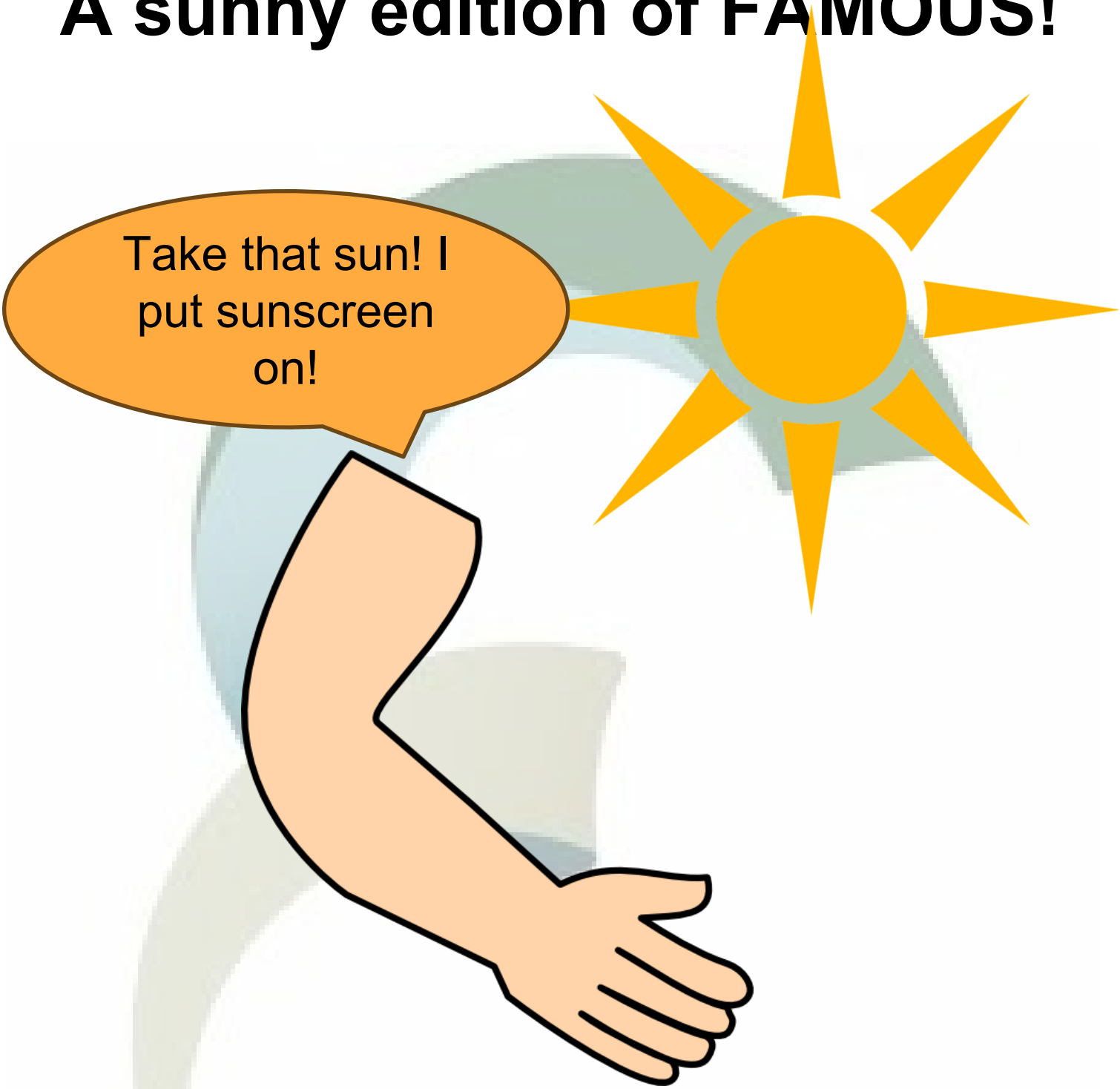
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A sunny edition of FAMOUS!



WRITTEN and EDITED BY LEON GODFREY and WILLIAM HARDING

The Science of Sunscreen

In this edition, we will be talking about sunscreen and how important it is to prevent the sun's ultraviolet radiation from damaging skin cells, which can lead to sunburn, early aging and even skin cancer. Choosing a sunscreen isn't as easy as it might seem. Sunscreens work in different ways and come in a variety of formats. And, beyond that, some people have concerns about sunscreen's safety, necessity and usefulness.



How does sunscreen work?

Sunscreen ingredients prevent UV rays from damaging your skin. There are two categories of sunscreen ingredients.



Physical blockers

Physical blockers contain minerals such as titanium dioxide or zinc oxide ground into fine particles. These minerals sit on the surface of the skin and reflect UV rays away from your skin a lot like a shield or mirror would. Sunscreen products that contain physical blockers are sometimes called sunblock or mineral sunscreens.

Chemical absorbers

Chemical sunscreen ingredients form a thin protective film that absorbs UV radiation before it penetrates the skin. Sunscreen products that contain chemical absorbers are sometimes called organic sunscreens.

Both types of sunscreen ingredients have pros and cons.

For example, physical blocker sunscreens generally do not cause irritation, stinging or allergic reactions, but they can be white and greasy. Meanwhile, chemical absorber sunscreen ingredients are usually clear and easy to apply, but these are more likely to cause irritation and allergic reactions.

Many sunscreens use a combination of physical blockers and chemical absorbers to maximize the benefits and reduce the downsides. Additionally, many broad-spectrum sunscreens need a combination of ingredients to protect against UVA and UVB rays, the two types of ultraviolet rays that cause skin damage.

It is recommended to use sunscreens that are at least SPF 30 of above. This will extend the time you are protected in the sun by around 30x.

Rosalind Franklin – “the first lady of DNA”



Rosalind Elsie Franklin was born in July 1920 in London, into an influential family. From a young age, she showed exceptional academic ability, noted for her maths skill at the age of 6. She attended a boarding school from ages 9-11, followed by an all-girls’ school in west London, noted for being one of the few that taught physics and chemistry at the time. At the end of her time in school, she passed her matriculation (final exam) with six distinctions, gaining a scholarship to university.

Franklin attended Cambridge University, studying Chemistry. During this time, she would meet Adrienne Weill, a former student of Marie Curie, who improved Franklin’s French ability (later, she would be mentioned in a French scientific paper!). She earned her bachelor’s degree in 1941 and afterwards began working in laboratories where she found little success initially due to uncooperative colleagues. During WWII, she volunteered as an Air Raid Warden with her cousin Irene. In 1945, she was awarded her PhD following a study into coal classification.

Following the end of WWII, Franklin used her newfound French connections to begin a job at a Parisian lab, where she was first introduced to X-ray crystallography. She used this technique to produce further research into carbon and coal, which is still considered mainstream physics and chemistry in these areas. In 1950, she returned to the UK to work in King’s College London. She would begin work on DNA fibres at this time, which would form her most acclaimed scientific discovery.

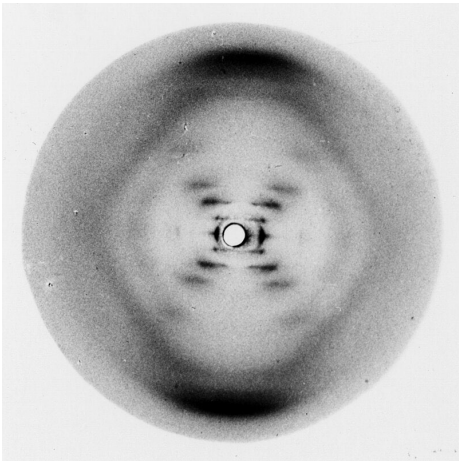


Photo 51, an image of DNA attributed to Franklin’s research

Franklin used her skills in X-ray imaging to conduct in-depth research into this vital subject. Together with her colleague Raymond Gosling, she was able to create new imaging of DNA which confirmed that it was a double-helix shape. However, one of Franklin’s colleagues showed this image to fellow DNA researchers Watson and Crick, who would publish their work in 1953 with no credit to Franklin at all. The pair would later be awarded a Nobel Prize for this research.

Later in life, Franklin would conduct more research into RNA and a little into the polio virus. She also helped to take images of the tobacco mosaic virus (better known as TMV), a common virus affecting plants. However, she would be unable to produce much more research after a health issue in 1956, which would eventually be discovered as ovarian cancer that would unfortunately end her life in 1958. This was before Watson and Crick received their Nobel Prize, and as these cannot be awarded posthumously, she remained unrecognised for her valuable contributions. It was only in the 1980’s when she began to receive posthumous awards and namesakes from the scientific community.

Science competition

Answer these questions below to enter the competition
Email your answers to Mr Downing to enter
(dow@fallibroome.org.uk)
1st correct entry wins a prize for the form!

1. What type of radiation does sunscreen protect from?

.....

1. Where did Rosalind Franklin begin X-ray crystallography?

.....

1. What SPF sunscreen is generally recommended at a minimum?

.....

1. Who did Franklin meet that improved her French and gave her job opportunities?

Scientist of the month

Year 7 – Tom Ardron

Year 8 – Ellie Dougherty-Page

Year 9 – Lucy Massey

Year 10 – Noah Pittham

Year 12 – Sophia Orphanides

Come and collect your prize from:

Mr Downing in **A43**

