

Earth's Birthday Project

Leaves: Background for Teachers



1 Leaf Word Wall

Names of the Parts of Leaves

Blade — flat part of the leaf

Edge — outer rim or margin of the leaf

Leaf bud — next year's leaf, encased in scales and located just above each petiole

Leaflet — the blades attached to the petiole of a compound leaf

Petiole — the part of the leaf that attaches to the twig; the leafstalk

Scale — a small, specialized leaf that protects a leaf bud

Stoma — small hole on the underside of the leaf through which air and water pass in and out
(*stomata* is the plural)

Veins — tubes that carry water and food

Names for Edges

Entire — smooth

Serrated — notched with small indentations

Toothed — notched with deep indentations and points

Lobed — notched with deep, rounded indentations

Kinds of Leaves

Simple — a leaf with a single blade

Compound — three or more blades or leaflets attached to a petiole

Palmately compound — four or more leaflets attached at a center point

Pinnately compound — three or more leaflets attached on either side of a stalk or petiole

Arrangements

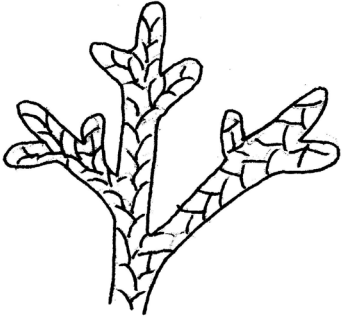
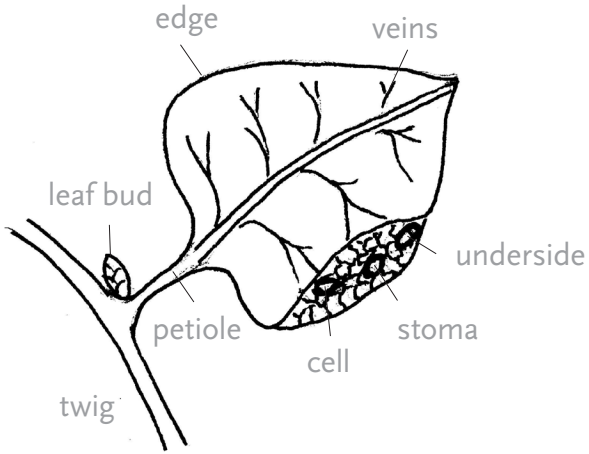
Alternate — single leaves attached alternately to a petiole, twig, or stem

Opposite — paired leaves, one on each side of the petiole, twig, or stem

Whorled — two leaves attached around a petiole, twig, or stem

Basal — leaves attached at the base of a plant

Parts of Leaves



scale-like



needle-like

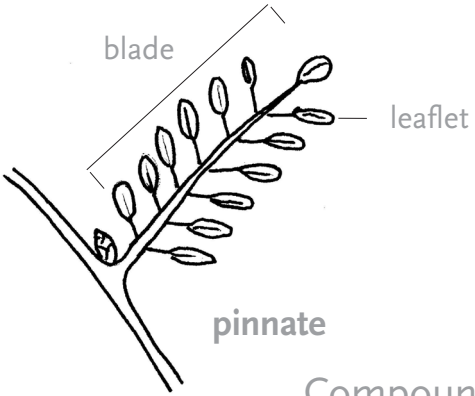
Broadleaf (deciduous)

Conifer (evergreen)

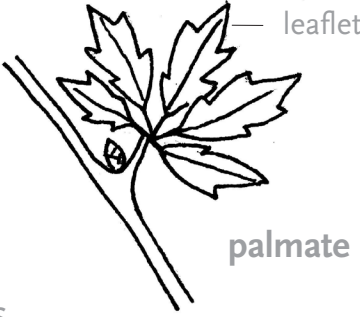
Leaf Composition



Simple Leaves



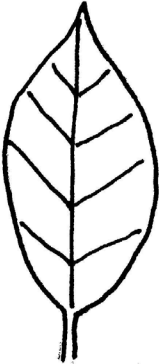
pinnate



palmate

Compound Leaves

Leaf Edges



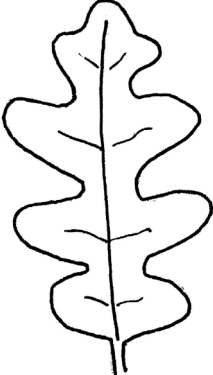
Entire



Serrated

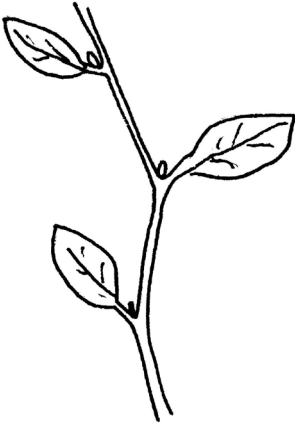


Toothed

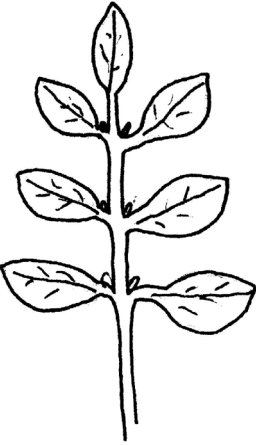


Lobed

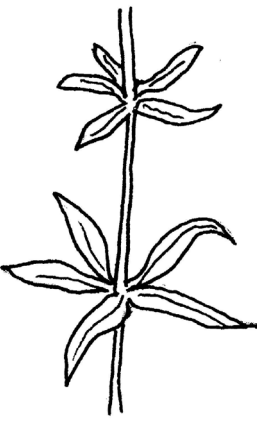
Leaf Arrangement



Alternate



Opposite



Whorled



Basal

Categories of Trees and Other Plants

Deciduous — a plant that loses all of its leaves in the fall or at the end of its growing season

Evergreen — a plant that doesn't lose all of its leaves (or needles or scales) at the same time

More Plant Words

Cell — the smallest unit that makes up the leaf and all other plant parts

Chlorophyll [KLORE-oh-fill] — the green substance that colors leaves and stems

Phloem [FLOW-em] — tubes that carry food (sugar) from leaves to roots

Photosynthesis — the chemical process by which green plants use chlorophyll and sunlight to convert carbon dioxide and water into food (simple sugars)

Transpiration — a process in which water passes through the stomata in the leaf and evaporates into the air

Xylem [ZI-lem] — also called sapwood, the tubes that bring water and minerals up from the roots to the leaves

2 Leaf Functions (What Leaves Do for the Plant)

- Leaves make food for the plant in a chemical process called photosynthesis:
 - 1 The roots send water and minerals to the leaves through special tubes in the trunk or stalk (sapwood or xylem).
 - 2 Leaves absorb air through little holes on their undersides (stomata).
 - 3 The energy of the sun works with green chlorophyll, water, and the carbon dioxide in air to make food (sugars) for the plant.
 - 4 The food travels to all parts of the plant through leaf veins and phloem.
 - 5 At night the leaves release oxygen into the air through the stomata.
- Leaves also release water through their stomata in a process called transpiration.

3 Importance of Leaves (What Leaves Do for the Earth)

- Leaves provide food for humans and other animals. Some leaves that are good to eat include peppermint, parsley, lettuce, spinach, cabbage, kale, and chard.
- All animals depend on plants for the oxygen they breathe.
- The leaves of trees and shrubs provide shade to keep houses cool.
- Leaves remove carbon dioxide (a greenhouse gas) from air, which helps keep the Earth cool (reduces global warming).

Fun experiments and complete background on photosynthesis and transpiration:

www.earthsbirthday.org/butterflies/gardens/index.asp