

Dear Dr Maths,  
I am confused by the SPF  
sunscreen factors. Does SPF  
30 mean you are getting twice  
as much protection as SPF  
15? What number scale are  
these measured on?

HELEN, NEWCASTLE

A sunscreen's SPF (Sun  
Protection Factor), measures  
how effectively it shields against  
the ultraviolet B (UVB) rays that  
can cause sunburn.

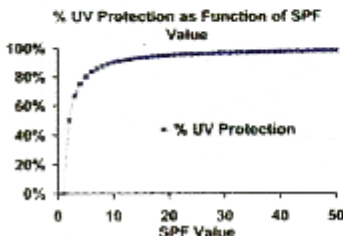
It is calculated by comparing the  
time it takes for a person to burn  
unprotected, with how long it  
takes for them to burn wearing a  
cream.

For example if you turn pink  
after 20 minutes of unprotected  
sun exposure, theoretically, you  
are protected 15 times longer if  
you apply an SPF 15.

However using an SPF 30 does  
not mean that you are getting  
double the protection you would  
get if you used an SPF 15.

The difference between an SPF  
50 and an SPF 30 is small (see  
picture below).

While an SPF 100 deflects 99%  
of UVB rays, an SPF 50 blocks  
98%, whilst SPF 30 blocks  
96.7%. As can be seen in the



graph, increased SPF above 20  
offers little additional UVB  
protection, as the graph levels  
out.

Dermatologists say that around  
six teaspoons of SPF15 applied  
over exposed parts of the body  
gives optimal protection if  
applied regularly.

The best advice from the  
experts is to enjoy the sun in  
small doses with a sun hat.

**Here is a puzzle for you to try:**

During a week in June a town  
had the following number of  
hours of sunshine: 11.3, 9.8, 8.7,  
10.4, 9.3, 9.5, 11.7. What was  
the average number of hours of  
sunshine per day?

The first correct answer will win  
a copy of the book *Mathematical  
Snacks* written by Jon Millington.

Well done to Alexander  
Glencorse from Newcastle who  
correctly worked out last week  
that the average height of the  
three sons was 135cm and of  
the fourth boy 133cm.

■ **Do you have a maths  
question or problem? Write to  
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1ED or e-mail  
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