

**Angle of Sunlight Lab**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hour \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Problem:**

How does the angle of sunlight hitting Earth affect the energy Earth receives?

**Procedure:**

1. Shine the flashlight directly at the grid, at a right angle, a few centimeters above the paper. Trace the outer part of the lighted area with a pencil and Label #1.
2. Shine the flashlight directly at the grid, at a smaller angle (about 30°), a few centimeters above the paper. Trace the outer part of the lighted area with a pencil and Label #2.

**Observation:**

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**Analysis:**

1a. (Use shape #1 from the grid)

Number + Half the Number = Approximate Area

of full blocks of Partial Blocks

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

1b. (Use shape #1 from the grid)

Number of Beans x 40° C / Approx. Area = Temp. of One Block °C

 (from 1a)

 \_\_\_\_ x 40° C**\*** / \_\_\_\_\_ \_\_\_\_\_\_

 **(\*The amount of heat absorbed by one bean.)**

2a. (Use shape #2 from the grid)

Number + Half the Number = Approximate Area

of full blocks of Partial Blocks

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

2b. (Use shape #2 from the grid)

Number of Beans x 40° C / Approx. Area = Temp. of One Block °C

 (from 2a)

\_\_\_\_ x 40° C**\*** / \_\_\_\_\_ \_\_\_\_\_\_

1. If the flashlight were sunlight, which angle would heat the paper the **most**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. In general, where would the world have higher temperatures? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. If the flashlight were sunlight, which angle would heat the paper the **least**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. In general, where would the world have lower temperatures? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Which lighted area (90° or 30°) would be called **direct** sunlight? \_\_\_\_\_\_\_\_\_\_\_\_
2. Which lighted area (90° or 30°) would be called **indirect** sunlight? \_\_\_\_\_\_\_\_\_\_\_
3. How does the angle of sunlight hitting Earth affect the energy Earth receives? \_\_\_\_\_\_\_\_\_\_\_\_

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