

Canon Paleo Curriculum

Lesson Plan 8

Unit: 2

LEAF IDENTIFICATION

Important information:

For this activity you will need to download the “Leaf Manual” PDF file (Adobe Acrobat) on the main page.

Materials:

- Leaf Manual Sheets (a PDF file) for every 4-5 students
- Fossil Id Packet
- Paper Fossils used in Fossil Identification Activity
- Descriptions and Some Common Vegetational Correlations for every 4-5 students

Skills:

- Observation
- Learning to key plants for identification
- Names of plant parts.

Have students in groups of 4-5 use paper fossils from **Fossil Identification Activity** and use the **Leaf Manual Sheets** as a guide to draw three identifiable parts of the fossil leaf, one of the three parts must be margin type.

Margin types, tips, and bases are climate type indicators. This is called the “Physiognomic Method”. It is currently the most predictable method of identifying what climate a plant may be found.

Have the students label the parts of their fossil according to the **Leaf Manual Sheets**.

Now have student use **Descriptions and Some Common Vegetational Correlations** to place their fossil with a climate.

Key

- Smooth or entire margin are found in tropical to subtropic climate
- Acuminate apex or drip tip is usually found in tropical to subtropical climate.
- **Acuminate apex with a non entire margin is usually associated with a temperate climate.**
- **Look at the chart to determine other correct answers.**

Descriptions and Some Common Vegetational Correlations

<p>Tropical: Within five degrees of the equator there is little seasonal variation, it being hot and wet year round. Between five and fifteen degrees from the equator wet and dry seasons are common.</p> <ul style="list-style-type: none"> • The coolest month is above 18 degrees C. • The annual mean temperature approaches 27 degrees C. • Average rainfall between 100 and 200 cm per year. <p><i>Examples:</i></p> <ul style="list-style-type: none"> • Brazilian Lowlands • Philippine Islands 	<p>Leaf Margins between 57 and 89% entire. Large leaves, with drip tips common on understorey evergreens. Lianes (vines) are common in understorey.</p>
<p>Subtropical: More noticeable seasonal variation in temperature, as well as distinct wet and dry seasons.</p> <ul style="list-style-type: none"> • Coldest month above 6 degrees C but below 18 degrees C. • Annual mean temperature approximately 20 degrees C. • Average annual rainfall between 50 and 100 cm. <p><i>Examples:</i></p> <ul style="list-style-type: none"> • Hawaiian Islands 	<p>Leaf Margins 39-55% entire. Broad-leaved evergreens often with conifers and broad-leaved deciduous plants.</p>
<p>Warm Temperate: Thoroughly differentiated seasons. Warm Temperate is further divided based on the wet season. Many interior continental regions have warm wet summers and mild winters. Those regions that have mild wet winters and hot dry summers are termed <i>Mediterranean</i>.</p> <ul style="list-style-type: none"> • Coldest month above 0 degrees C. • Annual mean of 12 degrees C. • Average annual rainfall is between 25 and 75 cm. <p><i>Examples:</i></p> <ul style="list-style-type: none"> • Milan, Italy • San Francisco, CA 	<p>Leaf Margins 30-38% entire. Broad-leaved deciduous plants with conifers. Evergreens may be present but not dominant.</p>
<p>Cool Temperate: Thoroughly differentiated seasons. Cool Temperate is also divided into two categories: <i>Oceanic</i> and <i>Continental</i>. <i>Oceanic Cool Temperate</i> is mild and rainy year round, while <i>Continental</i> regions experience cold winters and warm summers.</p> <ul style="list-style-type: none"> • Coldest month below 0 degrees C. • Annual mean of 6 degrees C. • Average annual rainfall is 25 to 75 cm. <p><i>Examples:</i></p> <ul style="list-style-type: none"> • Woodland Park, CO • Nova Scotia, Canada 	<p>Evergreens may be present and dominant. Some broad-leaved deciduous plants, low growing.</p>
<p>Cold: Cold climates are defined as those regions that spend 6 to 9 months below 6 degrees C. Coldest month well below 0 degrees C. Average rainfall is often below 25 cm per year.</p> <p><i>Examples:</i></p> <ul style="list-style-type: none"> • Fairbanks, AK 	<p>Some evergreen, small. Low growing, short season, tundra plants.</p>

Climate Information:

<http://www.fs.fed.us/colorimagemap/images/230.html>

Espenshade, E. B. and Morrison, J. L., 1974, *Goode's World Atlas*. Chicago, Rand McNally and Co. pp. 10-15.

Pearce, E.A. and Smith, C.G., 1998, *Fodor's World Weather Guide*. New York, Random House. p. 11.

NA, 1987, *Encyclopedia of Climatology, Volume XI*, New York.