

Sunscreens

Scientists say that it is the UV light from the sun causes sunburn and if this happens too much it can lead to skin cancers later in life. To prevent harm from the Sun you must block out the UV light. An easy way to do this is to use sunscreen, but are all sunscreens as good as others

Investigation

Part 1

Aim: To show that Sunscreen blocks UV light

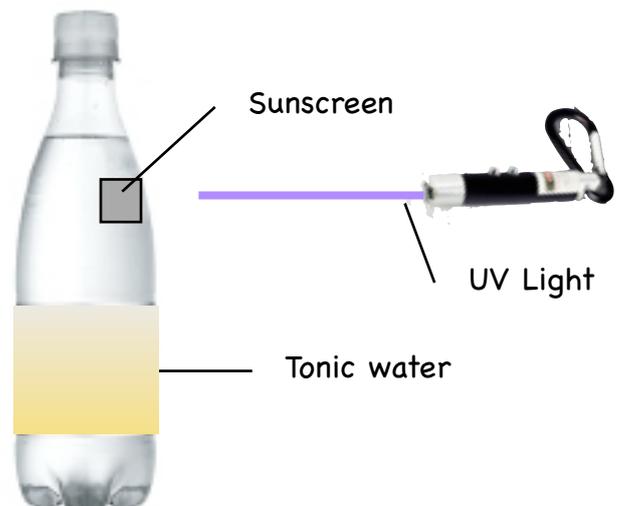
Method:

What you need-

- a source of UV Light (pointer or tube light)
Using two UV lights is better, allowing you to make a comparison
- a bottle of tonic water - with quinine in it
- a sunscreen

What you should do -

- ▶ Turn the lights off or pull the blinds in the room
- ▶ Shine the UV light so it goes through the bottle of tonic
- ▶ Observe what you see
- ▶ Add a patch of sunscreen to the bottle
- ▶ Shine the UV light through the patch of sunscreen
- ▶ Observe what you see
- ▶ If you have two UV lights then shine one through the sunscreen and one just through the bottle to compare



You may wish to keep a record of what you see, written as observations or take a photo

To complete this investigation you may write a conclusion using these starters

What have you found out?

From the experiment we carried out and the information we collected we can say...

The evidence that backs this up is ...

Part 2

How do you know that it is sunscreen that blocks out the UV? Maybe something like mayonnaise would do just as good job

Aim: to see if any cream can block out UV

What we did:

Repeat the first experiment but place mayonnaise or other creams in place of the sunscreen. Observe and compare the amount of coloured light produced as the UV light goes through the tonic water

Other things to think about:

How thick is the cream? Does that make a difference?

What other creams could you try?

How do you make sure the UV light goes through the cream?

What about different SPF's? What difference do these make?

Part 3

If you take the a bottle of tonic water out into the sun you don't see it change colour. How do you know that the sun is producing UV light?

Aim: to show that the sun produces UV light and how Sunscreen can block it

What you need-

Eight UV Beads

A4 Transparent Plastic Sheet and A4 White Card

UV light

Sunlight

What you should do -

- ▶ Draw lines to divide the sheet of card into eight even spaces.
- ▶ Draw the same spaced lines on the plastic sheet.
- ▶ Add a UV bead, using blue tack, to the centre of each space on the card.
- ▶ Label each space with the treatment number you will be giving it. (see below)
- ▶ Add the appropriate treatment to the plastic sheet, smear or cover.
- ▶ Place the plastic sheet over the card lining up the spaces.
- ▶ Place the whole experiment in a sunny spot and leave until you can see a good colour change in the non-treated spaces.



Card with Beads

Treatment 1 	Treatment 4 
Treatment 2 	Treatment 5 
Treatment 3 	Treatment 6 
No Treatment 	No Treatment 

Treatments

- use different brands of sunscreen
 - different SPF sunscreens
 - expired v current sunscreens
 - non sunscreen products with SPF
 - sun glasses lenses
 - medicine bottles
 - different types of clothing material
- You can also try different light sources, and placing beads so light comes through different glass window

What have you found out?

From the experiment we carried out and the information we collected we can say ...

The evidence that backs this up is ...

Reflection

Do you feel you have produced enough evidence to be convinced that wearing sunscreen is a good thing? What other evidence could you provide?