

**Sunscreen and zinc oxide**

There are many different kinds of products against sunburn. Creams, lotions, sprays and sunblocks with various ingredients. Most products will try to 'neutralise' the harmful energy of UV radiation. One of the substances that has that capability is zinc oxide. Time to get started! Make your own sunscreen with the instructions on the inside.

**Different UV waves**

There are different types of UV waves: UV-A, UV-B, and UV-C. UV-C is the most harmful, but is blocked by the ozone layer in the atmosphere. Of the UV radiation that does reach us, 95% is UV-A and 5% UV-B. UV-A causes the skin to age and darken, UV-B burns the skin, but also makes our skin produce vitamin D. Both kinds of radiation are harmful to your skin, so sunscreens need to block both UV-A and UV-B.

**What is UV and why is it harmful?**

Ultraviolet radiation is a wave, just like radiowaves, x-rays, and waves in your microwave oven). Radiowaves are meters long, microwaves can be as short as a micrometer and UV waves are even 1,000 times smaller! The shorter the wave, the more powerful these waves are. When your are exposed to the sun, UV waves continuously collide with your skin cells. The skin cells will be damaged after a while and have to recover. If your burnt skin does not get the chance to recover, some cells can develop abnormal behaviour: skin cancer.

**Introduction**




If you stay in the sun for too long, your skin will burn. This is not caused by the heat, but by the ultraviolet (UV) radiation from the sun. A sunburn is painful, but also increases the risk of getting skin cancer. It is therefore important to protect yourself against the sun with sunscreen. But how does sunscreen actually work? And what is ultraviolet radiation?

**This is what you need to make your own sunscreen:**

- Measure (15ml, table spoon)
- 2 measures of uncoated, non-nano zinc oxide\*
- 2 measures coconut grease
- 1 measure almond oil
- 1 measure bees wax
- Heat source (cooker or stove)
- A (low) pan filled with water
- Heat resistant jar or bowl (jamjar 100 ml)
- A piece of kitchen towel
- Potholder


\* Very view people are allergic for zinc oxide. Be careful when using it.

check out [togethersciencebus.eu](http://togethersciencebus.eu)

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**DIY sunscreen**

# DIY sunscreen

Sunscreen protects our skin against harmful radiation. Instead of buying it in a shop, you can easily make it yourself – just follow these instructions:



1

Heat some water in a pan.  
**Tip:** Make sure the water comes up to half of your jar or bowl when placing it in the middle of the pan.



2

Add:  
- 2 measures zinc oxide  
- 2 measures coconut grease  
- 1 measure almond oil  
- 1 measure of bees wax  
to a heat resistant jar or bowl. Clean your spoon in between each step with water.



3

Place the heatresistant jar with the ingredients in the warm water.



4

Stir until the bees wax has melted. This can take a while.



5

Let the mixture cool down. If you have used a bowl, you can put the mixture in a jar after cooling.



6

You can test your sunscreen on UV-sensitive paper.

Look for the instructions 'test your sunscreen', available on [togethersciencebus.eu](http://togethersciencebus.eu).



7

Test the sunscreen on a small part of your arm. Do you see a white spot on your arm afterwards? This means that the sunscreen has worked.



8

Your sunscreen is now ready to use!

**Tip:** make a nice label!



**Tip:** Include other ingredients, like coconut butter or aloe vera gel.

We are curious about your results. Share them by using [#sciencebus](https://www.instagram.com/sciencebus) on instagram or twitter.