

Canopy cover is traditionally a measure of the area covered by a tree or shrub when viewed from above. In this example, the cover is going to be measured from below the canopy, and in doing so the measure can also be understood as the insolation potential - the relative amount of sunlight that can reach the ground underneath a tree or shrub (and conversely, the relative amount of sunlight the tree or shrub is blocking from reaching the ground).

For safety reasons, it is important that students do not stare directly into the sky as direct sunlight can damage the retina of the eye very easily. Instead, students should use a mirror. It is recommended that this be around 15cm by 15cm in size, though so long as the student uses the same mirror size consistently when measuring canopy cover, the size is somewhat irrelevant.

A clear piece of acetate should be cut in a square such that as closely as possible it is the same size as the mirror. If the mirror itself is not square, the acetate can still be cut square and any mirror extending beyond the edge of the acetate can be ignored. Using a permanent marker pen, a 5 by 5 square grid should be drawn on the acetate. If a large mirror is being used, it may be possible to create a larger grid (such as 10 by 10) but for mathematical convenience it is recommended that the total number of grid squares are a factor of 100 - this will make calculating the percentage canopy cover much easier.

The mirror is placed as close as possible to the base of the tree and the acetate layer placed on top. Viewing from a slight angle so that they themselves do not block the view, the student will now be able to see the reflection of the under canopy in the mirror. The student can count the number of squares occupied completely by leaves or that which have a degree of clear sunlight. This number can then be used to calculate the percentage canopy cover according to the total number of squares in the acetate grid.

On a windy day it can be difficult to count the number of squares occupied by leaves as the reflective picture is likely to keep moving. In this circumstance it may be possible to take a photograph of the mirror and use this single capture of the canopy cover as a measure. Students can of course take more than one photo and then calculate the mean canopy cover measure from all the photos taken.

