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Many times it is necessary for teachers or students to determine the surface area of irregular objects (e.g., leaves) during laboratory investigations. The usual procedure involves laboriously tracing the outline of the object on graph paper, counting the number of square units on the paper, and then adding some "fudge factor" to estimate partially encircled squares.

Following is a simple and economical method for solving this problem using blueprint paper, which is available at low cost from most drafting-supply houses:

1. Place sheet of blueprint paper on a flat board.
2. Place objects for which surface area is to be determined on the blueprint paper.
3. If objects are lightweight or flat, cover them with a sheet of glass.
4. Expose the assemblage to sunlight (or to a strong light source) for four to six minutes.
5. Develop images on the blueprint paper by soaking the paper in a pan of water for a few minutes.
6. Let paper dry. Cut out image of object with scissors.
7. Cut out a sample of blueprint paper ten centimeters square, and weigh the paper. Also determine the weight of the cut-out images. The area of the unknown object then may be simply calculated using the following formula:

$$\frac{\text{WEIGHT OF STANDARD}}{\text{AREA OF STANDARD}} = \frac{\text{WEIGHT OF UNKNOWN}}{\text{AREA OF UNKNOWN}}$$

Comments: Although blueprint paper is not extremely sensitive to light, it is best to work under low intensities of illumination, storing the unexposed paper in a seldom-used drawer. You will find this an extremely accurate method of measurement. Students enjoy the technique and the quality of results. Some sample images are indicated in the accompanying photograph.