

Trail Foods

If you are planning a hiking, camping, or backpacking trip you will need to plan which foods to take along. You can use a lot of energy when taking part in these activities, so you will need to think carefully about the foods you plan for your trip.

Carbohydrates come in two basic forms: complex and simple.

- Complex carbohydrates will provide you with energy over a long period of time. Whole foods with complex carbohydrates like whole grain breads, pastas and cereals and other whole grain snacks provide long term energy.
- Simple sugars will provide you with fast energy, but your body will burn them quickly. Chocolate, candy and powdered drinks are examples of simple sugars. Simple sugar foods are ok for a quick pick me up, but plan to choose more nutritious foods for the long run.

Protein foods provide more energy over a longer period of time. Your body burns proteins more slowly than carbohydrates. Protein foods include nuts, beans and meats, fish and poultry. Protein is vital for muscle and tissue repair, which is necessary for an active lifestyle.

There are eight criteria for choosing foods for the trail.

1. They must be easy to prepare. You won't have room to bring along a lot of tools for cooking so they must be simple.
2. The second is to keep your budget in mind when preparing food. You can plan menus for the least cost while still getting the nutrients you need along with great taste.
3. Another criterion is to make sure your food is non-perishable. You will have no refrigeration on the trail so take foods that don't have to be kept cold or that won't spoil easily.
4. Including food from a variety of the MyPyramid food groups will provide you all of the nutrients you need for a healthy lifestyle.
5. Choose foods that taste good to you. The better they taste to you the more likely you will be willing to eat them to get the energy you need.
6. Since you will have a lot of physical activity on your journey, choose foods that will give you the energy you need to keep up to others on the trail. Foods high in energy will meet your exercising needs.
7. Think about how much space the food might take up in your backpack and how heavy the food will be to carry when planning foods for the trail. You don't want to worry about having to carry a lot of weight either in your backpack or on your bicycle.
8. Finally think about packaging. You might not have places to throw out your garbage. Fruits are biodegradable and animals will eat the leftovers. Plan for foods and packaging that will not harm the environment. Fruits are a good example of a food that will either be eaten by animals or will break down in the environment. Also plan to take food out of store packaging and repack it in plastic storage bags. The plastic storage bags are lightweight and can be stored in your pocket or backpack until you get home and they can be disposed of properly.

Always remember to bring along enough water. Plan for 3-4 quarts of water per person per day.

According to the Outdoor Adventures 4-H project the following foods are good choices to take out on the trail. They are light weight and will not spoil quickly. They are high in the nutrients you need each day and give you energy.

Protein Rich Foods

Peanut butter
Cheese
Powdered eggs
Jerky
Beans and legumes
Canned chicken and tuna

Carbohydrate Rich Foods

Bagels
Crackers
Pita bread
Mountain bread/flour tortillas
Pasta
Oatmeal
Fresh fruit

Nuts and seeds (contain a healthful balance between carbohydrates, fats and protein)

Fat Rich Foods

Cheese (also good source of protein)
Oils

Carbohydrates-simple sugars

Hard candies
Chocolate
Powdered drink mixes like lemonade

Important Note:

There are many people who have nut and peanut allergies. Make sure the foods you bring along contain no nuts or peanuts or have not been processed with nuts. Read the food labels to make sure there are no references to peanuts or nuts like walnuts, cashews, almonds, or pecans.

Jeans 2006

Jeans, both traditional ones and slacks with a jeans-like appearance, are popular for all family members. They are usually worn as casual wear for all ages and both sexes. Available in a variety of styles, colors, fabrics and prices, jeans provide a real challenge to the comparative shopper. Good cotton denim jeans are durable, comfortable, economical and easy-to-care for.

What Fibers Do Jeans Contain?

The label and hangtag on a pair of jeans tells the consumer a lot. You may choose 100% cotton or blends such as 50% cotton with 50% polyester, and occasionally 50% cotton with nylon and polyester fibers. Nylon blends add stretch and comfort.

Polyester contributes durability, dye stability, shrink resistance and wrinkle resistance. Ease of care in laundering as well as shortened drying times result from the presence of the polyester fiber. Many dyes used with polyester are very stable and retain the rich indigo blue color through repeated washings, more so than dyes used for 100% cotton. A new, cellulosic – based fiber, Tencel, is being introduced in denim blends with polyester. Jeans made of a blended cotton and a man-made fiber, such as nylon or polyester, will require little or no ironing. Nylon added to cotton reinforces denim and increases abrasion resistance. All man-made fibers are sensitive to a hot iron.

100% cotton jeans tend to be the most comfortable, the softest and most absorbent. All cotton jeans also become softer to the touch as they are worn and laundered. And, all cotton jeans do not pill (form fuzzy balls which cling to the surface) rapidly.

What is Denim?

Jeans have traditionally been made of 100% cotton because of its sturdiness and durability. Denim refers to fabric construction of twill woven fabric, not to an actual fiber. Lengthwise yarns are dyed indigo or blue/black and crosswise yarns are white. The yarns are twisted so tightly that the indigo dye doesn't always penetrate, leaving the core of the fabric white. As the fabric abrades or wears away during use, the white cotton yarn surface appears, giving denims a lighter or medium blue color.

Denim is traditionally defined as a “washable, inexpensive, strong, twilled cotton cloth made of a single yarn.” Denim cloth is traditionally made of indigo blue-colored warp and white filling yarn.

ADVANTAGES OF 100% COTTON JEANS:

- They are the most comfortable, softest and most absorbent
- They become softer to the touch as they are worn and laundered.
- They do not pill readily (fuzzy balls that cling to the surface of fabric).

DISADVANTAGE OF 100% COTTON:

- High shrinkage

DISADVANTAGES OF BLENDED JEANS

- They remain relatively stiff after wearing and laundering.
- They tend to pill rather easily

Distressed Denim

The fashion look in jeans is distressed denim. Identified by several terms including acid washed, stonewashed, ravaged, aged, white washed, bleached, super bleached and simply prewashed, the resulting fabric features a pre-worn look. Treatments give softer hand, more texture, color variation from frosted, bleached light to faded looks, and distressed edges. Years ago consumers would break in their own denims by wearing and laundering. Now, the trend is to buy jeans already broken in.

Distressed denim, often identified by the terms "acid washed" or "washed," is achieved through chemical (bleaching), mechanical (rubbing or abrading), or a combination of both processes. Most distressed jean looks are achieved by some variation of tumbling denim fabric with special pumice stones soaked in a bleaching agent called potassium permagnate. Different sized stones create varying effects. In addition to the bleaching effect, both the pumice stones rubbing the fabric surface, as well as the laundry action itself soften the fabric and abrade or create a worn look on the fabric surface. A deep rinse is needed to remove excess bleach in the fabric. If not removed, fabrics can yellow when exposed to warm water, detergent, heat from the clothes dryer, or sunlight. The damage is permanent and cannot be removed. Although the term "acid washed" is sometimes used to describe this fabric, no acid is used in the process.

Stonewashing is time consuming and expensive, which is reflected in the cost of garments made from these fabrics. As a result, consumers will pay more for distressed jeans than similar jeans made from traditional denim fabric. Some manufacturers estimate that chemical treatments add \$11 to the cost of a pair of jeans, while stonewashing adds an additional \$3.

New processes are being developed to achieve the same effect at lower costs. Sandblasting is a process which projects particles at denim fabric under controlled pressure settings. The treatment is more mechanical and abrasive than chemical. Another approach uses enzymes which break down cotton fibers used in denim, causing the highly twisted yarns to release indigo dye and soften.

Regardless of the method used to produce distressed denim, durability is decreased and the life of the garment shortened. Excessive bleaching and abrading weaken fibers and may cause holes to form and seams to break after a few wearings. It is estimated that

"acid wash" processing is equal to 25 home launderings. Shrinkage becomes less of a problem in the purchased garment, however, since the "acid wash" or other processes also pre-shrink the fabric.

Several products or kits are now available to consumers who want to "distress" their own denim fabric. All systems use some type of mild bleaching action or mechanical abraders such as a pumice stone for rubbing, or emery boards. These processes may not be as harsh as commercial treatments, but still lower the garment's durability and wear life.

Denim producers also use special or irregular yarns and spinning techniques to give denim a cleaner appearance and softer, loftier hand than traditional denims. Some result in an "antique" look without distressed edges. Or, a variety of finishes, such as sandblasting and stonewashes, are used to enhance the antique or worn looks.

What Does a Consumer Look For?

Shrink Resistance

Jeans should be shrink resistant to 1 to 2 percent. If the label does not guarantee this, buy a larger size to allow for shrinkage in washing and drying. Shrinkage of more than 2% will result in a size change. Some consumers like jeans that are not preshrunk to permit "form fitting" (wetting the jeans and allowing them to dry on the body). Jeans made from polyester/cotton blends should be more stable or shrink resistant than jeans of 100% cotton. Special finishes, such as Sanforset, applied to some cotton jeans, control shrinkage as well as reduce puckering and wrinkling. Those which have received "acid wash" or other rinsing treatments or "washes" are preshrunk during processing. Consider these factors when determining the size to buy.

Styling

Jeans, jeans, and more jeans! Do you want basic cut jeans or jeans with special detailing? Do you prefer products made by a particular manufacturer or designer jeans? Do you prefer classic, full cut, or high fashion styles? Straight leg, button-fly, flared cut, boot cut, western style, Capri, carpenter, cargo.... the list goes on and on.

The leg width adds a fashion detail and influences garment fit. Straight leg, boot cut, flare, and soft slack silhouettes are choices available on the market, plus some novel styles. For instance, straight leg pants for men measure 20 inches at the knee and 20 inches at the leg bottom with a fitted seat and thigh area. The boot cut is a modified flare with a 19-inch knee to a bottom width of 21 inches. The flared silhouette is approximately 21 inches at the knee with a 23-inch bottom. The soft slack is fuller, with a 23 2/3-inch knee tapering to a 19-inch bottom. Thus, the jean leg style, such as straight or flare, and the amount of flare will vary.

Fashion and styling details are given more attention by designers, as reflected in market offerings with much styling variety beyond traditional jeans looks. Oversized, baggy models in various washes and with localized abrasion are newer offerings. Other looks are achieved in pleats, tucks, special yoke insets of contrast or shape, button treatments, and pocket designs.

Fashion detailing is evident in pockets, especially hip pockets. Pocket shape, top-stitching pattern and other trim ideas are varied to create interesting and distinctive garment detail; however, some companies promote plain pocket jeans. Four- and five-pocket styling dominate the jeans market.

Name clothing designers are creating jeans for all members of the family. In some cases there are special or subtle decorating details, such as designer initials on snaps or nail head reinforcements, embroidered signatures, or symbols on watch or hip pockets. Some designers make cuts for fuller figures or body builds while others cater to persons with slender bodies. New trademark names for various fit/cuts highlight focus on how jeans fit; including adjusting cut or offering more ease in menswear and womenswear. Consumers have cited satisfaction in fit as a reason why they select a particular brand or designer style. Designer jeans tend to be more costly. Evaluate features and make comparisons.

Other features are stretch waistbands for men's pants that give and adjust as the individual moves or bends. Also, styles may have half-elastic back or side elastic inset waistbands for children's smaller sizes and to contour Misses' and Women's jeans. Other details are self or decorative belts and decorative appliques.

Color choices include traditional indigo blue or black to frosted, washed, powdered lights or dark washes. More color interest in denim is seen in fashion colors: brown, tan, wheat, gold, brick red, olive, purple, and teal. A few companies offer vivid colors such as bright turquoise, fuchsia, and even orange. By the mid-nineties, manufacturers are expected to introduce tinted neutrals and soft hues such as straw yellow, terra cotta, and stone. Deep tones and overdyes add to the mix. The use of various color thread for top stitching can add decorative detailing. Instead of matching thread, orange, white, or light blue thread is used on blue denim.

Construction

The way jeans are cut, put together and finished will influence their appearance and durability. Since you will wear jeans often, the garment must be made well. In general, check for smooth, straight stitching, even stitch length, and threads secured at ends of stitching. Extra stitches, bar tacks, or rivets serve as reinforcements at places of stress - belt loops, at pocket openings and below the zipper.

Consider these details:

Waistband - A waistband made of two or more layers of fabric will reduce stretching in the waist area. The ends should be carefully folded back with the ends enclosed (rather than overcasts) and stitched down to prevent fraying. It should be attached to the body of the jeans with two rows of stitching for added durability. If the jeans have no waistband, look for interfacing (an extra layer of firm fabric sewn into the waist seam for stability).

Placket - The fly area, whether with zipper or buttons, should be faced or of a double fabric thickness. Look for straight, secure stitching and at least one bar tack to reinforce the bottom of the placket. The fly facing or shield should be tapered and reinforced with tacking or fabric tape. The zipper should be sturdy enough for the garment fabric and of

adequate length to easily put on jeans. Be sure the zipper has a secure lock feature. That is, the zipper glide should remain in place at the top when stress is applied.

Seams/Stitching - Flat fell seams have two rows of stitching and are enclosed on both the outside and inside of the jeans (Figure 1, a). Seams of this type leave no open seam allowances to unravel during wear and laundering. Check to be sure seams are smoothly constructed and firmly stitched. If seams are not flat fell, be sure the seams are serged (overcast with thread) to cover the raw fabric edges and thus prevent raveling. (Figure 1, b). Check the joining of seams at crotch and yoke areas. The joining should be accurate and seaming properly finished for a smooth garment appearance and durability.

Reinforcements - Look for thread bar tacks or rivets at places of stress like corners of pockets, belt loops and the bottom of the zipper placket (Figure1, d). Bar tacking is defined as “a close series of stitches crossing a piece of cloth in order to reinforce it at a point of concentrated strain.”

Zipper – The zipper will be more durable if the fabric on both sides has been turned under and stitched. Because denim fabric is so heavy, a metal zipper offers more durability than a nylon zipper (Figure 1, e). The zipper track should be ¼ inch wide. Be sure it has a self-locking pull. That means the zipper glide should remain in place at the top when stress is applied. The zipper should be adequate length to comfortably put on the jeans. The bottom of the fly should be reinforced for extra strength. The fly should be faced or be made of a double-fabric thickness.

Belt Loops - There are three important factors concerning belt loops that one should consider before buying any pair of jeans:

- a. the number and arrangement of the loops is important for wearing comfort. If there are only three belt loops across the back of the pants, one at each hip and one in the middle, the belt will tend to “pull up” on the middle loop causing the pants to be uncomfortable and unsightly. The belt will also lose its good appearance after a time. A total number of 6 or 7 loops with 4-5 loops across the back is preferable.
- b. How the loops are attached to the jeans – for maximum durability, all belt loops should be bar tacked at the top and bottom. Belt loops sewn into the waistband can be torn out relatively easily.
- c. The size of the belt that the jeans can accommodate. Belt fashion widths vary from year to year. Be certain the loops will accommodate your favorite size of belt.

Other details - Decorative detailing, such as embroidery, contrasting pocket insets, or piping, should be evenly and smoothly applied. Buttonholes should be stitched closely, with no loose threads or exposed edges. Quality pockets have edges carefully turned under and have been placed evenly and securely on the garment. Lining or pocket fabric should be durable, with edges finished. Hems should be even, flat and securely stitched.

Sizing

Men's jeans are sized according to waist and inseam measurements. Jeans for girls and women are sized by waist and hip measurements. Boy's jeans come in slim, regular and husky. *Children's jeans* are sized by waist and height measurements. If girls wish to purchase men's jeans, they should refer to special retail charts available at stores, in retail catalogs or on some product charts for sizes. Use women's hip measurements to compare with men's waist measurements on chart. Remember, a girl's waist-hip contour and proportion differs from a man's. When buying jeans made for the opposite sex, try them on before purchasing.

Care

Most jeans have a sewn-in label. Read it and follow the directions.

Jeans are usually machine washed in warm water. Wash dark colored jeans with your other dark clothes. Reds should be washed separately; pastel and white jeans should be put in with the regular wash.

Color from jeans may rub off onto other fabrics, especially when they're new. Check this carefully to protect your upholstered furniture and remember to launder them separately to protect other clothing items from being discolored.

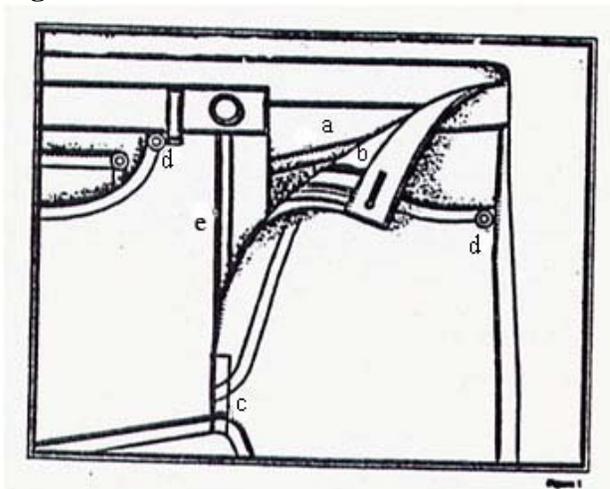
Wash jeans that are made-to-fade separately. The hotter the water, the faster they fade.

Don't use bleach in most cases unless you really want them bleached.

Tumble dry and remove jeans from the dryer promptly. Over drying or drying in an overly hot dryer may cause excessive shrinkage even on jeans which should not shrink more than one percent.

All-cotton jeans in dark colors and heavy-weight fabrics do not show wrinkles easily. If you do iron jeans, use a steam iron.

Figure 1





Light Bulbs

Why worry about buying light bulbs? Who cares? Light bulbs cost less than 2 dollars each, right? Wrong. The total cost of a light bulb is the purchase cost plus the cost of electricity it uses. This can be significant and varies greatly by type of bulb. Considering a house may have as many as 50 light bulbs, this can add up to big money. In addition, light bulbs have a large influence on the overall mood and safety of a house. Choosing the right type of light bulb for each room deserves some thought and planning. We must also remember that a home's lighting system is both a large user of electrical energy (lighting consists of about 10% of your home energy bill) and is a major source of internal heat. Increasing your lighting efficiency is one of the fastest ways to decrease your energy bills.

Terms to Know

Circuit Load - To calculate how many bulbs you can safely use on a single circuit, add up the wattage of the bulbs you would like to use and divide by the voltage. For example, 18 bulbs at 60 watts each would consume $18 \text{ bulbs} * 60 \text{ watts per bulb} / 120 \text{ volts} = 9 \text{ amps}$. Therefore 18 bulbs at 60 watt each could be carried on a 10 amp circuit.

Clear or Frosted Glass - Choosing clear rather than frosted glass will change how the light looks in a room. It's your personal choice.

Color Correlated Temperature (CCT) - This measures how "warm" or "cool" a light seems. A low CCT--below 3100 K--is a warm white light and varies across bulb by type and within types. A technical term of color temperature is used to describe the color. Low color temperatures (2700 degrees) are soft and warm. As the color temperature increases the color becomes more of a pure white. This doesn't refer to the heat, just the way the color appears: a soft glow versus cool and sterile.

Color Rendering Index (CRI) - This measures the perceived color of objects under artificial light. The higher the number, the more natural and vibrant colors will appear. Bulbs with a CRI of 80 or above are acceptable for everyday residential use.

Efficiency - Measured in light (lumens) per unit of electrical power (watt) and calculated by dividing lumens by watts. The higher the LPW, the more light received for the energy used. Before purchasing light bulbs, consider where they will be used, how frequently and for what kind of duration.



Heat - the amount of heat produced varies by type of bulb; heat can affect energy costs by causing air conditioning to come on more frequently

Life - This describes the number of hours a light bulb will last. Make sure you check this before you buy – especially for light fittings in hard-to-reach places that you won't want to replace regularly.

***Lumens** - Measures light output.

Operating Costs - To figure out the cost of operating a bulb, multiply the watts times the kilowatt per hour charge from you utility and divide by 1000 (to convert a kilowatt into a watt). For example, a 100 watt bulb * 15 cents / 1000 = 1.5 cents per hour.

Power - typically measured in watts.

Voltage – this is the pressure that drives the electricity through the circuit and provides the power for an outlet or light fixture; can be 120 Volts or a light fixture can use a transformer to create higher or lower voltages

***Watts** - The standard measurement for electricity is watts. When buying a light bulb it is best to select one with the same number of watts as the bulb you are replacing. A light bulb with fewer watts than your existing globe will produce a weaker light.

Connection - Screw-in base versus plug-in base; Not all light fittings are the same. Take your old light bulb with you to the shop to ensure an exact match.

*Federal law requires both lumens and wattage on light-bulb packaging.

Defining Uses

Types of Light Bulbs



There are three categories of lighting you must consider when planning:

- Ambient lighting provides security and safety, as well as general illumination for doing daily activities.
- Task lighting provides enough illumination that tasks can be completed accurately but not so much light that entire areas are illuminated.
- Accent lighting illuminates walls so they blend more closely with naturally bright areas like ceilings and windows.

The type of lighting needed will also depend on the activities done in the area:

- For areas of detailed work (offices, work benches, sewing rooms, etc.) choose a halogen or incandescent bulb
- For areas of moderate detailed work (living rooms, kitchens, etc.) choose a incandescent or compact fluorescent
- For large areas with little detail work (basements, garages, bathrooms, etc.) choose a incandescent or fluorescent bulb
- For areas where heat can be a problem (e.g. a small room with little ventilation) or where the bulb may be brushed against, try to avoid halogen bulbs. If possible try a fluorescent or compact fluorescent
- For areas with hard to reach fixtures choose bulbs with a longer life, e.g. long-life incandescent, halogen, or compact fluorescent

Remember, too, that older people need more light.

If color is a concern try several different types of bulb. Choose the color that provides the desired effects .

For bulbs that are used heavily (more than 3 hours a day) consider a more energy efficient bulb.

**Always compare brands for price, lumens, watts, CRI, and CCT. Be sure to read the label and see where the light bulb can be used. Many are made for specific fixtures such as recessed cans,

Incandescent - these are the standard bulbs that most people are used to. Incandescent bulbs work by using electricity to heat a filament in the bulb until it glows. They produce steady, warm, white light that is good for most household applications. When incandescent bulbs glow, minute amounts of tungsten evaporate from the filament and are deposited as “soot” on the inner shell of the bulb - this burned-off tungsten has two drawbacks: The “soot” gradually reduces light output, and it slowly weakens the filament until it becomes thin and breaks and the bulb “burns out.”

Fluorescent - works by passing a current through a tube (no filament) filled with argon gas and mercury. This produces ultraviolet radiation that bombards the phosphorous coating causing it to emit light. Bulb life is very long 10,000 to 20,000 hours. Fluorescent bulbs are also very efficient, producing very little heat. Fluorescent bulbs are ideal for lighting large areas where little detail work will be done.

Compact Fluorescent - work like fluorescent bulbs, but in a much smaller package. Similar to fluorescent bulbs, they produce little heat and are very efficient. Compact fluorescent lights (CFLs) are very popular because of their tremendous efficiency.

Halogen - work by passing electricity through a tungsten filament, which is enclosed in a tube containing halogen gas. The light produced is a brilliant white color which is ideal for situations requiring focus on small items such as hobbies, reading, writing, etc. A halogen bulb will last 2,000 to 4,000 hours. Halogen bulbs burn hotter than incandescent bulbs, but are more efficient related to lighting.

High-Intensity Discharge (HID) - similar to incandescent in appearance and compactness with concentrated and directed light output. HID bulbs operate similar to fluorescents. They are most suitable for outdoor/security lighting. They are very energy efficient and provide a very long service life and can save 75% to 90% of lighting energy when they replace incandescent lamps.

Low Pressure Sodium - the most efficient artificial lighting and have the longest service life. Where color is not important, this light is a good choice as they tend to cast tones of yellow or gray – security lighting often uses low pressure sodium bulbs.

Light Emitting Diode (LED) - generate light not through heat but the electronic movement of particles. LEDs are also used for many other applications including stereo lights, microwave ovens, digital watches and calculators.



Comparing Light Bulbs

Pros and Cons of Common Light Bulbs

Type	Pros	Cons
Incandescent	<ul style="list-style-type: none"> Cheaper than halogen and fluorescent Suitable for use with dimmer switches Available in a wide range of shapes and sizes and colors 	<ul style="list-style-type: none"> High running cost Least energy-efficient bulb type
Halogen	<ul style="list-style-type: none"> Produce a bright, pure light that's superior to incandescent light bulbs More energy efficient than incandescent light bulbs related to lighting (but not heat) 	<ul style="list-style-type: none"> More expensive than incandescent light bulbs
Fluorescent	<ul style="list-style-type: none"> Most energy efficient – can last up to 10,000 hours Produce less heat than other light bulb types 	<ul style="list-style-type: none"> Generally most expensive type Some fluorescent light bulbs project an unflattering light Not suitable for dimming
LED	<ul style="list-style-type: none"> More energy efficient than incandescent Can produce light in varying colors Are suitable for dimming Have the longest life span – they last twice as long as the best fluorescent light bulb Produce less heat than their incandescent counterparts 	<ul style="list-style-type: none"> A more expensive lighting option To get optimum performance, special wiring must be set up

Compact Fluorescent versus Incandescent Wattage

If you want to convert from Incandescent Bulbs to CFLs you will need to understand the ratio of wattage. As a rough guide:

CFL Watts	=	Incandescent Watts
4 Watts	=	25 Watts
9 Watts	=	40 Watts
15 Watts	=	60 Watts
20 Watts	=	75 Watts
25 Watts	=	100 Watts
42 Watts	=	150 Watts



Comparing the Operating Cost of Bulbs

Use this simple worksheet to compare the cost of light per thousand hours for any bulb you are considering. Remember that meaningful comparisons are only possible for bulbs that have a similar lumens output.

	Method of Comparison	Bulb #1	Bulb #2	Bulb #3
A	What is the cost per kWh? (get this amount from your local electric company.)			
B	How many watts are used by the fixture you will be using?			
C	What is the rated lifetime of the bulb?			
D	How much does the bulb cost?			
E	Estimate the electricity costs. (multiply A by B)			
F	Estimate the replacement costs. (divide D by C and multiply by 1000)			
G	Estimate the air-conditioning penalty. (multiply B by .15 by A)			
H	Estimate the total operating cost of the bulb. (add E, F and G)			

Maintenance

Proper maintenance is vital to efficient lighting. The amount of light produced decreases over time because of aging lamps and dirt on fixtures, lamps, and room surfaces. This can reduce total illumination by 50% or more, while lights continue drawing full power. These basic maintenance suggestions can help prevent this:

- Clean fixtures, lamps, and lenses every 6 to 24 months by wiping off the dust. Never clean an incandescent bulb while it is turned on or it is hot.
- Replace lenses if they appear yellow.
- Clean or repaint rooms in your home every 2 to 3 years. Dirt collects on surfaces, reducing the amount of light reflected.
- Because fluorescent lights and some compact fluorescent lamps contain small amounts of hazardous chemicals, dispose of them with other household hazardous wastes such as batteries, solvents, and paints at your community's designated drop-off point.

Energy Conservation Tips

- Use compact fluorescent bulbs to replace outdoor flood lights.
- Motion sensors used in low traffic areas and out-of-doors keep lighting costs to a minimum.
- When you leave a room, turn off the lights.
- Keep light and lamp fixtures clean to get maximum light.
- Fewer lamps may be needed if fixtures are kept clean of accumulated dust.
- Consider the amount of light needed before buying light bulbs.
- Use task lighting in kitchen or other work areas instead of lighting the entire room.
- Select the lowest wattage bulb that provides the desired lighting.
- Where you use incandescent bulbs, 3-way fixtures allow light level choices.
- Replace incandescent bulbs with fluorescent where possible.
- Compare light bulb brands for price, lumens, and hours of life.
- If wiring and light fixtures allow, use one large bulb instead of several smaller ones.
- Individual light switches make it possible to have lights on only where they are needed.
- Use occupancy sensors in bathrooms, hallways, garages and outdoors.
- Timers can be used to automatically turn lights on and off according to the schedule you set.
- Photocell units respond to changes in natural light levels and will switch the lights on at dusk and off at dawn to insure lights are not left on all day.



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Mindy Turner, 4-H Youth Development Specialist
New Mexico State University



MP3 Players

MP3 players are definitely not one-size-fits-all. They come in a range of shapes and sizes, use different types of memory, and support different formats. Based on these and other features, certain players are better suited to certain uses--you should choose the player (or *players*) that meets your needs. Along with type of memory and compatible formats you should consider storage capacities, features, accessories and intended use when shopping for a player. It is also important to think about where you will get music and the software you will need.

The Two Basic Types MP3 Players

Hard-Drive Based MP3 Players

The MP3 players with the largest capacities are hard-drive MP3 players. They store the music and files on an internal hard drive, which means MP3 players of this type can have large capacities. Some feature up to 80GB of space, which would require an awful lot of music and videos to fill. The downside of hard drive MP3 players is that hard drives have moving parts, that is, shake-able, breakable parts – not the best choice for people who want a portable MP3 player for working out. Hard drives also take up a little more space, so the MP3 players won't be quite as slim and light as others.

Flash-Based MP3 Players

Flash-based MP3 players feature flash memory, which has no moving parts. Flash MP3 players are light-weight and slim (perfect for the gym or a jog), but flash-drive MP3 players have smaller capacities. Their highest capacities max out at about 8GB, which is still plenty of space for most people. Generally, more memory in a portable MP3 player means higher cost. There are plenty of affordable MP3 players between 1 and 80GB.

Understanding Storage Capacities

Before you can really shop for a portable MP3 player you need to know the difference between megabytes (MB) and gigabytes (GB). Memory storage capacities are measured in bytes. More bytes in an MP3 player equal more space to hold all of your songs. A megabyte is 1 million bytes. A gigabyte is 1 billion bytes (and therefore bigger and better). You won't see too many digital MP3 players with capacities measured in megabytes, but there are still a few out there. The table below gives you an approximation of storage capacities in relation to music:

Capacity	# of Songs	Hours of Play
128 MB	60	4
256 MB	100	8
512 MB	250	16
1 GB	Over 500	30+
20 GB (only on a hard drive player)	5000	300+

Battery Type and Life

Generally battery life is viewed as a critical factor in selecting an MP3 Player. Most hard-drive-based players come with non-removable lithium-ion batteries, which typically last two to four years. Many manufacturers have some sort of return/repair plan, so check the warranty policy before you buy. Flash MP3 players are split between those using AA or AAA batteries and those with an internal rechargeable cell. Since flash players need to be synced more often and it's easy to recharge as you sync, flash players with rechargeable batteries are usually preferable.

*You have to be really careful with power adapters for both car power ports and wall plugs. Use only those provided by the manufacturer; even if the plug physically fits, you still need to confirm the adapter's polarity, voltage, and amperage. While amperage can usually be 20 percent less or up to 100 percent more than what's needed by the player, polarity and voltage must be identical to the unit's requirements. If you're unsure about these factors, skip the bargains and buy the power adapter sold by the manufacturer--you'll avoid frying your player.

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Audio Formats

Songs and other audio files can be saved in a variety of file formats, some higher quality than others; MP3 is the most common (hence the term "MP3 player"). Different online music stores may use different formats. While most MP3 players are compatible with most formats, you should check before you buy. The most common formats you need to be aware of are: MP3, AA, WAV/AIFF and WMA. One special note on formats: Songs in the AAC (Advanced Audio Coding) format are copyright protected.

With an MP3 player, you have to consider where your music is coming from to ensure your device will play your music. Here's what you need to know about music compatibility:

Existing music on your computer

If you've already ripped and/or downloaded lots of music, choose a player that supports the format(s) you're already storing. If it's MP3, you're OK with any player, but rarer formats are supported by only certain devices.

Compact discs

If all of your music is still on CDs, you can buy just about any MP3 player since you'll first need to convert your discs to MP3, WMA, OGG, or one of the other common formats.

Online music stores

If you plan on buying music downloads from an online music store you need to make sure your player will work with the formats offered. In an ideal world, you'd be able to play any legally purchased music on any MP3 player, but due to format wars and DRM (Digital Rights Management), that's not possible. If you know you're going to buy tunes online, you'll first have to select a store you like, then a player that supports the store. The files sold by these stores come with usage restrictions that commonly limit playback to three computers and stop you from mass-producing burned mixes. These restrictions can cause device compatibility problems, but the trade-off for consumers is that those safeguards make the labels comfortable enough to license their songs to online stores.

Subscription-based music services

You can legally fill up your MP3 player with endless gigabytes of tunes from an online music store and pay less than the price of a CD. How is this possible? Well, you're not actually buying the tracks; instead, you're renting them in an all-you-can-eat scenario for a monthly subscription fee.

P2P networks

Most tunes available on file-sharing networks (also called peer-to-peer or P2P networks) are already in the MP3 format, so there are no compatibility issues in this situation. Since someone else did the encoding, however, the audio quality of files on these services varies. Also, the legality of these sites is seriously questionable, so there's a risk of getting in trouble with the RIAA, which could lead to hefty fines or even jail time.

Vinyl/cassettes

If you have lots of music on vinyl, cassettes, or even 8-tracks, you can record it on to your computer, turn the files into MP3s, then transfer those to any MP3 player. In order to simplify the process, consider buying a player that has line-in recording and allows you to encode MP3s directly from your stereo. If your stereo has a digital optical output and you want to record MP3s this way, make sure to find a player that has a digital optical input; this will preserve sound quality during the recording process. If there's no digital optical output on your stereo, any player with an analog input will do.

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Key Features of MP3

File Management	Transfer Speed/Port Type	Software
<p>MP3 files include ID3 tags that list the artist, track, album name, genre, and more. Working with this data, a player can organize the files for you. Most hard drive-based players sort files into artist, song title, and genre lists, and can read playlists that you create with software. You obtain song information easily via software enabled to work with an online track-listing database, or you enter the info manually. Look for an easy-to-read LCD screen that shows the information you frequently use.</p>	<p>Most players today use the USB 1.1 interface, but downloading one 5GB batch of songs from your PC can take all night. Look for players that employ the much faster USB 2.0 standard. With FireWire you can transfer an entire song in seconds, but few PCs have a FireWire port. (You can add a FireWire PCI card to your PC for a small fee.)</p> 	<p>All players come with software that allows you to download songs to them. Some of the more popular units have drivers you can use within online music stores and computer software; this permits you to rip from a CD-ROM and download the resulting MP3 file to your player from the same application. Other players come with their own specialized software. And some hard drive-based players appear as a drive within Windows Explorer, so you can drag and drop files into the device.</p>

Additional Features

- **Data storage:** Some MP3 players also serve as data storage, so you can transfer other types of non-music files between computers.
- **Photo viewing:** If you are a photographer, or if you just like to share your family pictures with everyone, you need an MP3 player with photo viewing capabilities. If you have a lot of high-resolution photos, get something with a lot of memory, like a 20GB MP3 player.
- **Recording:** Some MP3 players feature digital voice recorders, which are great for recording lectures or personal reminders, but not music. If you want to record music, get something that has an audio input jack, so you can record directly from other devices.
- **Video playback:** Most portable MP3 players with video playback are great for watching short clips and maybe a digitized TV show or two. They're probably not the best for watching feature films, however, because the screens are too small.
- **Wireless capability:** Many of the newer MP3 players are able to transfer songs and files wirelessly. Just make sure your other devices use the same wireless technology so they are compatible.
- **Hold switch:** If you're like most people, you'll be storing your digital MP3 player in your pocket or backpack. That means you may inadvertently bump a button now or then, which could potentially waste valuable battery life or skip to then next song before you're ready. A hold switch will make that less likely to happen, essentially making the MP3 player controls ineffective until you release it.
- **Expandability:** More and more MP3 players feature memory expansion slots, where you can insert flash memory cards. This can be handy for transferring files, or for listening to a few songs once or twice that you don't want taking up space on your MP3 player
- **Radio:** Many players offer FM radio reception, although they're more common on flash devices, which lack the spinning hard drives and the CD-playing features that can interfere with the signal. Other radio-related features include FM recording (usually to MP3), transmission (for playing back audio wirelessly through home and car stereos with FM tuners), and presets.
- **Personal information management:** Some MP3 players can accept phone books and schedules. The information is generally entered into Outlook or another PIM program, then synced to the device where you can view it but not change it on the go.
- **Sound-tweaking options:** Digital signal processing (DSP changes a song's equalization or spatial characteristics. Since digital audio files come from multiple sources and people have individual sonic preferences, EQ and other DSP settings can be useful. Look for a customizable EQ setting (the more bands the better; five is the norm), as well as the standard presets (Rock, Jazz, Bass Boost, and so on).
- **Advanced playback features:** Just about every player offers shuffle, repeat, resume, and playlist functions. Still, there's room for improvement. Newer models offer the ability to create on-the-fly playlists without a computer; smart playlists; song-rating methods in which preferred tunes appear more frequently in Shuffle mode; automatic cross-fading that adds smooth transitions between songs; and automatic volume control, which makes all songs equally loud.

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Meeting Your Needs

Below is a listing of some of the most common uses of MP3 Players with information on the best players to meet specific needs. If you truly need a player for more than one of the common uses, you might consider buying an additional player. For instance, you might want an ultra-compact flash player for jogging or skiing and a high-capacity hard-drive-based device for traveling. Most people just want an MP3 player for general, day-to-day use – in that case, buy a quality product in your price range with the features you want.

Commuting

You listen to your stereo at home and to your computer at work, but filling your commute with tunes requires a portable player. If you commute by car, look for a hard-drive-based model; size doesn't matter much in this situation, so feel free to save money by buying a heftier unit. You'll also need a cassette style adapter and a cigarette-lighter charger. The former can be purchased anywhere, but for the charger, stick with manufacturer-approved accessories; that way, you'll avoid frying your player with the wrong voltage or polarity. If your car has no cassette player, you're going to need an FM transmitter device or a direct line-in jack on your car stereo. If you commute via subway or bus, look for a compact flash-based player and, to seal out as much of the din as possible, a pair of noise-canceling or sound-isolating headphones.

Traveling

If you spend a lot of time on the road, you need an MP3 player that will enhance your journeys with music yet doesn't add undue weight to your carry-on. If you travel with the same laptop that stores your music, a compact flash-based player is the way to go, but if you'd rather leave the laptop at home, try a higher-capacity player that will hold all or most of your music--bonus points for one that has an easily removable and replaceable battery. Accessories worthy of consideration include noise-canceling or sound-isolating headphones for the plane, as well as a portable speaker setup for your hotel room.

File Hoarding

If your appetite for digital music has your computer's hard drive(s) bursting at the seams, you fit the description of the file hoarder. While sound quality and features are important to you, what you need most is an enormous capacity: at least 40GB but maybe even more. It shouldn't be difficult for you to find a hard-drive player with enough storage to suit your needs, but it may be more expensive and larger than other options.

Working-Out

If you want an MP3 player for working out – it should be compact and easy to operate with one hand. Rather than looking for one with massive storage, choose a flash-based model that can withstand tough workouts better than hard-drive-based players. You may also want an armband, an option on many ultra-compact models, and a set of headphones that will stay in place rather than the cheap earbuds typically included. Also, look for sweat-resistant models and other fitness-friendly extras, such as a calorie counter or pedometer.

Listening to Audiobooks

MP3 players have quickly become the medium of choice for listening to audiobooks. Compared to CD and cassette players, an average MP3 player is small and has the capacity to hold many hours worth of audio. If you're looking to purchase an MP3 player that works well with audiobooks, there are a couple things to keep in mind. The first is whether it's compatible with popular audiobook sites. The second is if the player has bookmarking, that will keep you from having to fast-forward through files.

Recording Audio

Some players on the market can record from line-level sources such as CD players or stereo outputs, so they're great for converting CDs, tapes, and vinyl records to digital formats such as MP3, WAV, or WMA. Those wishing to record live audio can do the same, although they'll need a powered microphone that can output a line-level signal. If voice recording is all you need, look for a model with a built-in mic.

Watching Video

Nowadays, many MP3 players and portable video players (PVPs) come all in one, as the majority of devices hitting the market include video playback as a feature. MP3 players with relatively large screens make the best substitute PVPs--make sure you look for those that are at least 2-inches diagonal.

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Accessories

There are many optional items you can purchase to enhance your player:

- FM transmitters
- MP3 car chargers
- In-line remote controls
- Jogging kits
- Deluxe carrying cases
- Flash memory adapters
- Flash memory
- Docking stations
- USB/FireWire kits
- Extra rechargeable batteries
- Cassette adapters

Just to name a few! You might also consider a higher quality set of headphones. Often, the headphones included with MP3 players are not the highest quality, and they are usually ear buds, which can be uncomfortable for some people. If your MP3 player has wireless capabilities, you can try some wireless headphones. You can also get some noise isolating headphones or wraparound buds that stay on while you bounce around working out.

Refurbished MP3 Players

New MP3 players don't always have to be new or expensive. If you want to save money on a quality digital music player, you should think about getting a refurbished MP3 player. These are players that have been lightly used or demoed before being factory reconditioned to like-new condition. Nobody will know it was a discount MP3 player because it looks and performs like a brand new one.

The best buy on an MP3 Player will be the one that meets your needs with the features you want at an affordable price.

Remember to consider:

- Storage Capacity
- Battery Type
- Compatible Audio Formats
- Key and Added Features
- Intended Use
- Available Accessories
- Price



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Mindy Turner, 4-H Youth Development Specialist
New Mexico State University

Savings Accounts

Georgia 4-H Cotton Boll and Consumer
Jamboree 2004

What is a savings account?

A savings account is an account set up with a bank or credit union to keep your money in while earning interest. Interest is the money the bank pays you for keeping your money there.

What are the benefits of having a savings account?

It's Safe: A savings account is a safe, convenient and affordable way to save your money. It's much safer to keep your money at a bank than to keep a large amount of cash in your home. When you put your money in a bank, the bank keeps it in a fireproof locked safe. The federal government also insures your money. No matter what, you can't lose your money when it's in the bank.

It Pays: Banks pay you a fee, called interest, for keeping your money with them. The higher the interest rate, the more money you'll earn. And, the more money you put into your account, the more money you'll earn in interest. Automatically transferring money from your checking account to a savings account each payday makes paying yourself automatically much easier.

What are the costs of having a savings account?

As with other accounts, a bank may charge you fees for having a savings account. Every bank charges differently, so it pays to shop around. Some accounts are free, and others carry a general service charge. A lot of banks charge you if you do not maintain a minimum balance in your account, but not all accounts have minimum balance requirements. You can save a lot of money in fees by finding an account with low or no balance requirements.

What are the different types of savings accounts?

Banks offer a variety of ways for you to save your money and earn interest. The most common accounts are:

Basic Savings Account

The minimum deposit requirement for a basic account is low, from \$5 to \$200. Your money earns a relatively low interest rate, but you can put money into and take money

out of your account whenever you want. Basic saving accounts are also called passbook accounts.

Certificate of Deposit (CD)

This account earns a higher interest rate than a regular savings account, but you have to make a larger minimum deposit, generally between \$1,000 and \$5,000. You also have to keep your money in the CD for a certain period of time. If you take your money out before the end of the term, you may have to pay a penalty.

Money Market Accounts

This account earns a higher interest rate than a regular savings account, but you have to make a larger minimum deposit, averaging between \$500 and \$2,500. This account also limits the amount of times you can take out money each month.

Where can I open a savings account?

You should shop around for a financial institution that meets your needs. Look for a bank or credit union that is close to your home or work, open during the hours you need it to be and charges low or no fees for a savings account. Banks that offer online banking, make managing your finances very easy.

What's the difference between a bank and a Credit Union?

Banks store your money, and allow you to have easy access to it by writing checks or using ATM and debit cards. Banks insure your money with The Federal Deposit Insurance Corporation, which protects your account up to \$100,000 if the bank goes out of business. There are banks all over the country.

Credit Unions work like banks, but are nonprofit organizations. This means that you are more likely to get a loan, and get it at a better interest rate. Credit Unions are created for specific groups of people, like government employees or college graduates. Another kind of credit union, a community development credit union (CDCU) primarily serves low-income communities. Anyone living or working in those communities can join the CDCU serving that area. CDCUs are located in more than 300 urban and rural areas across the United States.

How do I manage my savings account after I open it?

The key to managing any bank account is maintaining good records. Your register is a tool for keeping track of the amount in your account, or the balance in your savings account. You need to write down every transaction - deposits, fees and withdrawals - in your register so that you'll always know how much money is in your account.

At the end of each month, you'll receive a statement of your account's activity from the previous month. You can use the statement to balance your account by comparing your register with your account statement. After all financial transactions have been recorded

in both places; the balances should be the same plus the interest you earned from the bank.

Things to Look for in a Savings Account:

Look for the account/institution that will best meet your needs. Compare accounts, and ask the following questions.

- Is the institution insured? Credit unions should be insured by the NCUSIF. A bank should have Federal Deposit Insurance Corp. (FDIC) insurance.
- What is the dividend/interest rate? Savings accounts generally have lower interest rates than other investments, but you'll still want to look for the best return you can get on your account.
- What's the annual percentage yield (APY)? The APY tells you how much your money can earn based on interest rate and frequency of compounding. The Truth in Savings Act requires all institutions to disclose APY, so consumers can compare accounts on an apples-to-apples basis.
- Does the institution offer tiered rates? Tiered rates apply to different balance amounts. If tiered rates apply, find out how.
- How often is interest compounded? Monthly? Quarterly?
- What is the minimum opening deposit?
- What is the minimum balance required?
- What fees apply to the savings account?
- Is there a charge if my account falls below a minimum balance?
- Is there a fee for closing the account?
- Is there a monthly maintenance fee?
- Am I required to use direct deposit in order to get a free account or reduced fees?
- Is there a limit on the dollar amount or number of transactions I can make?
- Are there any other fees or charges for the account? If so, what are they?
- Is there easy access to my money such as internet banking, ATM's, good banking hours, etc.?

Use the chart on the following page to help you compare savings accounts side by side:

SAVINGS ACCOUNT COMPARISON CHART	BANK 1	BANK 2	BANK 3	BANK 4
Opening Deposit Amount				
Monthly Min. Balance to Avoid Service Charges				
Interest Rate Structures				
Interest Rate Structure				
Monthly Service Charges				
Free Basic Checks				
Transaction Fees				
Withdrawals Per Month				
Ease of access to Money (hours, ATM, Internet banking, etc.)				
Other Considerations:				

Prepared by: Cheryl Varnadoe, Extension 4-H Faculty, August, 2004

SUNGLASSES

Georgia 4-H Cotton Boll & Consumer Jamboree 2007

Sunglasses are a part of fashion and fad. But they are also important to the health of eyes. Most sunglasses will protect eyes adequately, although some styles do not include protective features. Nothing, including sunglasses, offers protection against the harm caused by looking directly into the sun.

What Sunglasses Do

Besides fashion, sunglasses serve other purposes. They can offer protection and comfort for eyes.

Eyes are bombarded with light rays of all wavelengths—from the sun and from artificial light. Much of the concern over eye health involves the shorter wave lengths, called ultraviolet (UV) light. UV light is further divided into two categories—shorter wavelengths are called UVB, and longer wavelengths are called UVA. Again, shorter (UVB) have been found to cause more eye damage than the longer rays (UVA).

The main protection offered by sunglasses is filtering out these UV rays. How dark the lenses are does not determine how well UV light is filtered out. Blocking UV rays is often accomplished by adding chemicals to the lenses or adding special coatings.

Sunglasses can also be useful in another way. Working or playing in bright light can tire eyes quickly. Wearing sunglasses while working in bright sunlight will provide comfort and keep eyes from tiring out as quickly.

Sunglasses also provide some protection from dust and particles in the air. Sunglasses may serve to keep dirt from getting into the wearer's eyes or becoming uncomfortable. This is especially true for people who wear contact lenses.

Labeling

The number one feature to look for in a pair of sunglasses is how well they filter out UV rays. The American National Standards institute (ANSI), in cooperation with the U.S. Food and Drug Administration and the Sunglasses Association of America, has set up a voluntary labeling system for sunglasses. Manufacturers may choose whether or not they wish to use the labeling system.

Recommended standards include:

- Sunglasses must block 99% of UVB light. A UVB-blocking sunglass is adequate to protect eyes in moderately bright sunlight like that found in low-altitude urban areas. (The protection percentage is usually labeled on the glasses.)

- A UV-blocking sunglass blocks 99% of UVA and UVB. A UV-blocking sunglass is adequate protection in very bright sunlight like that found in low-altitude snow areas and beaches. Such sunglasses should block 60 to 90% of visible light to adequately reduce glare and increase visual comfort. The lenses should allow you to recognize traffic signals accurately.
- To protect eyes during prolonged daily use in extremely bright sunlight, like high-elevation snow areas and sand beaches near the equator, a UV-blocking sunglass should block 92 to 97% of visible light and have side shields. Goggles are also acceptable. Side shields are needed in extremely bright sunlight to prevent UV rays and light from being reflected into the eyes. These sunglasses limit a driver's ability to accurately recognize traffic signals. Side shields should not be worn when driving because they can affect peripheral vision.
- The only medical claims allowed on sunglasses are that they prevent cataracts and photo keratitis.
- The FDA recommends you look for sunglasses with lenses that block 99-100% of UVA and UBA radiation. The label should read either UV 400 or 100% UV protection.

Types of Lenses

Plain lenses: Uniformly tinted throughout the lens and come in lots of different colors. The darkness of the lens has nothing to do with how well it blocks UV light, but it will make a difference in how much visible light gets seen. This may be important for eye comfort during prolonged time in bright sunlight.

Blue Blockers: Block blue light and usually have amber lenses. Researchers are still unsure whether or not blue light is harmful, but these are popular among skiers, hunter, boaters and pilots.

Single gradient lenses: Tinted darker at the top than at the bottom. They may be useful for tasks like driving, where the road is bright but the dashboard is dark. They are not useful for places like a beach, where light is reflected up from the sand. The difference in tint causes lighting to change as the wearer's head moves, which may be annoying to some wearers.

Double gradient lenses: Tinted darker at the top and bottom, but lighter at the center. These are designed for sports such as sailing, skiing, and tennis, where light comes in from above and is also reflected from below, but the center of vision has less light coming in. They are not appropriate for driving, since they darken visibility of the dashboard controls. Like single gradient lenses, the difference in tint may be annoying to wearers.

Polarized lenses and Anti-Reflective Coating Lenses: Specifically designed to reduce reflected glare, such as sunlight bouncing off water or pavement. This makes them especially suited to water spots and driving.

Photochromatic lenses: Darken and lighten in response to the amount of available light. Photochromatic lenses darken more quickly than they lighten. They also do not darken as quickly in how weather as in cold. They will not darken much while driving, since the car shades out much of the direct UV light to which the lenses respond. Lenses that start out with a dark tint will be darker when they change tint. Some wearers may be bothered by the length of time the lenses take to change. In additions, some lenses “wear out” and fail to darken or lighten after a period of time.

Flash lenses and Mirror-Coated lenses: Have a mirror like finish on one side of the lens. It may be silver, colored, or iridescent. The coatings add more to appearance than usefulness and can scratch easily.

Color

Lens color can be a dye in the lens or a coating on the lens. Color on coated lenses is more likely than dyed lenses to scratch and wear off. Coated lenses can be protected by the manufacturer through use of scratch-resistant layers. Overall, dyed lenses retain color longer.

Darkness of a lens determines how much visible light will be let in. For everyday wear, a medium to light lens is usually sufficient. The main point is to match the amount of tint to the purpose for which the glasses will be used.

The color you choose is a matter of personal taste, but there are a few important color-related benefits to consider.

- Gray lens tints reduce brightness, but do not distort color.
- Brown and amber tints reduce glare, including the glare created by the blue frequency in sunlight, which can make things appear hazy. Brown and amber tints distort colors more than gray tints do.
- Yellow lens tints reduce the haze from blue light better than browns, so they really sharpen up the view, but they cause more color distortion.
- Green tinted lenses reduce glare and help filter out some of the blue light. They provide good contrast between objects.
- Rose colored lenses might be a good choice if you participate in water sports or other outdoor activities, because they provide good contrast for objects viewed against blue or green backgrounds.

Lens Materials

Sunglasses lens materials differ quite a bit. Some are heavier than others and some types are more durable. Three materials are commonly used for sunglass lenses:

- Polycarbonate, which is a durable lightweight plastic.
- CR-39, which is a plastic used mostly in prescription-grade lenses.
- Glass, which is durable but much heavier to wear.

Impact-resistant: The Food and Drug Administration requires all sunglasses to withstand an impact test without fracturing but not to be shatter-resistant.

Frames

Frames should be sturdy and comfortable. When choosing a pair of sunglasses, be sure to try them on. Check to see that the frames have not been bent out of shape in transport or storage. Be sure that the frames are not designed so that they block side vision either around the lenses or at the temples. The frames should be long enough to fit comfortably over the ears. They should be wide enough not to press on the temples. If glasses with identical frames are already broken on the shelf, that indicates that the frame will not be sturdy enough to last under normal conditions.

As with color, the main criterion for choosing frame style is wearer preference. As long as style is comfortable and does not block vision, preference is the deciding factor.

Cost

With sunglasses, price bears little relation to performance. Effective, reliable, high quality sunglasses can be found among even inexpensive pairs.

Kids Need Sunglasses, Too

Children are more vulnerable than adults to the potentially eye-harming effects of the sun's ultraviolet (UV) radiation. And they spend more time outdoors. The more UV exposure, the greater the eventual risk of cataracts (clouding of the lens) and macular degeneration (breakdown of the central part of the retina).

That doesn't mean you need to obsess about shielding kids from the sun or worry about the occasional, inevitable lapses. But you should try to take some sensible precautions.

Encourage kids to wear sunglasses when they're outdoors, even on cloudy days. Look for pairs that say they can block 99 to 100 percent of UVA and UVB rays, or "absorbs up to 400 nm of UV radiation." Letting children choose their own sunglasses—and setting an example by wearing a pair yourself—boosts the likelihood that they'll wear them. Wraparound styles protect the eyes from all angles.

Written and Compiled by: Cheryl Varnadoe, UGA 4-H Faculty, 2007

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