

# PERSONAL GUIDE BOOK TO UV PROTECTION

BROUGHT TO BY PROJECT UVRAYDIANT

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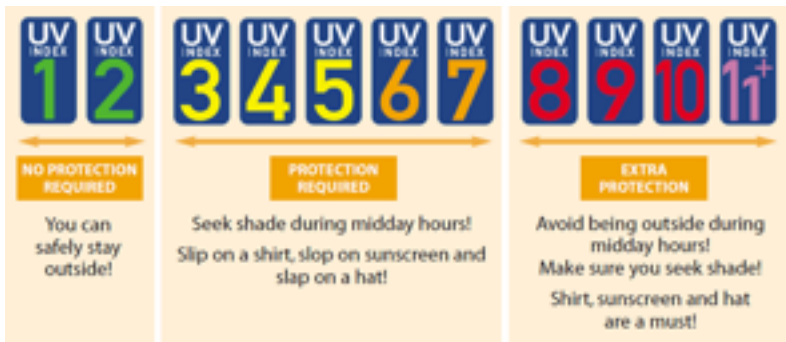
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# UV radiation in Singapore

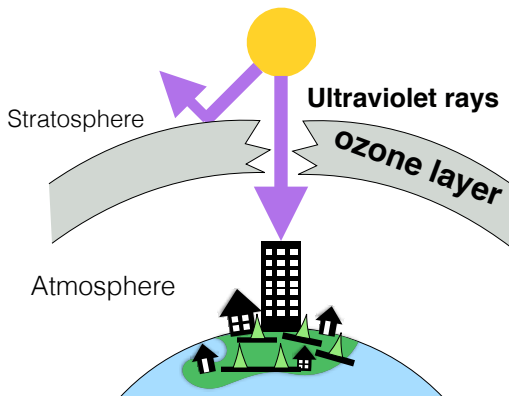
## HIGH UV INDEX

Singapore is in close proximity to the equator and hence has one of the world's highest UV index scores averaging at 12, as compared to the normal range of 7-11. The World Health Organisation (WHO) has established that indexes of more than 11 indicate extreme risk of harm through unprotected sun exposure. Thus Singaporeans are more prone to suffering health damages caused by exposure to strong ultraviolet rays.



## DEPLETING OZONE LAYER

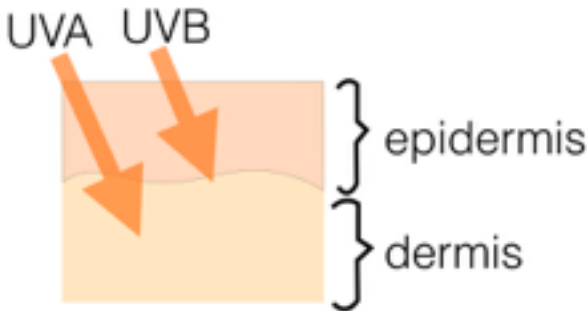
The ozone layer, a thin layer in Earth's atmosphere which filters the Sun's UV radiation, has been depleting rapidly. This resulting loss of stratospheric ozone has been associated with increasing levels of some types of ultraviolet radiation reaching the Earth's surface. The incidence of non-melanoma skin cancer is expected to increase by approximately 2% for every persistent 1% loss in average ozone concentration.



# 2 MAIN TYPES OF UV RADIATION

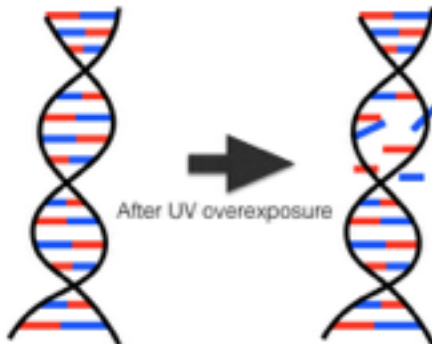
## UVA RAYS

- Accounts for 95% of the UV radiation reaching the Earth's surface.
- Penetrates the skin more deeply than UVB rays, causes premature ageing.
- 30 to 50 times more prevalent than UVB rays though less intense.



## UVB RAYS

- Chief cause in skin reddening and sunburn.
- Plays a key role in the development of skin cancer by causing direct DNA damage.
- Plays a contributory role in skin ageing and wrinkling.



# Harmful effects of uv rays

**Overexposure to UV radiation has harmful effects on the:**

## SKIN

### Sunburn

Severe reddening of the skin which can develop into swelling and blisters.

### Premature Ageing

Structural changes in the dermis, including dryness, wrinkles, accentuated skin, furrows, sagging, loss of elasticity, and mottled pigmentation. These are the result of degenerative changes in elastin and collagen, which can accumulate over time and are largely irreversible.

### Skin Cancer

Uncontrolled growth of abnormal skin cells which occurs when unrepaired DNA in skin cells trigger mutations, or genetic defects, that result in skin cells multiplying rapidly to form malignant tumours.



## EYES

Chronic effects such as corneal damage, cataracts, macular degeneration, which can ultimately lead to blindness as the front of the eyes absorb more than 99% of UV radiation.



## IMMUNE SYSTEM

Suppression of the proper function of the body's immune system and the skin's natural defences, reducing skin's ability to protect against pathogens.





# Sunscreen

## Choosing The Right Sunscreen

- ▶ Use sunscreens of SPF 30 and above. Sun Protection Factor (SPF) is a measure of how well a sunscreen/sunblock will protect the skin from UV radiation.
- ▶ Look out for the label “Broad-spectrum”, meaning that the product offers protection from both UVA and UVB rays.

## Applying Sunscreen

- ▶ Apply sunscreen preferably 20 minutes before going out into the sun.
- ▶ Apply sunscreen everyday because UV radiation is always present whether rain or shine.
- ▶ Apply sunscreen sufficiently, ensuring that there is no uncovered area of exposed skin (about 1 ounce of sunscreen should be used to cover the arms, legs, neck, and face of the average adult.)
- ▶ Reapply sunscreen with water-resistant factor every 2 hours, especially if doing water sports like swimming. Remember to wipe off sweat or water before applying.



# Sunglasses

- ▶ Putting on sunglasses is important to reduce the amount of UV radiation reaching the eyes and protecting the delicate skin around the eyes, reducing risks of contracting eye diseases.
- ▶ Research has shown that long hours in the sun without protecting your eyes from UV radiation increases your chances of developing certain eye diseases.

## Type of Sunglasses

- ▶ Sunglasses with large-frames and those that protect the eyes against UV protection are effective in protecting your eyes from UV radiation.





# CAPS AND HATS

Cover up with caps/hats, especially when you are participating in outdoor activities.

## **Type of hats/caps**

- ▶ A hat with at least a 2 to 3-inch brim all around is ideal because it protects areas that are often exposed to intense sun, such as the ears, eyes, forehead, nose, and scalp.
- ▶ A dark, non-reflective underside of the brim can also lower the amount of UV rays reaching the face from reflective surfaces such as water. These are often sold in sports and outdoor supply stores.





# Dressing to limit sun exposure

## **Dressing to limit exposure to UV radiation**

When you are out in the sun, wear clothing to protect yourself from UV radiation and cover as much skin as possible.

### **Preferable types of clothing**

- ▶ Long-sleeved shirts, long pants, and long skirts cover the most skin and are the most protective.
- ▶ Clothing with Ultraviolet Protection Factor (UPF).
- ▶ Bright, lustrous and dark-coloured clothes reflect more UV radiation than pastel coloured and bleached cottons
- ▶ Tightly-woven, loose-fitting clothes prevent penetration of UV radiation as compared to tight-fitting clothes.



## Seeking Shade

- ▶ Avoid being outdoors in direct sunlight for too long. This is particularly important between the hours of **10 am and 4 pm**, when UV rays are the strongest.
- ▶ If unsure how strong the UV rays are, use the shadow test: if your shadow is shorter than you are, the UV rays are the strongest.
- ▶ Be especially careful on the beach and in areas with snow because sand, water, and snow reflect sunlight, increasing the amount of UV radiation received.

# UV PROTECTION CHECKLIST AND QUIZ

## Protect yourself from UV rays by following the guidelines below:

- I understand the relevance of UV protection in Singapore. ☐
- I am aware of the harmful effects of UV overexposure. ☐
- I apply sunscreen on my face and body on a regular basis. ☐
- I wear sunglasses whenever I'm out in the sun. ☐
- I put on a cap/hat when I'm participating in outdoor activities. ☐
- I dress myself to limit exposure to UV radiation. ☐
- I seek shade between the hours of 10am to 4pm. ☐

## Identify the UV protection methods:



## **THIS SUN SAFETY GUIDE BOOK IS A COMMUNITY PROBLEM SOLVING INITIATIVE BY PROJECT UVRAYDIANT.**

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### **ACKNOWLEDGEMENTS:**

Kerstin Ong, Nur Izyln, Samantha Yom,  
Wesley Wong, Diandrea Ho, Denise Chia

### **SUPPORTED BY:**



**RAFFLES**  
GIRLS' SCHOOL



### **SOURCES:**

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2. <http://www.cancer.org/cancer/cancercauses/sunanduvexposure/skincancerpreventionandearlydetection/skin-cancer-prevention-and-early-detection-u-v-protection>
3. <http://www.skincancer.org/prevention/sun-protection/shade/seek-the-shade>
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