Lesson - What is the Anatomy of the Cacao Tree and How is it Cultivated?

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Lesson Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify the anatomy and features of a cacao tree.</td>
<td>Background Activities:</td>
</tr>
<tr>
<td></td>
<td>1. Ask students to imagine what a plant that grows chocolate might look like.</td>
</tr>
<tr>
<td></td>
<td>1. Have them think about the following questions:</td>
</tr>
<tr>
<td></td>
<td>2. Which part of the plant would the chocolate come from?</td>
</tr>
<tr>
<td></td>
<td>3. Would the plant have a chocolate smell? taste?</td>
</tr>
<tr>
<td></td>
<td>4. Would they be able to grow this plant in their backyard?</td>
</tr>
<tr>
<td>Identify the environmental conditions cacao trees need in order to survive.</td>
<td>2. Provide students with drawing materials and ask them to make a picture of the chocolate plant they envision. Remind them to include all of the parts of the tree (roots, flowers, etc.) and the surrounding environment.</td>
</tr>
<tr>
<td>Identify how cacao is cultivated.</td>
<td>3. Show students the picture of <em>Theobroma cacao</em>. Have them compare their drawings to the real chocolate plant.</td>
</tr>
</tbody>
</table>

Instructional Activities:

1. Provide each student with a copy of *Theobroma cacao* in its natural environment. With your assistance, have students label where the following features are located: cacao pods, cacao flowers, the cacao’s lower trunk and branches, canopy trees, ground debris (leaf litter and rotting cacao pods), roots, and leaves.

2. Ask students to compare *Theobroma cacao* with the deciduous North American trees with which they’re familiar. What are the similarities and differences of the leaf size and shape, tree size and shape, seed pod, and area where the tree flowers and grows its seed?

3. Discuss environmental conditions needed to grow cacao (climate, soil content, protection from elements, symbiotic midge relationship, etc.). You might want to have students research this information independently (or in groups) from books or web sites. Or you might want to introduce the information to them as a class. Either way, students can use the research grid to help them organize their information.

4. Give students the “Growing Cacao in Your Backyard” Scenario sheet. Ask them to imagine the following: You have just inherited a large amount of land near your home. Your Uncle Louie thinks you should use the land to grow and harvest cacao. He is convinced that by doing so, you can beautify your neighborhood and make a considerable profit on the cacao you harvest.

(lesson continued on back)
5 Ask students to use the information they gathered about the cacao and its natural environment and write a letter to their Uncle Louie explaining:

- Why they cannot and do not want to grow cacao on their newly acquired land and what they will do with the land instead.
- Why they do want to grow cacao and what modifications they will need to make to the land and surrounding environment for that to happen.

Encourage students to support their reasons with the information they learned about the cacao tree. Challenge them to also be creative and think beyond just the environmental concerns.

Some questions they might consider:

- What would be the cost of each modification they would need to make?
- What size harvest might they yield?
- What is the current market price per ton of cacao and how much would they make from a single year’s harvest?
Cacao Research Worksheet

Activity

Draw and describe a cacao tree and its natural habitat.

Draw and describe the cacao pod and its contents.

Describe how the cacao tree is cultivated for human use.

Describe the climate and soil content needed for the cacao tree to survive.

Draw and describe how the cacao tree is protected from the elements.

Draw and describe the symbiotic relationship between the midge and the cacao tree.
Dibuja y describe un árbol de cacao y su hábitat natural.

Dibuja y describe el contenido de la mazorca del cacao.

Describe cómo el árbol del cacao es cultivado para el uso del ser humano.

Describe el clima y el contenido de la tierra necesarios para que sobreviva el árbol de cacao.

Dibuja y describe cómo se protege al árbol del cacao contra los elementos naturales.

Dibuja y describe la relación simbiótica entre los dipteros y el árbol de cacao.
Scenario - Growing Cacao in your Backyard

You have just inherited a large amount of land near your home. Your Uncle Louie thinks you should use the land to grow and harvest cacao. He is convinced that by doing so you can beautify your neighborhood and make a considerable profit on the cacao you harvest.

Write a letter to your Uncle Louie explaining:

- Why you cannot and do not want to grow cacao on your newly acquired land and what you will do with the land instead.

or

- Why you do want to grow cacao and what modifications you will make to the land and surrounding environment for that to happen.

Support your reasons with information you've learned about the cacao tree. Also, be creative! Think beyond just the environmental reasons why you will or will not grow the cacao. Be persuasive!
<table>
<thead>
<tr>
<th>Panorama</th>
<th>Acciones</th>
</tr>
</thead>
</table>
| Acabas de heredar un enorme terreno junto a tu casa. Tu tío Luis cree que debes usar la tierra para cultivar cacao. Él está convencido de que si tú lo haces, puedes ayudar a que tu vecindario sea más hermoso y también puedes ganar bastante dinero con el cacao que cultives. | Escribe una carta a tu tío explicándole:  
- Por qué no puedes y no quieres cultivar cacao en la tierra que acabas de adquirir y lo que harás con la tierra.  
- Por qué quieres cultivar cacao y qué modificaciones harás a la tierra y al medio ambiente que te rodea para tener éxito.  

Para apoyar tus razones, usa la información que aprendiste sobre el árbol de cacao. ¡Sé creativo! No sólo pienses en el medio ambiente para basar tus razones por las que vás o no vás a cultivar cacao. ¡Sé persuasivo! |