Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ # \_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



# **UV Ray Detectives**

**Problem:** Which sunscreen blocks the most

ultraviolet light from the sun:

SPF 4 or SPF 50 sunscreen?

**Variables:**

* Manipulated Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Responding Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Constant(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Hypothesis:**

If I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

then \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_will block the most ultraviolet light.

**Procedure:**

1. Place 5 ultraviolet beads into each of the three Petri dishes.
2. Coat the outside of the dish lid that has ‘SPF 4’ written on it with SPF 4 sunscreen. Coat the outside of the dish lid that has ‘SPF 50’ written on it with SPF 50 sunscreen. Do nothing to the third dish lid. Put the lids on the Petri dishes and close them.
3. Expose the Petri dishes to ultraviolet light (sit outside in the sun) for 5 minutes.
4. On a scale of 1 to 4, quickly estimate and record how much the beads changed color on the chart below.

## **UV Bead Data Chart**

| **SPF (Sun Protection Factor)** | **Amount of Color Change** |
| --- | --- |
| NONE |  |
| SPF 4 |  |
| SPF 50 |  |

**1=No change 2=Little change 3=More change 4=Maximum Change**

**Conclusion:**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ appears to have blocked the most

ultraviolet light.

2. In one complete sentence, write a conclusion about the SPF number on

sunscreen.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What are some other materials beside sunscreen that could protect you from

ultraviolet radiation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. The ozone layer is a protective layer around the Earth that protects our planet

from harmful ultraviolet rays. Some products that humans use are harmful to

the ozone layer and it is starting to deplete. What are some effects of our

ozone layer disappearing?

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