

Lighten Up!

Procedure

- 1. Collaborate** Work with a partner. Place a sheet of graph paper on the floor in your work area.
- 2. Measure** Hold the flashlight 1 meter above the graph paper and pointed directly at it. When the room has been darkened, shine the flashlight directly onto the center of the graph paper at an angle of 90 degrees. **Safety:** Do not shine the light into anyone's eyes, including your own.
- 3. Record Data** While you hold the light steady, have your partner carefully trace the lighted area of the graph paper. Label the drawing. Pick up the graph paper and replace it with a clean piece.
- 4.** Now, tilt the flashlight at an angle of 45 degrees to the graph paper. Use a protractor to help you determine the angle. Repeat steps 2 and 3.
- 5. Use Numbers** Count the squares inside each shape traced on the sheets of graph paper to find the areas of the two shapes. Record the areas on the lines below.

Conclusion

Write the answers to the questions.

- 1. Compare** What differences did you notice between the two lighted areas? How do the two areas compare?

2. How might the difference in the lighted areas explain why the Earth's surface is not evenly heated by the Sun?

Investigate More!

Design an Experiment Design an experiment to show how striking a curved surface, such as a large ball, affects the angle of the Sun's rays. Predict what will happen, then test your prediction.