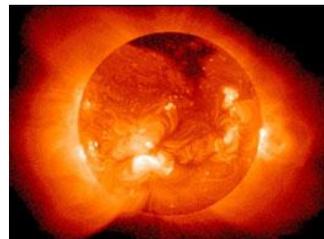


## UV Radiation Designed Experiment Lab Handout



### Pre-Lab Questions

1. What is the approximate wavelength range of UVA? \_\_\_\_\_
2. What is the approximate wavelength range of UVB? \_\_\_\_\_
3. What are the three layers of skin? \_\_\_\_\_
4. To what layer of the skin does UVA travel? \_\_\_\_\_
5. To what layer of the skin does UVB travel? \_\_\_\_\_
6. Describe how sunscreen protects the skin from UV light?
7. Describe how sunblock protects the skin from UV light?
8. Which type of UV light is emitted by tanning beds?
9. What is the advantage of using zinc oxide nanoparticles in sunscreen?
10. What are possible disadvantages of using zinc oxide nanoparticles in sunscreen?

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Class: \_\_\_\_\_

## Lab Report

Lab Title \_\_\_\_\_

Purpose \_\_\_\_\_

Materials \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Objective:** To design a controlled experiment to quality test some aspect of a current UV safety product. Choose from the following materials in designing your experiment and if your team brainstorms additional materials that would aid in your design, present a list of those materials to your teacher for approval.

### Provided materials:

- sunscreen SPF 15
- sunscreen SPF 45
- sunblock
- sunscreen containing zinc oxide nanoparticles
- sunglasses
- UV sensitive beads that change color upon UV exposure
- UV intensity cards
- plastic bags
- plastic wrap
- UV lamps
- Vernier UVA and UVB light sensors

**Results must** be reported in a typed lab report that is due and will be presented tomorrow. The lab report must contain sections for the title, purpose, procedure (this was designed by you), data and analysis, and conclusion (which must tie back to your purpose).

**\*Remember this must be a one-variable, controlled experiment, with the one variable chosen by your lab group. *Have fun!***

## Lab Report Grading Rubric

Lab Report Sections	Maximum Point Value per Section	Objectives for Each Section
Title	5	Title clearly labeled.
Purpose	15	Purpose is concise and testable.
Materials	5	Complete list of all materials used.
Procedure	25	All experimental design aspects are present.
Data/Analysis	20	All data are clearly labeled and present; graphs.
Conclusion	20	Conclusion ties back to prove or disprove hypothesis and backed by experiment.
Presentation	10	Articulate, and well explained to the class.
	100	Maximum total points