

91923



Level 1 Science 2024

91923 Demonstrate understanding of science-related claims in communicated information

Credits: Five

PRACTICE ASSESSMENT TASK

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of science-related claims in communicated information	Explain science-related claims in communicated information	Examine science-related claims in communicated information

Refer to information in this booklet for Science 91923.

Check that this booklet includes pages 2-14 In the correct order and that none of these pages is blank.

So not use chatbots, generative AI, or other tools that can automatically generate content.

DO NOT TAKE THESE ASSESSMENT MATERIALS OUT OF THE ASSESSMENT ROOM.

NZASE

This is a practice assessment intended to aid students in understanding the requirements of the assessment. It is not meant as an indication of what will be delivered in the Final examination.

ASSESSMENT TASK

For this standard you will need to:

- select **ONE** resource from this resource booklet
- Select **TWO** claims from within that resource you selected

Tick the claim you will write about in the report:

- ☐ Impacts of Blue Light
- ☐ Cold Water Therapy
- ☐ Sun Protection

• write a digital report on the **TWO** claims from the resource you selected, using your science knowledge and language, and critical thinking skills.

In your report consider including discussions on:

- the source of the **TWO** claims
- the intended purpose of the communicated information in the **TWO** claims
- how science language and/or conventions are used to support the **TWO** claims

RESOURCE ONE: Impacts of Blue Light on humans

Claim One: Blue light is destroying your sleep

Source: Block Blue Light company that manufactures products that block blue light for sale to the public.



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How Blue Light Is Destroying Your Sleep

WHAT IS BLUE LIGHT?

- # Light is made up of particles that travel as waves of energy.
- # Each colour has a different wavelength range that varies in length and strength.
- # Blue light is a colour in the visible light spectrum which has a very short wavelength and therefore produces a very high amount of energy.

ARTIFICIAL BLUE LIGHT

- # Sources of artificial blue light are everywhere; in today's modern world you simply cannot escape it.
- # All modern electric-powered devices which produce a light source will emit high amounts of blue light, even if it doesn't appear to actually look noticeably blue.
- # The most common sources of artificial blue light include tablets, smartphones, monitors from computers and laptops, TVs, lighting in homes, offices, and stores, and even the light inside your fridge.

BLUE LIGHT AND SLEEP

- # Melatonin (the sleep hormone) is produced by our brains which makes us fall asleep and stay asleep.
- # Darkness causes the body to produce melatonin, which causes sleepiness, signalling to the body that it is time to sleep.
- # Exposure to blue light at night suppresses the release of melatonin as it signals your brain that it is still daylight, trying to keep you awake and alert.
- # Reduction in melatonin makes it hard to fall asleep and/or stay asleep, drastically lowers sleep quality, and causes serious sleep disruption.
- # Quality sleep is essential for maintaining a healthy body and mind.

BLUE LIGHT AND EYE DAMAGE

- # If you are working for prolonged periods on computer screens, gaming, or under harsh artificial lighting during daytime hours, you are damaging your eyes from chronic exposure to harmful blue light.
- # Symptoms can manifest as digital eye strain, dry, itchy or irritated eyes, headaches and migraines, even loss of vision from macular degeneration.

Protection from blue light when you need it

Getting a good night's sleep doesn't mean spending your last hour awake in darkness. It might not even mean giving up on your phone in the evening – all you might need is just a little bit of preparation in order to remove the amount of blue light in your life.

Melatonin production suppression is proportional to the intensity and the length of blue light exposure – reduce either and your melatonin production will increase.

This could take any number of forms. From using low blue light bulbs in your home to wearing blue light protection glasses during the day when doing screen work, there are numerous ways you can reduce the total amount of blue light your eyes are exposed to on a daily basis.

BlockBlueLight offers a range of products designed to help you minimise the amount of blue light in your life. Browse our range of eyewear, screen filters and lighting solutions and start giving yourself the rest you deserve.

Claim TWO: Blue light reduces ability to sleep

Source: Harvard Health; Harvard Medical School completed a study of the effects of blue light on sleep patterns

Blue light has a dark side

Although it is environmentally friendly, blue light can affect your sleep and cause disease. Before artificial lighting, the sun was the major source of light, and people spent their evenings in darkness. Now, in much of the world, evenings are illuminated, and we take our easy access to all those lumens pretty much for granted. But we may be paying a price for basking in all that light. At night, light throws the body's biological clock—the circadian rhythm—out of whack. Sleep suffers. Worse, research shows that it *may* contribute to cancer, diabetes, heart disease, and obesity.

What is blue light?

Not all colors of light have the same effect. Blue wavelengths—which are beneficial during daylight hours because they boost attention, reaction times, and mood—seem to be the most disruptive at night. And the proliferation of electronics with screens, as well as energy-efficient lighting, is increasing our exposure to blue wavelengths, especially after sundown.

Light and sleep

Everyone has slightly different circadian rhythms, but the average length is 24 and one-quarter hours. The circadian rhythm of people who stay up late is slightly longer, while the rhythms of early birds falls short of 24 hours. Dr. Charles Czeisler of Harvard Medical School showed that daylight keeps a person's internal clock aligned with the environment.

Is nighttime light exposure bad?

Exposure to light suppresses the secretion of melatonin, a hormone that influences circadian rhythms. Even dim light can interfere with a person's circadian rhythm and melatonin secretion. A mere eight lux—a level of brightness exceeded by most table lamps and about twice that of a night light—has an effect. Light at night is part of the reason so many people don't get enough sleep, and researchers have linked short sleep to increased risk for depression, as well as diabetes and cardiovascular problems.

Effects of blue light and sleep

While light of any kind can suppress the secretion of melatonin, blue light at night does so more powerfully. Harvard researchers conducted an experiment comparing the effects of 6.5 hours of exposure to blue light and to green light of comparable brightness. The blue light suppressed (slowed down) melatonin production for about twice as long as the green light, and shifted circadian rhythms by twice as much (3 hours vs. 1.5 hours). In another study of blue light, researchers at the University of Toronto compared the melatonin levels of people exposed to bright indoor light who were wearing blue-light-blocking goggles to people exposed to regular dim light without wearing goggles. The fact that the levels of the hormone were about the same in the two groups strengthens the hypothesis that blue light is a potent suppressor of melatonin. It also suggests that shift workers and night owls could perhaps protect themselves if they wore eyewear that blocks blue light. Inexpensive sunglasses with orange-tinted lenses block blue light, but they also block other colors, so they're not suitable for use indoors at night. Glasses that block out only blue light can cost up to \$80.

Claim THREE: Blue light enhances performance

Source: An academic paper published in the scientific journal, Frontiers of Physiology

Abstract

Introduction: Blue light from electronic devices has a bad reputation. It has a wavelength which may influence our circadian rhythm and cause bad sleep. But there are other aspects of blue light exposure which are often overlooked, for example, it may influence performance and wellbeing. However, few resources summarize its effects systematically. Therefore, the goal of this review was to summarise the present evidence on blue light exposure and its influence on sleep, performance and wellbeing and discuss its significance for athletes.

Methods: The databases that were searched were Cochrane, Embase, Pubmed, Scopus, and Virtual Health Library. The studies investigated the influence of blue light exposure on either sleep, performance, wellbeing or a combination of those parameters on healthy humans. Quality assessment was done based on the quantitative assessment tool "QualSyst."

Results: Fifty percent of studies found tiredness to be decreased. One fifth of studies found sleep quality to be decreased and one third found sleep duration (length) to be decreased. Half of the studies found sleep efficacy (quality) to be decreased and slightly less than half found sleep latency (delay) to be increased. More than one half of the studies found cognitive (thinking) performance to be increased. Slightly more than two thirds found alertness to be increased and reaction time to be decreased. Slightly less than half of the studies found wellbeing to be increased.

Conclusion: Blue light exposure can positively affect cognitive performance, alertness, and reaction time. This might benefit sports reliant on team-work and decision-making and may help prevent injury. Blue light might also have negative effects such as the decrease in sleep quality and sleep duration, which might worsen an athlete's physical and cognitive performance and recovery.

Sources

Block Blue Light: <https://www.googleadservices.com>

Blue Light has a dark side. Source; Harvard Medical School; <https://www.health.harvard.edu>

Silvani, M. I., Werder, R., & Perret, C. (2022). The influence of blue light on sleep, performance and wellbeing in young adults: A systematic review. *Frontiers in Physiology, 13*.

<https://doi.org/10.3389/fphys.2022.943108>

RESOURCE TWO: Icy Water

Claim ONE: Falling into cold water can cause hypothermia

The following is from the Stand Up PaddleBoard Association warning of the dangers of paddling in cold water.

Paddleboarding in winter is great. It may even be relatively warm and sunny, tempting you into going out there without too much protective clothing. Which can be very dangerous indeed...

The big problem is if you fall into cold water, without adequate clothing. Your body has some instant and automatic physiological reactions to a sudden immersion in cold water, which unfortunately can potentially be lethal. The commonly held assumption that hypothermia is the main danger from cold water is totally false – the cold shock response and loss of muscle function will kill you long before you succumb to hypothermia!

Cold shock response

This is the first thing that happens. It lasts about a minute while your brain and body adjust to the shock of the cold water, and includes all sorts of instant involuntary body reactions (ie you cannot stop them happening!), such as sudden increase in heart and blood pressure that may result in cardiac arrest. Even more deadly is the gasp reflex, which can cause you to inhale as you go under the water, and drown without coming back to the surface. Other aspects of the cold shock response are vertigo, so you don't know which way is up or down, and vastly reduced breath hold capacity anyway.

Loss of muscle function

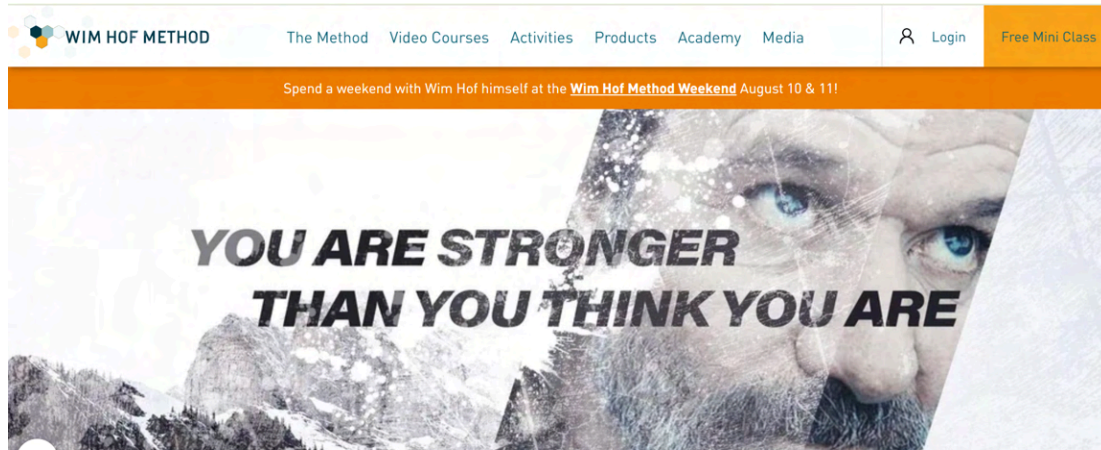
Assuming you do make it back to the surface after falling in, your plan will of course be to get back onto your board as quickly as possible. You lose heat 25x quicker in the water than out of it. Your body cuts off the blood flow to the extremities, and quite quickly, they simply stop working. You'll lose meaningful movement in your hands and feet first, then your arms and legs. It can take as little as 5 minutes for you to lose the ability to simply grab something to pull yourself out of the water, and 15 until you can't even swim at all.

How cold does it need to be?

You can experience cold water shock in water under 15°C. The colder it is below that, the quicker and more severe it will be.

Claim TWO: Cryotherapy is good for your health and wellbeing

The following information is from the website of Wim Hof who has a company which advertises retreats and merchandise in the name of the founder.



Exposing ones body to cold temperatures is one of the three pillars of the Wim Hof Method. Some people, including professional athletes, bodybuilders, and celebrities swear by whole body cryotherapy.

The start of scientific research

What "The Iceman" Wim Hof is capable of was long viewed as scientifically impossible. It wasn't until the first Radboud University study in 2011 that things really kicked off. The study showed that by using his method, Wim was able to voluntarily influence his autonomic nervous system - something which until then was thought impossible. This ground-breaking finding, published in PNAS (The Proceedings of the National Academy of Sciences), established credibility, quite literally rewrote biology textbooks and piqued scientists' curiosity.

Since then, many researchers have taken an interest in the potential benefits of the Wim Hof Method.

Article: The positive effects of combined breathing techniques and cold exposure on perceived stress: a randomised trial

Authors: Cristopher Siegfried Kopplin & Louisa Rosenthal

A couple of researchers from the University of Bayreuth happen to also be avid Wim Hof Method enthusiasts. They decided to use their assets and expertise to try to find out just how effective WHM practice is at bringing down perceived stress.

Test subjects were divided into groups that did either the breathing exercises, cold exposure, or both. All groups showed markedly lower stress levels after the 2-week intervention, however results were most pronounced for the group that practiced both the breathing and cold exposure, attesting to the synergistic effect of the full method.

Claim THREE: Cold water will cause hypothermia and death

The following information is from an organisation that aims to prevent people who carry out recreational activities around water from drowning.

What is the risk?

Anything below 15°C is defined as cold water and can seriously affect your breathing and movement. In water of 15°C, a typical coastal water temperature for New Zealand, the predicted survival time would be about 4-5 hours before hypothermia leads to unconsciousness and drowning. Rivers and lakes are usually colder, even in summer.

Entering cold water

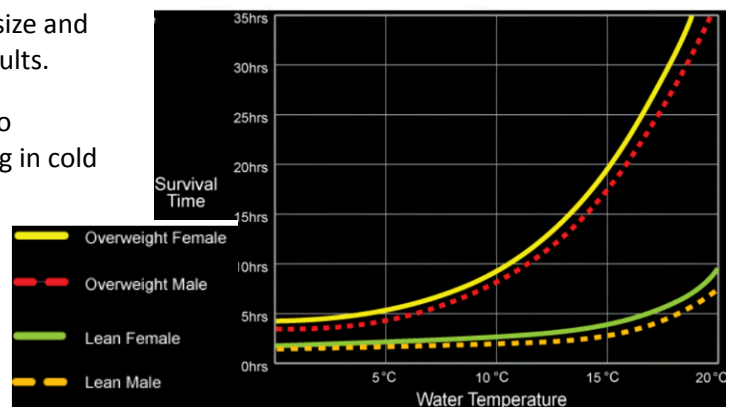
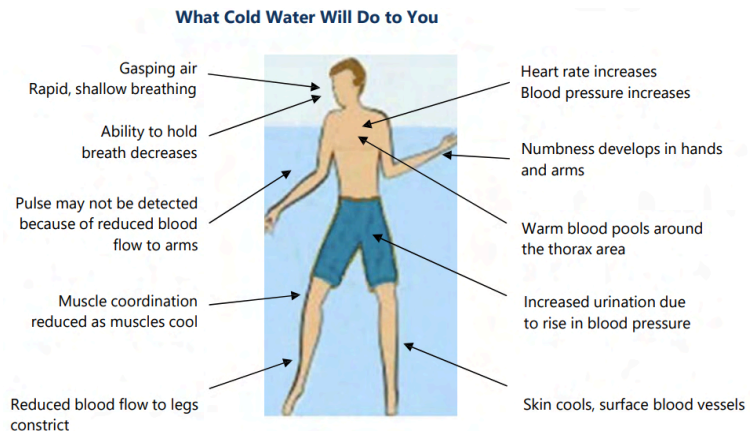
1-10-1 is an easy way to remember the first three phases of cold water immersion and the approximate time each phase takes (1 minute – 10 minutes – 1 hour) (Retrieved from www.coldwaterbootcamp.com).

1 Minute – Cold Shock. If a person enters cold water quickly, the sudden cooling of the skin by cold water causes an involuntary gasp for breath. This may last for about one minute, and they will breathe up to ten times faster than the normal rate. This could lead to dizziness, panic, loss of orientation and the inhalation of water, and possibly lead to drowning. Cold water shock causes the blood vessels in the skin to close, which increases the resistance of blood flow. The heart rate is also increased, and as a result the heart must work harder, and blood pressure increases. Cold water shock can therefore cause heart attacks, even in the relatively young and healthy.

10 Minutes – Cold Incapacitation. Over the next 10 minutes effective use of your fingers, arms and legs for any meaningful movement is lost. If a cold victim tries to swim or tread water, their body temperature will decrease faster. Warm blood from the core travels to these cold limbs and the cold blood is returned to the heart. This hastens the decrease of core body temperature. Children, because of their small size and lack of fat, will tend to lose heat faster than adults.

1 Hour – Hypothermia. Unconsciousness due to hypothermia may occur after one hour of being in cold water (below 15°C).

The following graph shows estimated survival times dependent on water temperature, gender, and body mass.



Claim FOUR: Ice baths are good for your health and wellbeing

Source: This following is from an advertisement by a company called 'Recover' selling therapy products

New Zealand's
#1 ICE BATH

Recover

ALLEVIATES STRESS AND ANXIETY

5 LAYERS OF INSULATION

ASSISTS NECK & BACK PAIN

BOOSTS SEROTONIN AND DOPAMINE

EXPRESS DELIVERY TO YOUR DOOR

OFFER A 90 DAY RISK FREE TRIAL

Portable Ice Bath

**Recover Portable Ice Bath -
(Includes 3 in 1 Combo Today)**

\$169.95 ~~\$549.95~~ **SAVE \$380.00**

- Sleep Better, Recover Faster & Train Harder
- Increase in Dopamine & Energy
- 90 Day Risk Free Trial
- Receive the Recover Ice Bath in 5-10 Days

Buy More & Save: **ONE ICE BATH - \$169.95**

One Ice Bath - \$169.95 **Two Ice Baths - \$299.95 (Save 10%)**
Three Ice Baths - \$369.95 (Save 20%)

Quantity: In stock

Add to Cart

How is it Beneficial?

When you are exposed to cold water, your blood vessels constrict and get smaller. And when you get out of the water, the change in temperature causes them to rapidly re-open, which can help flush the muscles' metabolic waste products.

This process also helps your body release endorphins - the "feel good" hormones that help regulate mood and reduce pain.

The end result? You'll feel like a million bucks!

Sources

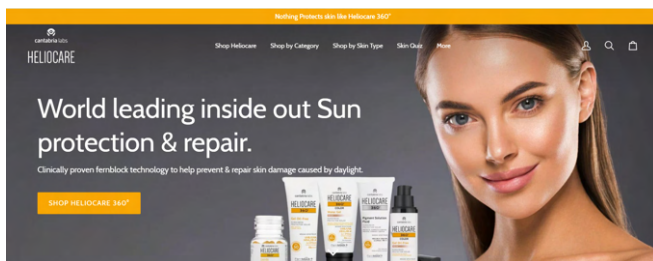
New Zealand Stand up Paddleboard Organisation: <https://nzsup.org>

Wim Hof Method Website: <https://www.wimhofmethod.com>

Drowning Prevention Auckland: <https://www.dpanz.org.nz>

Recover Portable Bath Website: <https://recovericebathnzco.com>

RESOURCE THREE: Sun Protection



Claim ONE: Heliocare sunscreen protects your skin from the sun.

From an advertisement for sunscreen.

Explore our revolutionary range of world-leading sunscreens and oral supplements, perfect for Kiwi sun lovers. Protecting your skin has never been easier - or more effective.

HELIOCARE BENEFITS

Protects Skin Helps protect skin from damaging effects of sun exposure and sunburn. Increases the skin's tolerance to sun exposure.	Prevents & Preserves Helps prevent photoaging and hyperpigmentation. Helps preserve the skin's immunological defenses.	Reduces and Repairs Helps prevent and repair DNA damage. Helps reduce sun allergies or sensitivity, hyperpigmentation and melasma.

Introducing The Science

Our innovative Fernblock® Technology provides your skin with a shield against all forms of radiation—UVB, UVA, Visible, and IR—keeping it safe from immediate burns, as well as long-term damage such as skin ageing, dark spots, and even skin cancer.

A Glimpse into the Beginning

Heliocare's story begins in the early 1990s when Dr. Thomas Fitzpatrick, alongside his team at Harvard Medical School, embarked on a groundbreaking exploration of the *Polypodium leucotomos* fern.

These ferns had been used for centuries by Native Americans for the treatment of skin disorders like psoriasis. Dr. Fitzpatrick and his team wanted to determine the potential of oral and topical *Polypodium leucotomos* in shielding the skin from UV radiation.

Fernblock® Technology: A Revolutionary Breakthrough

Beyond merely preventing sunburn, Fernblock® was designed to combat long-term negative effects that UV radiation can have on the skin, including preventing hyperpigmentation and protecting our skin cell DNA.

For the very first time, Heliocare introduced a groundbreaking concept: protecting your skin from UV radiation through oral administration. As a result of this extensive research by Cantabria Labs and Harvard Medical School, people all over the world are now experiencing the pinnacle of sun protection. Topical sunscreens combined with oral capsules for comprehensive, inside-out defence against the sun.

Claim TWO: SPF ratings tell you how long you can be exposed to the sun.

The following is from a community family health Website.

Sunscreens and what exactly does SPF mean?

Sunburn is known to cause skin cancer. The following article will help you choose an appropriate sunscreen for you and your whānau.

SPF stands for sun protection factor. This tells us how much longer you could expect to be out in the sunshine before you get sunburnt compared to if you were not using any sunscreen. An example of this is if you are wearing SPF 15 sunscreen you can stay out 15 times longer than if you were not using any sunscreen.

The sun sends out various types of energy. It sends out infrared light which is heat and makes us warm. There is also visible light of course that's how we can see during the day. Then there is ultraviolet (UV) light that you cannot see. This is the light that enters your skin and can cause damage.

Ultraviolet light is grouped into UVA and UVB. I was taught that uvB causes Burning and uvA causes Aging of your skin. In reality both UVB and UVA can burn your skin and both can cause skin cancers. UVA does penetrate further into your skin and it causes premature aging.

The SPF number on a sunscreen is a measure of how much more UVB you can be exposed to before burning. Some UVB is stopped by the Ozone layer above our atmosphere. There are a number of reasons why New Zealand has such high rates of skin cancers.

Our UV levels are much higher during summer than places in the Northern Hemisphere that are a similar distance from the equator.

New Zealanders tend to like being outside on sunny days.

Our genetics mean people with lighter skin tend to get sunburnt more easily than people who have darker skin.

There is a hole in the ozone layer over Antarctica. This hole lets through more UVB through. This means more basal cell cancers and squamous cell skin cancers.

Melanoma is linked to UVA from the sun. The UVA is not absorbed by the ozone layer.

Sunscreens have been tested for their UVB protection for many years, the SPF rating. In recent years work has been done to measure how well a sunscreen will protect us from UVA rays that cause aging and melanoma. A sunscreen that protects against both UVA and UVB is called 'broad spectrum'. With a broad spectrum sunscreen the higher the SPF number the more protection you will be getting from both UVA and UVB.

Written by Linda Caddick

This blog provides general information and discussion about medicine, health and related subjects. The information contained in the blog and in any linked materials, are not intended nor implied to be a substitute for professional medical advice.

Claim THREE: Broad Spectrum sunblocks are the best to use
The following is information provided by a company selling sunscreen

FDA-Approved Sunscreens	
Active Ingredient/UV Filter Name	Range Covered
	UVA1: 340-400 nm
	UVA2: 320-340 nm
	UVB: 290-320 nm
Physical Filters:	
Titanium Dioxide	UVB, UVA2
Zinc Oxide	UVB,UVA2, UVA1
Chemical Absorbers:	
Aminobenzoic acid (PABA)	UVB
Avobenzene	UVA1
Cinoxate	UVB
Dioxybenzone	UVB, UVA2
Ecamsule (Mexoryl SX)	UVA2
Ensulizole (Phenylbenzimidazole Sulfonic Acid)	UVB
Homosalate	UVB
Meradimate (Menthyl Anthranilate)	UVA2
Octocrylene	UVB
Octinoxate (Octyl Methoxycinnamate)	UVB
Octisalate (Octyl Salicylate)	UVB

UVA, UVB and UVC Rays: What They Are and How Sunscreen Protects You

Comments by Will / November, 6 2013 01:00

At the most basic UVA, UVB and UVC are the ultraviolet rays that reach the earth from the sun and, as the Skin Cancer Foundation says, UVA and UVB rays cause skin cancer, premature aging, wrinkles, sunburn and even eye damage (sunglasses are a good idea!). Luckily the right sunblock - including Block Island Organics sunscreen - can protect you. Let's explore a little more with an infographic and additional details.

How to Protect Yourself from UVA and UVB Rays

Sunscreen of course! But not all sunscreens. Make sure it's a broad spectrum sunblock. Fortunately new US Food & Drug Administration (FDA) regulations make sunscreens disclose this. Only sunblocks with an SPF 15 or higher that contain active ingredients that filter both UVA and UVB, like Block Island Organics' sunscreens, can legally be labeled broad spectrum. So if you see "Broad Spectrum" on a sunblock label it should do the work you need.

Now mineral sunscreens like ours protect against UVA and UVB because they use zinc and/or titanium (see our article "Mineral Sunscreen: What It Is"). Chemical sunscreens however, need the right mix of chemicals or a blend of chemical and mineral. Here's a good chart from the Skin Cancer Foundation on what ingredients protect against which UV rays:

Claim FOUR: UV radiation causes sunburn, use the app to check UV data UV radiation

The following is from the New Zealand Cancer Society Website.

UV radiation in our environment

The sun emits ultraviolet radiation (also called UVR or UV radiation). We cannot see or feel it. The sun's heat is from infrared rays but it is UV radiation that burns our skin.

Some UV radiation from the sun on our skin is good for our health because we make Vitamin D this way. However, too much UV radiation can cause our skin to age, develop skin cancers, and damage our eyes and immune systems. About 90% of skin cancers are caused by too much exposure to UVR.

Clouds
You can get sunburned on cloudy days. Cloud usually reduces UVR, particularly in overcast conditions. However, when there is broken cloud and the sun remains visible, clouds can scatter or reflect UVR so that total UVR may be greater than under clear sky conditions.

Latitude
In New Zealand, the peak summer UVR levels are around 40% higher than the same latitudes in the northern hemisphere.

Sun elevation
The amount of UVR varies with time of day and time of year. The higher the sun is in the sky, the higher the UVR. The shorter your shadow, the higher the UV index is. *Be SunSmart during daylight saving months (September to April), especially between 10am and 4pm.*

Altitude
In clean air, UVR increases by about 5% for each 1000 metre rise in altitude (going uphill). On our ski fields, the UV radiation can be 20-30% more than at sea level. Snow also reflects UVR. *Be SunSmart both summer and winter when up in the mountains.*

Working outdoors
Working outdoors means more time in the sun, more exposure to UVR and a greater risk of skin cancer.

Shade
Shade can reduce UV radiation. To reduce UVR by more than 50%, most of the sky needs to be blocked by the shade structure.

Reflection
UVR can be reflected or scattered by different surfaces. White sands can reflect up to 25% of UVR and snow can reflect 80% or more. Water also reflects high levels of UVR. Even under 50cm of water, UVR can still be 40% of its surface value.

Cancer Society
Te Kāhui Matapukupuku o Aotearoa

www.cancernz.org.nz

Most skin cancers are caused by too much exposure to ultraviolet (UV) radiation from the sun.

The sun sends out different types of radiation:

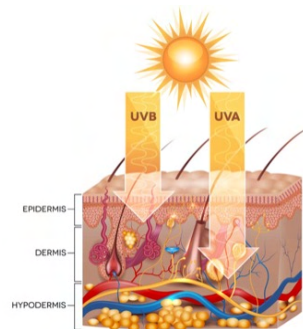
- sunlight (that you can see and feel as heat)
- infrared radiation (that you can feel as heat)
- UV radiation (that you cannot see or feel).

You need to be careful when it's cool (and/or cloudy) outside from September to April. When it's cool it means there's less infrared radiation but not necessarily less UV radiation. You can still get sunburnt on cool and cloudy days.

Types of UV radiation

There are three types of UV radiation from the sun - UVA, UVB and UVC. All can cause skin and eye damage.

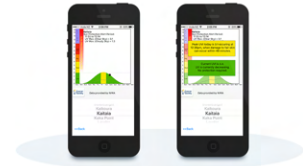
- UVA radiation goes deep into the skin. It can cause long-term damage like wrinkles, blotchiness, sagging and skin cancer
- UVB radiation gets into the top layer of skin and can cause sunburn, skin damage and skin cancer.
- The ozone in the atmosphere absorbs most UVB from reaching the earth's surface.
- UVC is the most dangerous type of UV radiation.



Ozone and oxygen in the Earth's atmosphere absorb all UVC so none reaches the earth's surface. However, there are other sources of UVC, such as in arc welding, which workers need to protect themselves from.

UVNZ app

You can check UV data for your location using the free UVNZ app. This app provides UVI forecasts for locations across New Zealand. It uses NIWA data and is supported by the Cancer Society.



Sources:

Adapted from

Claim ONE: <https://heliocare.nz/>

Claim TWO: <https://www.familyhealthdiary.co.nz/sunscreens-and-what-exactly-does-spf-mean/>

Claim THREE: <https://www.blockislandorganics.com/Blog/post>

Claim FOUR: <https://www.sunsmart.org.nz/sunsmart-facts/uv-radiation/>