ULTRAVIOLET REFLECTIONS pdf

1: What Is Ultraviolet (UV) Radiation?

Ultraviolet Reflections: Life Under a Thinning Ozone Layer examines the effects of increasing UV radiation on people, plants and animals. It takes the reader on a journey from the Antarctic ozone hole to the Arctic birch forest, to see how plankton and plants will fare against increasing UV radiation.

Environmental aspects[edit] UV filters are being used increasingly due to growing concern about UV radiation and skin cancer, especially as a result of ozone depletion. They are indirectly introduced through domestic water discharge during showering, bathing or urine excretion or through waste water treatment. Waste water treatment plants WWTP are not very effective at removing these contaminants. Several studies have actually shown the presence of UV filters in aquatic organisms. The 4-methyl-benzylidenecamphor was detected in the muscle tissue of trout in Swiss and German waters, while traces of ethylhexylmethoxy cinnamate and octocrylene were found in shellfish in the Mediterranean and Atlantic coasts of France. UV-filters are not always stable under environmental conditions. Water in natural reservoirs is always subjected to sun irradiation, while swimming-pool water is required to be disinfected by chlorination , bromination , ozonation , or UV-irradiation. For example, Avobenzone undergoes transformation in the presence of chlorinated disinfection products and UV radiation to substituted chlorinated phenols and acetophenones , which are known for their toxicity. TiO2 can also generate ROS, which is toxic for the marine phytoplankton. The toxicity of nano-TiO2 is due to its photochemical properties under solar radiation that depend on the radiation intensity, the crystalline structure and the concentration of the nanoparticles. In addition, the inert coating layer of the nanoparticles which protects against photoreactivity is dissolved in aquatic environments after being released from sunscreens. Photolysis dissociates the organic filters into free radicals. The direct way occurs when the chromophore of the organic filters absorbs sunlight at certain wavelengths. The indirect pathway occurs in the presence of a photo-sensitizer. Dissolved organic matter DOM in the surface waters act as the photo-sensitizers and produce reactive photooxidants as hydroxyl radicals , peroxyl radicals and singlet oxygen. The photolysis of sunscreen products is more complicated than the behavior of individual UV filters,as shown by this example. In the presence of other UV filter, Benzotriazole, and humic acids, Benzophenone -3 degradation was observed through the loss of hydroxyl and benzoyl functional groups resulting in the formation of 2,4 dimethyl anisole. Octyl methoxycinnamate OMC can undergo photoisomerization, photodegradation and photodimerization to obtain several dimer and cyclodimers isomers. The isomers may have identical physico-chemical properties, but they may differ in biological behavior and effects. Upon the presence of some UV filters such as Avobenzone in swimming pools, toxic products are produced as a result of the interaction between Avobenzone and the active chlorine and UV radiation. The major sources of BP-3 are reported to be human recreational activities and wastewater treatment plant WWTP effluents. The photolytic rates of both compounds in natural waters are faster than those in pure water. The aquatic environment has been contaminated by PABA from sunscreens. The photochemical fate of PABA may be impacted by water constituents, e. On the other hand, indirect photolysis was the dominant pathway. However, in the presence of free radical scavengers such as carbonate forms and natural organic matter NOM , the photodegradation of PABA decreased. The Bicarbonate anion is abundant in water. The enhancement of PABA photolysis by bicarbonate is due to carbonate radicals. These organic acids are mainly humic substances , which can be categorized into fulvic and humic acid fraction. Two reactions can take place during the degradation of PABA in presence of nitrate in water as shown in the figure. Three of the four products contain phenolic groups and may thus be estrogenic. So the hazardous byproducts generating during the PABA photoreaction should be concerned for its estrogenicity. It is sold under the trade names Parsol or Eusolex Avobenzone exists in two tautomeric forms: The double bond of the enolic form was shown to be more reactive in conditions of aquatic chlorination, than the aromatic ring. In chlorinated aquatic environment, Avobenzone undergoes transformation to two corresponding aldehydes and acids , as shown in the figure. Both aldehydes are formed as a result of the CO-CH2 bond. They are less stable in the oxidative conditions and easily transform into the corresponding acids. Chlorinated acetophenone derivatives are also

formed due to the cleavage of the same CO-CH2 bond. Chlorinated acetophenone derivatives are tear gases , trigger dermatitis and some other health problems. It was reported that chlorination of the original Avobenzone into the aromatic ring position is less possible. The cleavage of CO-Ar bond results in formation of 4-chloroanisole. It is known as Eusolex and Uvinul MC The life time of the EHMC was predicted to be from hours to few days. EHMC is well tolerated by the skin. However, it has some side effects including its ability to produce reactive oxygen species ROS and penetrate in the human skin after exposure to UV light. For instance, exposure to this compound caused the increase of the weight of the uterus in rats. Prenatal exposure to EHMC can affect both the reproductive and neurological development in the offspring of rats, which can be a cause for concern because humans are routinely exposed to this compound through the use of sunscreens and other cosmetics. The main transformation pathway for EHMC is photolysis. Direct photolysis represents the dominant transformation pathway. Environmental impact of some UV filters[edit] Coral bleaching [edit] Dipsastraea pallida hard coral with signs of bleaching or crown-of-thorns starfish damage According to the rough estimate of 78 million tourists per year in coral reef areas. An estimated amount of Sunscreens between 16, and 25, tons are used annually in the tropical countries. As a result, small quantities of sunscreens result in the production of large amounts of coral mucous within hr and bleaching of hard corals with in 96 hrs. Among the UV filters that result in coral bleaching according to studies are: Bleaching was favored by higher temperature which act as synergistic factor. Experiments showed that the coral bleaching was not dose dependent, so it can occur upon exposure to very small amount.

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2: Eyeglass Lens Coatings: Anti-Reflective, Scratch Resistant, Anti-Fog

UltraViolet Reflections Photography, San Antonio, Texas. likes. Fine Art Photography specializing in Family Portraiture and Individual Portraits.

Tour of the Electromagnetic Spectrum Ultraviolet Waves Bees, along with some birds, reptiles andother insects, can see near-ultraviolet lightreflecting off of plants. Bug zappers attractinsects with ultraviolet light to lure themto the trap. What is UV Light? Ultraviolet UV light has shorter wavelengths than visible light. Although UV waves are invisible to the human eye, some insects, such as bumblebees, can see them. This is similar to how a dog can hear the sound of a whistle just outside the hearing range of humans. These are the classifications most often used in Earth sciences. UV-C rays are the most harmful and are almost completely absorbed by our atmosphere. UV-B rays are the harmful rays that cause sunburn. Image is courtesy of: The false-color composite reveals different gas temperatures. Reds are relatively cool about 60, Celsius while blues and greens are hotter greater than one million Celsius. The plasma is seen flowing along a magnetic field. Knowing that photographic paper would turn black more rapidly in blue light than in red light, he exposed the paper to light beyond violet. Sure enough, the paper turned black, proving the existence of ultraviolet light. Scientists can study the formation of stars in ultraviolet since young stars shine most of their light at these wavelengths. The difference in how the galaxies appear is due to which type of stars shine brightest in the optical and ultraviolet wavelengths. Ultraviolet images of galaxies show mainly clouds of gas containing newly formed stars that are many times more massive than the Sun and glow strongly in ultraviolet light. In contrast, visible light images of galaxies show mostly the yellow and red light of older stars. By comparing these types of data, astronomers can learn about the structure and evolution of galaxies. Each year, a "hole" of thinning atmospheric ozone expands over Antarctica, sometimes extending over populated areas of South America and exposing them to increased levels of harmful UV rays. The image above shows the amount of atmospheric ozone in Dobson Unitsâ€”the common unit for measuring ozone concentration. When the electrons move back down to a lower shell, the energy is released as light, and the atom returns to a relaxed state. The color of this light can reveal what type of atom was excited. Green light indicates oxygen at lower altitudes. Red light can be from oxygen molecules at a higher altitude or from nitrogen. On Earth, aurorae around the north pole are called the Northern Lights. The part of the Earth facing the Sun reflects much UV light and bands of UV emission are also apparent on the side facing away from the Sun. These bands are the result of aurora caused by charged particles given off by the Sun. Retrieved [insert date - e. National Aeronautics and Space Administration.

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3: Bird vision - Wikipedia

BUFF UV Multifunctional Headwear delivers all the functionality of the Original Multifunctional Headwear, then adds built-in-sun protection that blocks up to 95% of UV rays.

Lens coatings can enhance the durability, performance and appearance of your eyeglass lenses. This is true whether you wear single vision , bifocal or progressive lenses. If you are thinking about purchasing new eyeglasses , here are lens coatings and treatments you should consider. Anti-Reflective Coating Anti-reflective coating also called AR coating or anti-glare coating is a microscopically thin multilayer coating that eliminates reflections from the front and back surface of eyeglass lenses. By doing so, AR coating makes your lenses nearly invisible so people can focus on your eyes, not distracting reflections from your eyeglasses. An anti-scratch coating can lengthen the life of your lenses, while hydrophobic coatings keep rain, snow and fog at bay. Anti-reflective coating also eliminates glare caused by light reflecting from your lenses. With reflections eliminated, lenses with AR coating provide better vision for night driving and more comfortable vision for reading and computer use. AR coating is highly recommended for all eyeglass lenses, but particularly for polycarbonate and high-index lenses , which reflect more light than regular glass or plastic lenses if anti-reflective coating is not applied. Also, aspheric lenses , which have flatter curves than regular lenses, often cause more noticeable reflections, so AR coating is highly recommended for these lenses, too. And AR coating is beneficial when applied to the back surface of sunglasses to eliminate "bounce-back" reflections when you are facing away from the sun. For the best possible comfort in all lighting conditions, eye care professionals usually recommend applying anti-reflective coating to photochromic lenses. AR coating improves light transmission through the lenses for night driving and helps photochromic lenses reduce glare in bright sunlight. However, lenses that are treated front and back with a clear, scratch-resistant coating have a much harder surface that is more resistant to scratching, whether from dropping your glasses on the floor or occasionally cleaning them with a paper towel. Today, most eyeglass lenses, including high-index lenses and lenses made of polycarbonate and Trivex , have a built-in scratch-resistant coating. Since scratch-resistant coatings are sometimes optional, make sure your optician knows that you want your eyeglass lenses to include hard coating for extra durability. Also, ask about the warranty on eyeglass lenses that are treated with scratch-resistant coating versus those without the coating. To keep your glasses looking new, store them in a cushioned case when not in use, and clean your lenses with a microfiber cloth and the cleaning solution your optician recommends. Also, be wary of products that promise to repair scratched lenses. These products may fill in the scratches, but it is impossible for them to make the scratches disappear so the lenses look new again. Anti-Fog Coating If you live in a cold climate, nothing is more frustrating than having your eyeglasses fog up when you come in from the cold. This also can be a safety issue, since it limits your ability to see until the fog clears. Lens fogging can be especially dangerous for police officers and other first responders to emergency situations. At least one eyeglass lens coating company Opticote has created a permanent coating designed to eliminate this problem. The factory-applied coating â€” called Fog Free â€” eliminates the condensation of moisture on lenses that causes fogging. So your lenses and vision stay clear when you make the transition from a cold environment to a warm one. It may also keep your lenses from fogging up during sports and other times you are hot and perspiring. Fog Free can be applied to plastic, polycarbonate and other eyeglass lenses, including high-index lenses and Transitions photochromic lenses. The anti-fog coating is applied to the lenses before they are cut to fit into your frame at the optical lab. Ask your optical retailer about pricing and availability. Another option in anti-fog lens technology is Optifog lenses Essilor. The anti-fogging property of Optifog lenses is activated by applying a drop of Optifog Activator to each side of the lens, then wiping the lens with a microfiber cloth to thoroughly spread the liquid across the entire lens surface. This treatment keeps the lenses fog-free for up to one week, according to Essilor. Lens fogging is caused by tiny water droplets that form by condensation on the surface of eyeglass lenses when the lenses are significantly cooler than the surrounding air temperature. Optifog works by uniformly spreading these water droplets across the lens surface so they become invisible, Essilor says. Ultraviolet Treatment Another beneficial lens treatment is an

invisible dye that blocks ultraviolet UV light. Overexposure to ultraviolet light is thought to be a cause of cataracts , retinal damage and other eye problems. Regular plastic eyeglass lenses block most UV light, but adding a UV-blocking dye boosts UV protection to percent for added safety. Other eyeglass lens materials, including polycarbonate and most high-index plastics, have percent UV protection built-in, so an extra lens treatment is not required for these lenses. Heiting has more than 25 years of experience as an eye care provider, health educator and consultant to the eyewear industry. His special interests include contact lenses, nutrition and preventive vision care. Page updated August Like This Page?

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4: UVR Photography & Design â€“ Wedding Photographer in Archer City

Get tips and tricks to the perfect wedding day. From how to start planning, to the moment you kiss.

Is UV light reflected? The first myth says that fluorescent lighting generates hazardous amounts of UV rays, rivaling direct outdoor sun exposure. The second one says that the first myth is complete nonsense and that fluorescent lighting generates no UV rays whatsoever. The reality is a bit more complicated. Most fluorescent lamps work on the following principle. Inside the lamp, electrical discharge excites a gas usually neon or mercury vapor in argon , which emits ultraviolet radiation. UV rays hit a special dye covering the bulb, which absorbs UV radiation and emits visible light. Yet, some does get through. Fortunately, it seems that typical exposure to the UV light from commonly used types of fluorescent lamps is relatively small. However, this estimate is imprecise and some lamps may be greater offenders than others. If you spend a lot of time under intense fluorescent light, you could consider extra protection. One possible step is to ensure that fluorescent bulbs have plastic diffusers over them. Most mirrors are just a piece of flat glass with a coating on the back of aluminum. Some of them have silver, but most of them today are aluminum. A tortoise needs both, "but particularly UVB, the short wavelengths of light, for Vitamin D3 production. Exposure to UVA is important for the activity level, feeding, and breeding in many species. If a mesh top is necessary to prevent escapes, select a type with larger openings. UVB bulbs should generally be placed inches above the animal, and no more than 18 inches. Research the UVB needs of your species before buying a bulb. After several months of use, they start to decrease in output. Plan on replacing your bulb about every 10 months, more often for some brands. Keep in mind that this is one of the ongoing costs of keeping a turtle or tortoise. If you see me running, try to keep up.

ULTRAVIOLET REFLECTIONS pdf

5: Is UV light reflected? | Naked Science Forum

First, what reflects the light, whether it is UV, visible or IR wavelength, is the metal coating on the mirror. The reflectivity of various metals is indicated here: Page on www.enganchecubano.com Aluminum is a good reflector of UV, visible and IR ligh.

Exposure to ultraviolet UV radiation is a major risk factor for most skin cancers. Sunlight is the main source of UV rays. Tanning lamps and beds are also sources of UV rays. People who get a lot of UV exposure from these sources are at greater risk for skin cancer. UV rays damage the DNA of skin cells. Skin cancers start when this damage affects the DNA of genes that control skin cell growth. There are 3 main types of UV rays: These rays are linked to long-term skin damage such as wrinkles, but they are also thought to play a role in some skin cancers. Most tanning beds give off large amounts of UVA, which has been found to increase skin cancer risk. They are also thought to cause most skin cancers. They are not normally a cause of skin cancer. The strength of the UV rays reaching the ground depends on a number of factors, such as: UV rays are strongest between 10 am and 4 pm. Season of the year: UV rays are stronger during spring and summer months. This is less of a factor near the equator. Distance from the equator latitude: UV exposure goes down as you get further from the equator. More UV rays reach the ground at higher elevations. The effect of clouds can vary. What is important to know is that UV rays can get through, even on a cloudy day. UV rays can bounce off surfaces like water, sand, snow, pavement, or grass, leading to an increase in UV exposure. The amount of UV exposure a person gets depends on the strength of the rays, the length of time the skin is exposed, and whether the skin is protected with clothing or sunscreen. People who live in areas with year-round, bright sunlight have a higher risk of skin cancer. Spending a lot of time outdoors for work or recreation without protective clothing and sunscreen increases your risk. The pattern of exposure may also be important. For example, frequent sunburns in childhood may increase the risk for some types of skin cancer many years or even decades later. Skin cancers are one result of getting too much sun, but there are other effects as well. Sunburn and tanning are the short-term results of too much exposure to UV rays, and are signs of skin damage. Long-term exposure can cause early skin aging, wrinkles, loss of skin elasticity, dark patches lentigos, sometimes called age spots or liver spots , and pre-cancerous skin changes such as dry, scaly, rough patches called actinic keratoses. Darker-skinned people are generally less likely to get skin cancer than light-skinned people, but they can still get cataracts and immune suppression. The UV Index As noted above, the amount of UV light reaching the ground in any given place depends on a number of factors, including the time of day, time of year, elevation, and cloud cover. A higher number means greater risk of exposure to UV rays and a higher chance of sunburn and skin damage that could ultimately lead to skin cancer. The UV Index is given daily for regions throughout the country. Many television, online, and smartphone weather forecasts include the projected UV Index. Smartphone apps are available from the EPA at www. As with any forecast, local changes in cloud cover and other factors could change the actual UV levels experienced.

6: Ultraviolet Waves | Science Mission Directorate

Ground reflection With kind permission from Digital Context AB. Many surfaces reflect UV radiation and add to the overall UV levels you experience.

Extraocular anatomy[edit] The eye of a bird most closely resembles that of the reptiles. Unlike the mammalian eye, it is not spherical, and the flatter shape enables more of its visual field to be in focus. A circle of bony plates, the sclerotic ring , surrounds the eye and holds it rigid, but an improvement over the reptilian eye, also found in mammals, is that the lens is pushed further forward, increasing the size of the image on the retina. Instead the eye is lubricated by the nictitating membrane , a third concealed eyelid that sweeps horizontally across the eye like a windscreen wiper. The eye of a bird is larger compared to the size of the animal than for any other group of animals, although much of it is concealed in its skull. A study of five orders parrots, pigeons, petrels, raptors and owls showed that eye mass is proportional to body mass, but as expected from their habits and visual ecology, raptors and owls have relatively large eyes for their body mass. For a pigeon, resolution is twice as good with sideways monocular vision than forward binocular vision, whereas for humans the converse is true. The performance of the eye in low light levels depends on the distance between the lens and the retina, and small birds are effectively forced to be diurnal because their eyes are not large enough to give adequate night vision. Although many species migrate at night, they often collide with even brightly lit objects like lighthouses or oil platforms. Birds of prey are diurnal because, although their eyes are large, they are optimised to give maximum spatial resolution rather than light gathering, so they also do not function well in poor light. The cost of this adaptation is that they have myopia in the lower part of their visual field. However, if birds have the same eye size but different body masses, the larger species sings later than the smaller. This may be because the smaller bird has to start the day earlier because of weight loss overnight. Information about the activities of extinct species can be deduced from measurements of the sclerotic ring and orbit depth. For the latter measurement to be made, the fossil must have retained its three-dimensional shape, so activity pattern cannot be determined with confidence from flattened specimens like Archaeopteryx , which has a complete sclerotic ring but no orbit depth measurement. The outer layer of the eye consists of the transparent cornea at the front, and two layers of sclera â€” a tough white collagen fibre layer which surrounds the rest of the eye and supports and protects the eye as a whole. The eye is divided internally by the lens into two main segments: The anterior chamber is filled with a watery fluid called the aqueous humour, and the posterior chamber contains the vitreous humour, a clear jelly-like substance. It focuses the light on the retina. The shape of the lens can be altered by ciliary muscles which are directly attached to lens capsule by means of the zonular fibres. This accommodation can be rapid in some diving water birds such as in the mergansers. The iris is a coloured muscularly operated diaphragm in front of the lens which controls the amount of light entering the eye. At the centre of the iris is the pupil, the variable circular area through which the light passes into the eye. The density of the photoreceptors is critical in determining the maximum attainable visual acuity. Humans have about , receptors per mm2, but the house sparrow has , and the common buzzard 1,, The photoreceptors are not all individually connected to the optic nerve, and the ratio of nerve ganglia to receptors is important in determining resolution. This is very high for birds; the white wagtail has , ganglion cells to , photoreceptors. As with other vertebrates except placental mammals , some of the cones may be double cones. The optic nerve is a bundle of nerve fibres which carry messages from the eye to the relevant parts of the brain and vice versa. Like mammals, birds have a small blind spot without photoreceptors at the optic disc, under which the optic nerve and blood vessels join the eye. It is well supplied with blood vessels and appears to keep the retina supplied with nutrients, [1] and may also shade the retina from dazzling light or aid in detecting moving objects. Slight warming of pecten oculi due to absorption of light by melanin granules has been proposed enhance metabolic rate of pecten that is suggested to help increase secretion of nutrients into vitreous, eventually to be absorbed by avascular retina of birds for improved nutrition. These provide arterial blood to the retina and drain venous blood. The choroid contains melanin , a pigment which gives the inner eye its dark colour, helping to prevent disruptive reflections. Rods, which contain the visual pigment

rhodopsin are better for night vision because they are sensitive to small quantities of light. Cones detect specific colours or wavelengths of light, so they are more important to colour-orientated animals such as birds. In some birds, the maximal absorption peak of the cone cell responsible for the shortest wavelength extends to the ultraviolet UV range, making them UV-sensitive. When the pigment absorbs light the retinal changes shape and alters the membrane potential of the cone cell affecting neurons in the ganglia layer of the retina. Each neuron in the ganglion layer may process information from a number of photoreceptor cells , and may in turn trigger a nerve impulse to relay information along the optic nerve for further processing in specialised visual centres in the brain. The more intense a light, the more photons are absorbed by the visual pigments; the greater the excitation of each cone, and the brighter the light appears. This is roughly the spectral region occupied by the red- and green-sensitive pigments in the primate retina, and this visual pigment dominates the colour sensitivity of birds. A visual pigment may absorb two wavelengths equally, but even though their photons are of different energies, the cone cannot tell them apart, because they both cause the retinal to change shape and thus trigger the same impulse. For the brain to see colour, it must compare the responses of two or more classes of cones containing different visual pigments, so the four pigments in birds give increased discrimination. The droplets, which contain high concentrations of carotenoids , are placed so that light passes through them before reaching the visual pigment. They act as filters, removing some wavelengths and narrowing the absorption spectra of the pigments. This reduces the response overlap between pigments and increases the number of colours that a bird can discern. As examples, diurnal hunters like the barn swallow and birds of prey have few coloured droplets, whereas the surface fishing common tern has a large number of red and yellow droplets in the dorsal retina. This finer discrimination, together with the ability to see ultraviolet light, means that many species show sexual dichromatism that is visible to birds but not humans. An American study suggested that migratory Savannah sparrows used polarised light from an area of sky near the horizon to recalibrate their magnetic navigation system at both sunrise and sunset. This suggested that skylight polarisation patterns are the primary calibration reference for all migratory songbirds. Many species of birds are tetrachromatic, with dedicated cone cells for perceiving wavelengths in the ultraviolet and violet regions of the light spectrum. There are two types of short wave color vision in birds: The major clades of birds that have UVS vision are Palaeognathae ratites and tinamous , Charadriiformes shorebirds, gulls, and alcids , Trogoniformes trogons , Psittaciformes parrots , and Passeriformes perching birds, representing more than half of all avian species. Birds that do not exhibit sexual dichromatism in visible wavelengths are sometimes distinguished by the presence of ultraviolet reflective patches on their feathers. Although the UV component seems unimportant in interactions between territory-holding males, where the degree of orange is the main factor, the female responds more strongly to males with bills with good UV-reflectiveness. Similar advantages afforded to trichromatic primates over dichromatic primates in frugivory [40] are generally considered to exist in birds. The waxy surfaces of many fruits and berries reflect UV light that advertise their presence to UVS birds. This raises the possibility that ultraviolet vision gives birds a channel in which they can privately signal, thereby remaining inconspicuous to predators. Birds have comparably lower contrast sensitivity than mammals. Humans have been shown to detect contrasts as low as 0. For stationary viewing experiments the contrast sensitivity is highest at a medium spatial frequency and lower for higher and lower spatial frequencies. Humans cannot therefore distinguish individual flashes of a fluorescent light bulb oscillating at 60 light pulse cycles per second, but budgerigars and chickens have flicker or light pulse cycles per second thresholds of more than light pulse cycles per second. The movement of the sun and the constellations across the sky is imperceptible to humans, but detected by birds. The ability to detect these movements allows migrating birds to properly orient themselves. Maintaining a steady image is especially relevant for birds of prey. The alternative of turning the head for a better view slows down the dive by increasing drag while spiralling does not reduce speeds significantly. It has however been demonstrated that pigeons do not complete occluded shapes. Raptors have large eyes for their size, 1. The resolving power of an eye depends both on the optics, large eyes with large apertures suffers less from diffraction and can have larger retinal images due to a long focal length, and on the density of receptor spacing. The retina has a large number of receptors per square millimeter, which determines the degree of visual acuity. The more receptors

an animal has, the higher its ability to distinguish individual objects at a distance, especially when, as in raptors, each receptor is typically attached to a single ganglion. Behavioural studies show that some large eyed raptors Wedge-tailed eagle, Old world vultures and have ca 2 times higher spatial resolution than humans, but many medium and small sized raptors have comparable or lower spatial resolution. Vultures, however have high physiological activity of many important enzymes to suit their distant clarity of vision. However, they do have a higher degree of binocular overlap than other falcons, potentially to enable the caracara to manipulate objects, such as rocks, whilst foraging. This "eyebrow" gives birds of prey their distinctive stare. The ridge physically protects the eye from wind, dust, and debris and shields it from excessive glare. The osprey lacks this ridge, although the arrangement of the feathers above its eyes serves a similar function; it also possesses dark feathers in front of the eye which probably serve to reduce the glare from the water surface when the bird is hunting for its staple diet of fish. There are few coloured oil droplets, which would reduce the light intensity, but the retina contains a reflective layer, the tapetum lucidum. This increases the amount of light each photosensitive cell receives, allowing the bird to see better in low light conditions. Some bird species nest deep in cave systems which are too dark for vision, and find their way to the nest with a simple form of echolocation. The oilbird is the only nocturnal bird to echolocate, [71] but several Aerodramus swiftlets also utilise this technique, with one species, Atiu swiftlet , also using echolocation outside its caves. This improves contrast and sharpens distance vision, especially in hazy conditions. Reef herons and little egrets appear to be able to make the corrections needed when capturing fish and are more successful in catching fish when strikes are made at an acute angle and this higher success may be due to the inability of the fish to detect their predators. This allows greater optical accommodation for good vision in air and water. It is characterised by the presence of ganglion cells which are regularly arrayed and larger than those found in the rest of the retina, and morphologically appear similar to the cells of the retina in cats. The location and cellular morphology of this novel area suggests a function in the detection of items in a small binocular field projecting below and around the bill. It is not concerned primarily with high spatial resolution, but may assist in the detection of prey near the sea surface as a bird flies low over it. Two aspects of its optical structure suggest that the eye of this species is adapted to vision at night. The cornea, the outer covering of the eye, is relative flat and so of low refractive power. In a diurnal bird like the pigeon, the reverse is true; the cornea is highly curved and is the principal refractive component. The ratio of refraction by the lens to that by the cornea is 1. Although the Manx shearwater has adaptations for night vision, the effect is small, and it is likely that these birds also use smell and hearing to locate their nests. Although the cornea is flat and adapted to swimming underwater, the lens is very strong and can compensate for the reduced corneal focusing when out of water.

7: UV Reflection Green | Official Site

Most of materials that highly reflect the visible spectrum of light are highly absorbing materials for UV- spectrum, like noble metals(Au, Ag and Cu), and also alkali metals.

8: visible light - Surfaces that reflect UV rays - Physics Stack Exchange

Keywords: anti-reflective coating, ultraviolet radiation, UV, lens reflections, transmittance, reflectance Introduction Anti-reflective (AR) coatings have long been known to provide numerous visual benefits to spectacle wearers.

9: electromagnetic radiation - UV reflective surfaces - Physics Stack Exchange

Exposure to ultraviolet (UV) radiation is a major risk factor for most skin cancers. Sunlight is the main source of UV rays. Tanning lamps and beds are also sources of UV rays. People who get a lot of UV exposure from these sources are at greater risk for skin cancer. Even though UV rays make up.

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Magick and mysticism in Zorns recent works Washington and American POWs Hallelujah Tanker Dane Liz Earles lifestyle guide. Synaptic plasticity in addition Yan Dong and R. Suzanne Zukin Solutions to Coastal Disasters 02: Conference Proceedings : February 24-27, 2002 Global Warming and Human Pollution Robbins and cotran pathologic basis of disease 9th ed Retief in the Ruins Symbols, Power And Politics (Studies in Sociology: Symbols, Theory and Society) George Villiers, Second Duke Of Buckingham; The Rehearsal Effective Personnel Management Third EDI From Asculum to Actium Google drawings cheat sheet The Achilles heel of human cognition : probabilistic reasoning Basic Electrical and Electronic Tests and Measurements Is That Your Voice Lord Fact stranger than fiction A Vision for the Millennium Books and broadsides by Jim Harrison Ts 16949 quality management system The dancer from Khiva Skating to Antarctica No se tu partitura para piano Tyler the Texas Turkey Host a stink fest! The Courage to Teach Ultimate Collection Last days of the Morarji raj Go (Another chapter about evangelism) Lordship of Galloway Dot marker abc activity sheets Wheatless cooking Celts and Stonehenge A Psychology of Food Ch. 1. Introduction: the land and its people Theoretical and experimental approaches to Romance linguistics Montana arrests, offenses Seasons of the Pines The Treasure House (Reading 2000 Storytime) CHALLENGE INNOVATION CL (S/N (Social Aspects of Aids Series)