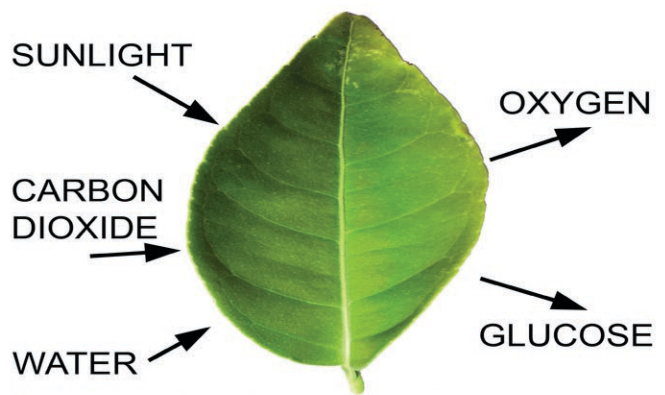


# SUNLIGHT & PHOTOSYNTHESIS

An ecosystem is a community of living things on land and in rivers and oceans. All ecosystems require energy produced from direct sunlight. Plants need sunlight to stimulate photosynthesis which produces glucose, providing an energy source for other organisms. Living organisms in an ecosystem can be described as producers, consumers and decomposers.



- A) Producers are green plants, which make their own food through photosynthesis.
- B) Consumers are animals who get their energy by eating other organisms: herbivores eat plants, carnivores eat herbivores or other carnivores, and omnivores eat both plants and animals.
- C) Decomposers (including bacteria, fungi, and some plants and animals) break down dead plants and animals into organic materials that go back into the soil.

Photosynthesis is the knitting together of Carbon Dioxide molecules from air and water molecules from soil/medium to produce simple sugars. These are the building blocks for plant development and growth. The energy needed to complete this process comes from sunlight.

## PLANTS CANNOT SURVIVE WITHOUT ADEQUATE SUNLIGHT TO PRODUCE PHOTOSYNTHESIS

High intensity light comes from the sun. Natural daylight on a clear day is about 5,000 foot-candles. The amount of photosynthesis is directly proportional to the light intensity received by the leaf surface-- this is only one example.

Please note that excess light does not equal more photosynthesis efficiency. Light intensity above 5,000 foot-candles, is of little benefit, causing heat exhaustion and drying of plants. Without direct sunlight plants will not grow well and produce reduced amounts of food. Oxygen in water can be reduced because of a lack of photosynthesis. Bottom dwelling plants may die due to lack of photosynthesis.



## HONEY BEES & OTHER POLLINATORS

Honey bees and other pollinators are necessary to produce the majority of the food we eat.

60 Minutes (CBS), October 28, 2007

"If you want to grow fruits, vegetables or nuts in the United States on a commercial basis you have to have soil, sun, seeds, water, and honeybees -- millions and millions of honeybees brought in from all over the country to pollinate the crops. As correspondent Steve Kroft explains, honeybees are the unsung heroes of the food chain..."

Nature P.B.S., October 28, 2007

"...Bees belong to the third largest insect order which also includes wasps and ants. Together, these creatures pollinate crops, turn over the soil more effectively than earthworms, and, in the case of the bee, furnish food in the form of honey. Even more importantly, some members of this order prey on other insects -- the single most important factor in keeping the Earth's insect population in check. ...Bees are capable of seeing ultraviolet light, which is invisible to humans. The bee is capable of navigating, even on a cloudy day, by cloud-penetrating ultraviolet light. Honey bees also use the sun as a reference point to communicate to other bees the angle of flight to be followed to arrive at newly discovered nectar-bearing flowers..."

Home Discover Nature! Natural History Notebooks © nature.ca Comments or Questions?

<http://www.nature.ca/notebooks/english/bees.htm> 10/28/07 SEE: NATURE "SILENCE OF THE BEES"