



4-H Consumer Judging Guide

Sunglasses

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

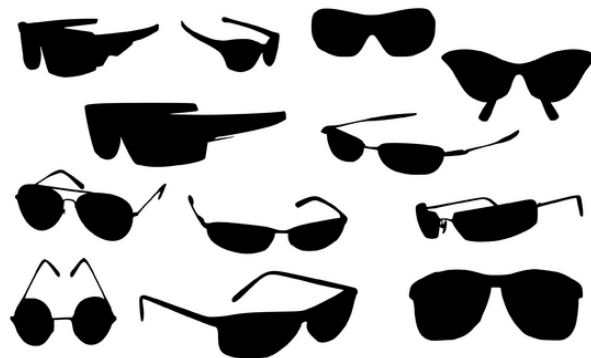
Besides fashion, sunglasses serve other purposes. They can offer protection and comfort for eyes.

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 waves lengths called ultra-violet (UV) light. UV light is further divided into two categories – shorter wavelengths called UVB and longer wavelengths called UVA. Again, shorter rays (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 percent of UVB light. A UVB-blocking sunglass is adequate to protect eyes in moderately bright light that is found in low altitude urban areas. (The protection percentage is usually labeled on the glasses.)
- A UV-blocking sunglass blocks 99 percent 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 percent 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 percent 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 to 100 percent of UVA and UVB radiation. The label should read either UV 400 or 100 percent UV protection.

Types of Lenses

Plain lenses are 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, hunters, boaters and pilots.

Single-gradient lenses are 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 are 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 are specifically designed to reduce reflected glare, such as sunlight bouncing off water or pavement. This makes them especially suited to water sports 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 hot weather as in cold. They will not darken much while the wearer is 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 addition, 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.

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

Impact-Resistant

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

Frames

Frames should be sturdy and comfortable. When choosing a pair of sunglasses, try them on. Check to see that the frames have not been bent out of shape in transport or storage. Be sure the frames are not designed so 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 the frames 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

Price bears little relation to performance of sunglasses. 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. 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 can block 99 to 100 percent of UVA and UVB rays or "absorb 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 they'll wear them. Wraparound styles protect the eyes from all angles.

References

- Allaboutvision.com
- ConsumerReports.org
- About.com,
- With appreciation to Dr. Joyce Cavanaugh, Extension Family Economics Specialist, Texas Cooperative Extension, for use of some of her materials included in "Sunglasses," 1997 Consumer Decision Making.

Acknowledgment is given to Cheryl Varnadoe, University of Georgia 4-H faculty, for the original manuscript.

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