also made their first appearance.²

MP3 is one method of compressing audio files (in other words, making them smaller), and a similar technology is used to compress video files in much the same way. The MP3 compression system is used to reduce the number of bytes in a song and still maintain CD-like quality to the music. While some of the sound quality may be lost, the compressed files allow you to carry more music on a smaller storage system. The smaller file size also allows for faster downloads from the internet.²



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Let's say that, on average, songs are about four minutes long. If one four minute song was stored on a CD, it would use about 40 megabytes (MB). That same song would use only about 4 MB if it was compressed through the MP3 format. An hour of music in MP3 format uses about 64 MB of storage space, so if you have a 1 gigabyte (GB) (approximately 1000 MB) MP3 player, you can carry about 240 songs. You would have to use around 20 CDs to store the same amount of music!²

While MP3 is the most well known format for audio files, other file formats can also be played on MP3 players. Most players can support multiple different formats, but not all formats are supported by every player. It is important to know which types of formats are compatible with your player. Some of these formats include WMA, WAV, MIDI, AAC, Ogg Vorbis, ADPCM, ASF, and VQF. More information on these different formats can be found through a simple internet search.²

How Do MP3 Media Players Work?

Now you know what MP3 files are and how they are formed, but how does the MP3 media player turn the files into sound and video? Basically, an MP3 player is just a data storage device with software that allows you to transfer MP3 files to the player. While models vary, the typical MP3 player contains several different parts: a data port, memory, a microprocessor, a digital signal processor (DSP), a display, playback controls, an audio port, an amplifier, and a power supply. Most MP3 players use your computer's USB port to transfer the files from your computer to the player through the player's data port.²

Once the files are transferred and stored on your player, you can play them back and listen to them through your headphones. All of this happens through an almost instant process when you press "Play" on your playback control. First, the microprocessor, which is basically the brain of the MP3 player, pulls the song file from the player's memory, uses a formula through DSP to decompress the MP3 encoding, and converts the decompressed bytes into sound waves by running them through a digital to analogue converter. Once the file is changed into sound waves, the amplifier amplifies the analogue signal, which allows you to hear the music through your headphones.² A similar process is used to convert video files into a format that you can watch on your MP3 media player.

Podcasting

Podcasting, a combination of the words "iPod" and "broadcasting," is a service that allows you to pull free audio files from podcasting websites to listen to on your own computer or MP3 player. But, don't be fooled by its name - it's not just iPods that can play podcasts.

Any portable media player or computer can be used to listen to a podcast about the environment, politics, fashion, literature, and any other topic you might want to know about. In fact, podcasts can even be used to listen to missed classes!⁶

MP3 Players with Video Playback³

As we have already discussed, many of the newer models of MP3 players do much more than just play MP3 audio files. On top of listening to all of your favorite music, you can now play back downloaded music videos, movies, and TV shows. Some players even allow you to exchange files wirelessly through built-in Wi-Fi, patch into your wireless network at home in order to connect to your PC, or browse the internet from wherever you are. With all of these options, however, there are a few things to consider when looking for a media player:



Your Internet Connection

Videos take much longer than music to download, so you want to make sure that you have a broadband connection that can download at rates of at least 1 megabit per second. If your connection is slower, your favorite TV show may take more time to download than it does to watch it.

Battery Life

Your playback time may be greatly reduced by watching videos, so you will probably have to recharge more frequently than you would if you were using your player just to listen to music.

Content Compatibility

Not all content will work with every player, so you will want to consider this when looking to purchase an MP3 media player. For example, iTunes™ content currently works only with iPods.

Player Size

Although they have small screens, a lot of video-enabled players are bigger and heavier than models that do not have video playback capabilities.

Screen Size

Typically, MP3 media players have screens that range from 1.5 inches to 3 inches in size, which is relatively small compared to other video-ready products like lap top computers and portable DVD players. If you are going to use your media player to watch videos, you will have to get used to the small screen size.



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Upgradeability

Due to the ever evolving nature of video formatting, it is especially important to make sure that your player has firmware (the internal operating instructions) that can be upgraded so that your player does not become outdated.

What's Available?

The major brands of MP3 players, according to Consumer Reports, are Apple™, Archos™, Cowon™, Creative Labs™, Philips™, RCA™, Samsung™, SanDisk™, Sony™, and Toshiba™; however, there are also smaller companies that have brands on the market. Different brands and models offer different options and subscription services, so it is important to do your research before purchasing an MP3 player for yourself. Some things to consider when looking for an MP3 player are whether you want one with flash memory or hard disk, what features are available, and which subscription services are compatible with your player.¹

Flash Memory vs. Hard Disk

There are two basic kinds of MP3 players dominating the market today: flash memory players and hard disk players. The flash memory player is typically the smaller and lighter of the two, but the hard disk players usually have considerably more storage.²

Flash memory players have no moving parts and are referred to as being “solid state.” They usually have longer audio playback than hard disk players and have storage capacities ranging from 512MB (about 120 songs) to 32 GB (about 8,000 songs). Some models come with memory card expansion slots so that you can add more storage, but the extra cards can cost anywhere from \$15 to \$30.¹ Because they have no moving parts and are smaller in size, flash memory players are very useful to people who like to exercise with their player, as the device is less bulky and the content will not skip if it gets jostled around. Some flash memory players also have photo and video capabilities, and depending on the type of use, batteries can last up to 28 hours.²

Hard disk (also known as hard drive) players are typically bigger and heavier than flash memory players and can hold up to 80GB of music, video, photographs, and data, with some models offering the option of podcast recording. Because of all these options and the hard drive, these players use more power. If you are just listening to music on your player, the batteries can last up to 20 hours, but most will last only six hours if you are watching videos. Unlike the flash memory players, hard disk players have moving parts and might skip if they get jostled around, although some come with anti-skip protection or anti-shock buffers.²



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Features⁴



Depending on the brand and model of MP3 player, you will find different features and options available. Some common features to consider are:

Software - Most players come with software to convert your CDs into a format that can be played back on your player, and all come with software that allows you to move content between your computer and the player by way of a USB connection. While all players work with a Windows PC, only some support Macintosh.

Upgradeable Firmware - As we discussed earlier, firmware needs to be upgradeable so that your player does not become out of date with newer technology, especially on video playback models.

Display Type - Different models have different display features. Most displays at least show the basics: the song title, track number, remaining memory, and battery life. Most also allow you to scroll through a list of tracks, but some require you to look through only one track at a time until you find the one you want.

Color Screens - Most players with color screens allow you to look at pictures in JPEG format, while some allow you look at TIFFs and BMPs as well as lesser-known formats. Many even allow you to view your pictures as a slideshow, complete with music and transitions between pictures.

Screen Size - Screen sizes on MP3 players range from 1.5 to 4 inches wide, so you will want to consider this if you plan on watching videos. Note that larger screens usually mean a bulkier player.

Headphones/Speakers - While almost all players come with headphones, lower quality ones may reduce the sound quality of your music or videos. Some larger players come with built-in speakers.

Video Storage and Playback

All video players come with software that converts unprotected videos into a format that is supported by the player, but only some can play copy-protected videos. Some allow you to hook up to an external display, like your TV, to watch your videos, and with additional accessories, you may even be able to record directly from your TV, cable box, or DVR.

Equalizer

This allows you to adjust the tone of your sound. Some players allow you to individually adjust bass and treble and others come with presets like “rock” or “jazz.”

Playback Controls

All players have at least volume, play/pause, and forward/reverse controls. Most also allow you to set a song on repeat or randomly play tracks on “shuffle” mode.

Other Types of Content

In addition to music, video and pictures, some players also allow you to store and view text and PDF files.

Other Features

Some MP3 players have other features including an FM radio tuner, options for voice recording, and adapters to play music through your car stereo system.

Subscriptions

An important area to consider when purchasing a MP3 media player is how you are going to get your content. While songs can be transferred from your CDs to your computer and then transferred to your player, there are other ways of getting music and video files for your MP3 player through the internet. Just remember that not all content works on every player and that it is important to find out which provider(s) will work with your player.

Since 2007, some record companies have allowed portions of their music to be downloaded without copy protection from online stores such as iTunes™ and Amazon™. Since these songs are unprotected, they can be shared with anyone no matter what brand of MP3 player they have. They also have potentially better sound quality than protected versions because they are recorded at a higher bit rate.¹

Prices of content will also vary depending on which provider you use and whether the content is protected or unprotected. For example, on iTunes, unprotected songs cost \$1.29 in comparison to 99 cents for the copy-protected versions of the same songs. Other internet sources like Wal-Mart™, Best Buy™, and Amazon™ usually charge less than 99 cents for unprotected songs. In general, whole albums usually cost around \$10, while music videos, episodes of TV shows, and short films cost about \$2 each and full feature length movies cost between \$10 and \$15.¹



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Another option is renting content. Usually for flat fee of about \$15 a month, some sights like Napster™ and Rhapsody™ will let you fill your PC with music. If you do not periodically dock your player to a PC that is connected to the internet to make sure that your account is in good standing, the music will stop playing. You can also rent feature films from sites like iTunes™, Amazon™, and Cinema Now™ for less than \$5, although you only have about 24 hours to watch the film once you open the movie file.¹ Before renting anything however, make sure that your player will work with the content. As of now, iTunes™ content only works with iPods™ and Cinema Now™ only works with players that handle Windows formats that are copy-protected.

Price

One of your biggest concerns, of course, is probably the cost of a MP3 media player to fit your needs. Depending on the brand of MP3 player and the features, prices can vary from as little as \$40 for a player such as the 1 GB Creative Zen Stone™ to as much as \$500 for the 32GB iPod Touch™.⁵ You will also want to consider the cost of extra accessories such as cables to connect to a TV if your player can show videos on an external display, protective cases, and higher quality headphones if you want them.

How to Choose¹

With all of the options available, how do you pick which MP3 player is right for you? It all depends on how you will be using your MP3 player and how much you are willing to spend. Consumer Reports suggests several areas for you to consider:

Will you get an iPod™ or another brand?

Although Apple's iPod™ family of players is very widespread and easy to use (due in large part to the excellent combination of iPod players with iTunes software), there are some downsides. For instance, iPods™ tend to cost a little more than players from other brands that have comparable storage capacity. They also do not come with some of the feature offered by other brands, such as an FM tuner, AC charger, or voice recorder.

Will you be watching more or listening more?

If you are going to be watching videos more than you listen to music, you will want a display that is large enough for you to comfortably look at the screen for long periods of time. You will also want to consider what you will be watching and how you will be getting your content (recording from TV, downloading, etc.) to make sure that your player will fit your needs.



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Capacity vs. Size

Capacity refers to the amount of content that you can store on your player, while size refers to how large or small the player is. This is where the distinction between flash memory and hard disk players comes into play. Will you want something that is more compact but has less memory? Or will you want something that is a little larger but can store your whole music collection and a couple of movies?

Download Choices

We discussed this earlier, but you want to make sure that your player is compatible with your content source so that you can actually listen to your music or watch your videos.

Upgradeability

Again, it is important that your player has upgradeable firmware so that you can update it as technology advances, especially for video players.

Headphone Quality

While almost all players come with headphones, some of them can lessen the sound quality that you hear. Most perform pretty well, but if you are very particular about sound quality, you may want to look into buying separate higher quality headphones to use with your player.

Power Consumption and Battery Type

There is a wide variation in battery life between different players, ranging from 9 to 60 hours depending on player settings and uses. Different players sometimes use different batteries; some players use AA or AAA batteries, while many have internal rechargeable batteries that are charged via your computer's USB port.

After looking at all of your options and analyzing your needs and preferences, you should be able to come to a decision that best meets your consumer needs. Consumer Reports (www.consumerreports.com) has information and ratings on 58 models of MP3 players from different companies and is a great resource if you want to have a one-stop place to compare products. The downside is that you will have to pay for a subscription to use the service or find someone who has a subscription and will look up the information with you.

MP3 Media Players - Prepared by Selena Garrison, Graduate Assistant and Michael Gutter, Assistant Professor, Department of Family, Youth and Community Sciences, IFAS, University of Florida. Contents reviewed by Dale Pracht, IFAS, University of Florida.

References and Sources

- ¹ Consumer Reports: *Buying Advice MP3 Players*; <http://www.consumerreports.org/cro/electronics-computers/audio-video/audio/ipods-mp3-players/reports/how-to-choose/index.htm>
- ² K. Bonsor and J. Tyson and C. Freudenrich: *How MP3 Players Work*; <http://www.howstuffworks.com>
- ³ Consumer Reports: *Video in your pocket*; <http://www.consumerreports.org/cro/electronics-computers/audio-video/audio/ipods-mp3-players/reports/video-mp3-players/overview/index.htm>
- ⁴ Consumer Reports: *Important Features MP3 Players*; <http://www.consumerreports.org/cro/electronics-computers/audio-video/audio/ipods-mp3-players/reports/features/important-features/index.htm>
- ⁵ Consumer Reports: *MP3 Players Ratings*; <http://www.consumerreports.org/cro/electronics-computers/audio-video/audio/ipods-mp3-players/reports/ratings/ratings/index-ps.htm>
- ⁶ S. Watson: *How Podcasting Works*; <http://computer.howstuffworks.com/podcasting.htm>



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MP3 Media Players: Identifying Needs and Wants



How would you use your MP3 media player? (check yes or no)

- | | | |
|--|---------|--------|
| To listen to music? | ___ Yes | ___ No |
| To watch full length feature films? | ___ Yes | ___ No |
| To watch music videos? | ___ Yes | ___ No |
| To watch TV shows? | ___ Yes | ___ No |
| To listen to podcasts? | ___ Yes | ___ No |
| To voice-record in class or elsewhere? | ___ Yes | ___ No |
| To view pictures as a slideshow? | ___ Yes | ___ No |

When would you use your MP3 media player? (check yes or no)

- | | | |
|---|---------|--------|
| When you commute to school or work? | ___ Yes | ___ No |
| When you exercise? | ___ Yes | ___ No |
| On long trips? | ___ Yes | ___ No |
| Several different times throughout the day? | ___ Yes | ___ No |

Based on your answers, which options are the most important to you when purchasing an MP3 media player? (Think about battery life, media options, screen size, etc.)



Conduct Your Own Consumer Report

Identify 3 people that own different MP3 media players and interview them using the following questions, as well as any questions of your own.

What make and model of MP3 media player do you own? _____

How long have you had your MP3 media player? _____

How many hours, on average, does your battery last? _____

Does your MP3 media player have both audio and video playback? _____

If so, do you use your MP3 media player more for watching or listening? _____

What other features are included in your player? _____

Are you satisfied with the sound and visual quality of your player? _____

On average, how many hours a week do you use your MP3 media player? _____

What is the storage capacity of your player? _____

If you were shopping for MP3 media players again, would you purchase the same make and model or choose another option? _____

If you could change one thing about your MP3 media player, what would it be?

Overall, are you satisfied with the features and quality of your MP3 media player? _____

Additional Questions:

Conduct a Tech Review



Go online or on foot to your favorite electronics store and do some research on MP3 media players. Use the following chart to help you keep track of the features offered by at least five different players.

Brand and Model	Price	Storage Capacity	Audio Playback Formats	Battery Life	Screen Size	Flash or Hard Disk	Color Display?	Video Playback?	Slideshow Compatible?	Voice Recording?

In this space, identify any other features that are important to you, and which players offer them.
Player Make and Model

Now, Review Your Findings...

How did the players compare in price?

Which brands were more affordable?

Which brands offered more types of players from which to choose?

Which players did you like best? Why?

Which product has the most features for the price?

Based on your needs and wants that were identified in the Activity 1 Worksheet, as well as the data that you have gathered here, which of these MP3 media players would be the best choice for you, personally?

Consumer Choices: Savings Accounts

SENIORS



Introduction and Background

Have you ever had a piggy bank? When you were younger, or even now, you may have dropped your spare change into your piggy bank, saving for a specific item or just in case something came up that you wanted to purchase. When the time came to spend the money, you opened the piggy bank, counted up the change, and decided whether you had saved enough money to buy the item you wanted. This is the most basic way to save money; you keep it with you, keep count of it yourself, and you take out the same amount of money you put in.

Another way of saving, which is beneficial no matter how young or old you are, is to place your money in some sort of bank account that will gain interest. We will discuss interest and how it works later, but this is basically money that the bank puts into your account based on the amount of money that you have in your account.

Choosing a savings account or a different investment opportunity may be difficult, especially for young people who are doing so for the first time. Because everyone has different goals and different amounts of money to contribute, there is no one solution that is right for everyone. Options that may be interesting to you include passbook savings accounts, high yield savings accounts, certificates of deposit, or money market accounts, depending on how much money you are willing to invest and how quickly you will need to access your money. This guide will help you make informed decisions about what type of savings you would like to utilize.

Why Save?



There are many reasons why you should save money, but the most important reason is that it can help you develop good saving and spending practices that will be helpful to you in the future. Saving early in life is very important; money in interest bearing accounts grows through interest. The longer money is saved, the greater the impact of compound interest on your money. This is known as the time value of money and the earlier you save for things, the more you will end up with over time. You should also save so that you will have money to buy things that you want in the future, like a video game, a DVD, or supplies for your favorite hobby. Whatever you are saving for, it is important to set specific goals for what you want, set a time limit on those goals, and determine how much money will be needed to meet those goals. As you get older, the timeframes for different types of goals may change.

Short term goals are for things that may be happening in the next few days or weeks, such as saving for a new pair of shoes or new sunglasses. For adults, short term goals usually happen within a year.

Intermediate goals are for things that may be happening in several weeks or a few months, such as saving to go to a special summer camp or for buying a new MP3 player. For adults, intermediate goals usually happen within 1 to 3 years.

Long Term Goals are for things that may be happening in several months or a few years, such as saving to buy a car or to pay for college. For adults, long term goals usually happen within 3 or more years.

It is also a good idea to have some extra savings set aside for unplanned expenses or emergencies. Experts set different levels of money that adults should have saved for emergencies, like medical bills or house repairs. Teenagers, on the other hand, may want to have enough money saved for minor car repairs or unplanned outings with their friends. Younger kids may not really need this; just having any savings at all is a good start. Even if they do not need to buy things, learning the habit of saving is a valuable skill to build, and given the time value of money, starting early is always a good thing.



How Much to Save?

How much you decide to save will probably depend a lot on your savings goals, but a general rule is to save about 10% of your income. This does *not* mean that you should save ten percent of the money that you have left over *after* you buy everything else that you want. It means that as soon as you get your allowance or paycheck, you should **pay yourself first** by putting a percentage of it into savings. After you do that, you can use the leftover money on everyday expenses.

Key Terms

Now that we have gone over why to save and how much to save, we are going to discuss where to save. Before we do that though, look over these key terms. You can refer back to these terms throughout the rest of this guide to help you understand financial institutions, savings accounts, and how they work.

Teller - A teller is a person who is an employee at a bank or other financial institution and works with customers to receive deposits and give out withdrawals.

ATM - An Automated Teller Machine (ATM) is a computer-run machine that is usually located outside of a bank or credit union and performs many of the functions that can be performed by a human teller.

Deposit - A deposit is money that you put in to your account.

Withdrawal - A withdrawal is money that you take out of your account.

Transfer - A transfer is money that you move from one account to another.

Principle - The principle is the amount of money that you or someone else personally puts in to your account. (Ex. You open your account with \$5. Your principle is \$5.)

Account Balance - Your account balance is how much money you have in your account.

Interest - Interest is the money that the bank puts in to your account –as “rent” on the use of your money while it is deposited in their bank.

Interest Rate - This fee for lending them your money or “interest” is based on a percentage of your account balance. (Ex. You put \$5 into your account. The bank pays you a 1% interest rate (5 cents) and places that into your account. You earned 5 cents interest on your \$5.00)

Simple Interest - Simple interest is interest that is gained based only on your principle.

Compound Interest - Compound interest is interest that is gained based on the total amount of money that is in your account, including both your principle and previous interest that you have gained.

Compounding Method - Interest can be compounded daily, weekly, monthly or yearly. The amount of interest you gain will be affected by the compounding method. Daily compounding will produce the highest amount of interest.

APR - The annual percentage rate (APR) represents the true cost of debt per each year.

APY - The annual percentage yield (APY) represents the true return on a savings account per each year.

Statement - A statement is a list of deposits, withdrawals, and transfers from your account that the bank sends you every month. It also includes your account balance.

Minimum Balance - Your minimum balance is the least amount of money you are allowed to have in your account; in other words you need to always have at least this much in your account.

Fees - Fees are charges that your bank makes against your account for different reasons, including going below your minimum balance or using certain services.

Choosing a Financial Institution



The first step in opening up a savings account is choosing which bank you would like to work with. Since there are probably several different banks in your community, choosing just one may be a difficult task. To do this, there are several different factors that you may want to consider.

The first thing to consider is what type of financial institution you would like to work with. While there are several different options, including Savings Banks and Savings and Loan Associations, the two options you will likely be looking at are Commercial Banks and Credit Unions. Both usually offer services such as checking accounts, savings accounts, credit cards, and ATMs. So what is the difference?

Commercial Banks are privately owned by corporations and are chartered by either the federal or state government.¹ (A charter is a document that outlines the conditions under which the bank is organized, as well as the rights and privileges of the corporation).² Commercial Banks are also insured by the Federal Deposit Insurance Corporation (FDIC), which insures each account up to \$100,000. This means that if you have \$100,000 or less in your account, your money is completely protected. You can find almost any kind of banking service at a commercial bank, including checking accounts, savings accounts, investment services, safe-deposit boxes, financial counseling, credit cards, automatic transfer of funds, and loans.¹



Credit Unions are owned by their members, and membership is restricted to people who have something in common, such as people living in a specific location, employees working for the same employer, members of a certain organization, etc. Members bring all of their resources together to provide funds or loans to one another. Many Credit Unions offer the same services as Commercial Banks and usually offer low or no fees. Like Commercial Banks, Credit Unions are usually chartered by either the federal or state government. Those with federal charters are insured through the National Credit Union Association (NCUA) up to \$100,000. Those with state charters are either insured by NCUA or other state-approved programs.¹



The second factor to consider is the types of accounts offered by the financial institution. There are several different types of accounts available, and understanding what they are will help you when deciding which bank or credit union to use. Let's go over several different saving options:

Basic Savings Account

A basic savings account will allow you to deposit money and gain a low interest rate. This type of interest-bearing account allows you to make withdrawals, but the number of withdrawals you are allowed each month may be limited. Savings accounts may be linked to checking accounts so that you can transfer money between the two. We will go over checking accounts a little later. Many banks offer either passbook savings or statement savings. With passbook savings, you record your deposits, withdrawals, and transfers in a record book that you keep. With statement savings, the financial institution mails or emails you a statement that shows you all of your deposits, withdrawals, and transfers that month. Like other accounts, there may be some fees associated with savings accounts, and you may have to maintain a minimum balance.³

High Yield Savings Account

A high yield savings account is much like a basic savings account except that you usually have to maintain a higher minimum balance. It is also common that banks will give you a higher interest rate when you put greater amounts of money into your account. Usually, you are not allowed to use checks with this type of savings account, but you can usually link it to a checking account to make deposits and withdrawals.⁴

Student/Senior/Special Accounts

Some banks offer special accounts to children, students, senior citizens, or for special occasions. Usually these accounts do not have any fees, and they may include benefits like free checks, use of ATMs, and other perks.²

Custodial Accounts

Many financial institutions require that people under the age of 18 have a parent or legal guardian cosign on their accounts. By cosigning, the parent or legal guardian has full access to make deposits to or withdrawals from the account.

Money Market Accounts

These accounts are for people who want their money to earn a higher interest rate than an ordinary savings account. While the interest rate can fluctuate (change over time), it is usually higher than a basic or high-yield savings account. Along with the higher interest rate, however, comes a higher minimum deposit and minimum balance requirement (about \$1000-\$10,000 depending on the financial institution). One unique feature is the ability to write checks directly from this type of account, however, there is a monthly limit on the number of checks that can be written.^{3,5}

Certificates of Deposit (CDs)

Certificates of Deposit provide a guaranteed interest rate for a specific amount of time. Most banks offer different options depending on the amount of money you have to deposit and the length of time you would like to keep it in the CD. The interest rates usually increase with larger amounts of money and longer time periods. Once you have chosen a time period, ranging from months to years, you have to leave all of the money in the account or pay a fee to withdraw it before the time period ends.³

Checking Accounts

With the exception of interest-bearing checking accounts, which require a high minimum balance, checking accounts do not gain interest. This type of account is for someone who usually keeps a low balance and uses their account for daily expenses and paying bills. To avoid fees, some accounts require certain conditions, like a low minimum balance. Checking accounts can usually be linked to another account, such as a savings account. Types of checking accounts include interest-bearing, joint, express, and no-frills checking.³

Marketing of Savings Accounts

If you watch commercials on TV or listen to them on the radio, you probably have seen or heard advertisements for different banks or credit unions. Phrases such as “free checking,” “no monthly fees,” and “high annual percentage yield” catch the attention of consumers and draw them in to find out more about such accounts. Not to say that financial institutions try to trick consumers, but it is very important that you read the fine print before opening an account. Sometimes there are strict guidelines that must be followed if you want to claim all of the rewards offered by such accounts.

Choosing an Account

Now you know the different kinds of financial institutions and the different types of accounts available, but how do you choose which account is right for you? With all of the different options you can choose from, there are a few factors you should look at to determine which account will best suit your needs.



Interest Rates are one of the first things you will probably want to look at as you compare different accounts. On some accounts, there may be higher introductory rates that last for a certain amount of time, with the rates dropping lower when that time period comes to an end. You may also notice when you are looking at accounts that the interest rate is lower than the Annual Percentage Yield (APY). This is because the APY takes into account the total amount of interest that you will gain in that year, including compound interest.

You will also want to make sure that the **Minimum Balance** is one that you can afford. Although accounts with higher minimum balances may offer higher interest rates, you have to remember to at least have that amount of money in your account at all times. If you know that you will not be able to keep a large amount of money in your account, you should look for one with a low minimum balance or no minimum balance at all.

Next, consider how **Accessible** your money is. That means how long will it take for you to get your money out of your account if you need it. Ask questions such as how long does it take to get from your home to the bank and how many deposits and withdrawals you can make each month. If you need instant access to your money, a Money Market account or CD is probably not your best fit, because these types of accounts present some barriers, such as limited withdrawals and time restraints, which make it more difficult to access your money. Regular savings accounts do not usually have those barriers, and accessibility may become even easier if you link your savings account to a checking account.

You will also want to find out if your financial institution offers **Special Accounts for Students**. Many banks offer student savings accounts that have low or no minimum balance, as well as checking accounts that have limited or no fees. Also ask about free checks, ATM use, and special interest rates. If you are saving for college, ask if they have special accounts for that purpose. You may be surprised at what you find!

Lastly, you will want to look over all of the **Account Guidelines and Fees**. While one account may have a higher interest rate, the fees may outweigh the benefits. Take a careful look at each account to make sure you are willing to accept the guidelines and fees before making a commitment.

The Bottom Line

When looking for a savings account, you need to make sure to weigh all your options and choose a plan that best fits your personal situation. Just like with any other consumer product, it is important to shop around, online or on foot, to find the best deal that will provide you the most for your money. Remember that when you open an account, you are not making a lifetime commitment; if you discover another account that fits your needs better, you can always change banks and accounts. If you set savings goals and pay yourself first, you will be well on your way to a sound financial future.

Savings Accounts (SENIORS) - Prepared by Selena Garrison, Graduate Assistant and Michael Gutter, Assistant Professor, Department of Family, Youth and Community Sciences, IFAS, University of Florida. Contents reviewed by Michael Gutter, IFAS, University of Florida.

References and Sources

¹ Torres, N.I. *Banking Your Dollars*; EDIS FCS7015. <http://edis.ifas.ufl.edu/HE159>

² Dictionary.com. <http://dictionary.reference.com/>

³ Metlife™. *Choosing a Bank*; <http://www.metlife.com/Applications/Corporate/WPS/CDA/PageGenerator/0,4132,P1635,00.html>

⁴ LendingTree.com™. *Tips for Choosing a Savings Account*; <http://www.lendingtree.com/smartborrower/Managing-your-money/Tips-for-choosing-a-savings-account.aspx>

⁵ BusinessDictionary.com. <http://www.businessdictionary.com/>

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Setting Savings Goals

Use the chart below to set your short-term, intermediate, and long term savings goals. Include what the goal is, a time by which you want to complete the goal, and the amount of money the goal will cost. You can choose more than one goal for each category.



	Goal	Date To Be Completed By	Estimated Cost
Short Term (A few days to a few weeks)			
Intermediate (Several weeks to a few months)			
Long Term (Several months to a few years)			

1. How much money would you need to save each day to meet your short-term goal(s) by the time you want? _____
2. How much money would you need to save each week to meet your intermediate goal(s) by the time you want? _____
3. How much money would you need to save each week to meet your long term goal(s) by the time you want? _____
4. Based on your current allowance or income, is it possible for you to meet all of your goals? _____
5. What are some ways that you can earn extra money to reach your goals?



Comparison Shopping for Savings Accounts - Seniors

Use the following chart to compare accounts at two different financial institutions in your community. Preferably, you should compare a bank and a credit union, but if there is no credit union in your community, choose two banks instead.

Name of Bank:

Type of Account	Interest Rate	APY	Compounding Method	Minimum Balance to Open	Minimum Balance to Avoid Fees	Monthly Service Fees	Check Writing (Y/N)
Savings							
CD							
Money Market							

Name of Bank:

Type of Account	Interest Rate	APY	Compounding Method	Minimum Balance to Open	Minimum Balance to Avoid Fees	Monthly Service Fees	Check Writing (Y/N)
Savings							
CD							
Money Market							

Using the Rule of 72

Use this rule to answer the following questions. You can use a calculator or pencil and paper to solve the equations.

The rule of 72 is a mathematical equation you can use to figure out how long it will take you to double your money depending on your interest rate.

The equation looks like this:

$$\frac{72}{\text{Your Interest Rate}} = \text{Years to DOUBLE your money}$$

For example, if your interest rate is 6%, it will take you 12 years to double your money, because 72 divided by 6 is 12!

Try it out!

How many years will it take you to double your money if you have an interest rate of 2 percent?

How many years will it take you to double your money if you have an interest rate of 4 percent?

How many years will it take you to double your money if you have an interest rate of 8 percent?

What interest rate will you need in order to double your money in 8 years?
(Hint: Change the equation to look like this: $72/\text{years to double your money}=\text{interest rate}$)

Time Value of Money - Growing \$100



The following table illustrates how money can grow over time, depending on the interest rate.

# of Years	1%	2%	5%	10%	15%
1	\$101.00	\$102.00	\$105.00	\$110.00	\$115.00
5	\$105.10	\$110.41	\$110.25	\$161.05	\$201.14
10	\$110.46	\$121.90	\$162.89	\$259.37	\$404.56
20	\$122.02	\$148.59	\$265.33	\$672.75	\$1636.65
50	\$164.46	\$269.16	\$1146.74	\$11,739.09	\$108,365.74

Future Value of \$100 Compounded Yearly

As you can see from this table, the higher your interest rate and the longer you leave your money in the account, the larger your money will grow. Use this table to answer the following questions.

If you put \$100.00 in your savings account at 2% interest, how much will that same dollar be worth in 5 years?

To turn \$100.00 in to \$672.75 in 20 years, what interest rate would you need?

Imagine that you deposited \$1000.00 instead of \$100.00. Approximately how much money would you have at the end of 50 years if you had an interest rate of 5 percent?
