Exhibit Guideline for Forestry 2**:** (BU-8039, Reach for the Canopy)

Display a poster based on one of the following activities:

- **The Leaf Machine** (pp 8 & 9), copy, draw, or find a picture of a cross-section of a leaf. Label the 7 parts. Give the chemical reaction for photosynthesis, using: CO_2 (carbon dioxide), H_2O (water), O_2 (oxygen), and $C_6H_{12}O_6$ (glucose). Be sure to balance your equation! There should be se same number of Carbon, Oxygen, and Hydrogen molecules on each side of the equal sign. You may need to ask an older (high school) 4-H member or science teacher for help. Draw the tree canopy, trunk, and roots (or use the tree diagram, 4-H 641B) and show where the tree gets each of the chemicals in the equation.

Youth should understand there must be the same number of each element on both sides of the arrow for the equation to be "balanced."

$$6CO_2 + 6H_20 \rightarrow 60_2 + C_6H_{12}O_6$$

The equation is said to be "balanced" when there are the same number of atoms of each element on each side of the arrow. The equation above is balanced. There are 6 molecules of carbon dioxide (CO_2) which has 6 atoms of carbon and 12 atoms of oxygen (the subscript 2 shows that each carbon dioxide molecule has two atoms of oxygen).

Comparing the two sides:

Left hand side: $6CO_2 + 6H_20$	**Right hand side:** $60_2 + C_6H_{12}O_6$
[6 carbon atoms + (6x2) oxygen atoms] + [(6x2) hydrogen atoms + 6 oxygen atoms]	[(6x2) oxygen atoms] + [6 carbon atoms + (12 hydrogen atoms + 6 oxygen atoms]
= 6 C + 12 O + 6 O	= 12 O + 6 C + 12 H + 6 O
= 6 C + 18 O + 12 H	= 18 O + 6 C + 12 H
These have the same number of atoms of each element. (QED, which indicates that it is proven.)	