Ethnobotany PowerPoint

Essential Question:
*What are the natural “ingredients” and human processes for making chocolate?*

At a Glance:
Learners watch a PowerPoint about different plants with ethnobotanical properties, focusing on the process of chocolate production. Next, they review the chocolate process and may make hot chocolate.

Background:
See the PowerPoint narration. The ‘Chocolate’ component of this activity is adapted from the *Our Shared Forest* Curriculum, State Botanical Garden of Georgia, 2007.

Procedure:
1. Tell students that although we don’t know how exactly the first chocolate was made, but we do know that it comes from the cacao tree that grew in the Amazon rain forest. We also know that long ago people in South and Central America drank hot chocolate as a bitter drink. Sometimes they even put hot peppers in it! People drank it because it had something special in it that made them feel good even though it tasted bitter.
2. Show the PowerPoint, *GEN Ethnobotany*. The first portion of the PowerPoint depicts pictures from farms in Ecuador where cacao grows. The remainder of the PowerPoint reviews other plants that have ethnobotanical properties.
3. If time permits, have students develop a written ‘recipe’ for chocolate using the *Chocolate Recipe* handout. Guide them to identify the ‘ingredients’ for creating cacao (soil, sun, water, midges, etc.) and the steps for harvesting and processing chocolate. If time is limited, just discuss before moving on.
4. Ask students to name ways that we use chocolate. Remind students that chocolate itself is quite bitter (there was nothing sweet in the “recipe” they developed). Pass around small pieces of baking chocolate for students to observe and smell; if appropriate, allow students to taste the bitter chocolate. Ask students what they would need to add to a recipe to make it sweet.

Optional: Pass out the *Recipe for Hot Chocolate* to each student. With students reading the recipe aloud, assist them in making hot chocolate.
(Important: Ensure beforehand that students do not have allergies to chocolate or dairy products or other dietary restrictions.) As the learners enjoy their hot chocolate, transition to Ethnobotany Bingo in Stage 3 of this lesson.

Location: indoors, kitchen (optional)

Objectives: *Learners will*
- identify the botanical origin of chocolate.
- describe the natural and human processes in making chocolate.
- discover many products that have plant origins.

Skills: compare similarities and differences, organize items chronologically, communicate findings

Supplies:
- GEN Ethnobotany PowerPoint
- PowerPoint narration
- *Chocolate Recipe* hand-out
- baking chocolate
- *Recipe for Hot Chocolate* (optional)
- milk, sugar, stove burner, pot, spoon or wire whisk, cups for hot liquid (optional)

Time: 35 minutes
Discussion/Assessment:
Where does cacao grow best?
What does a cacao tree need to grow and produce fruit?
What are the steps for changing the cacao fruit into chocolate?
What are some other plants with ethnobotanical properties?
How do you think ethnobotanists learn about these plants and their uses?

Going Beyond:

a) Make chocolate from cacao beans (seeds):
   1) Roast one cup of raw cacao beans in heavy skillet until they are dark brown; seed coats may pop open with a loud sound.
   2) Allow to cool enough just so that beans do not burn the skin, then shell. Shells make excellent garden fertilizer.
   3) Grind several times using a corn or meat grinder until ground chocolate emerges as an oily liquid, like brownie batter.
   4) Form into flat rounded shapes and allow to harden on a non-stick surface OR add sugar to taste, form into flat rounded shapes and allow to harden.
   Note: This chocolate is very intense and can be hard on the stomach when eaten by itself.

b) Bake brownies or other chocolate dessert and identify the plant source of flour (wheat seeds), sugar (sugar cane, stalk of a grass), vanilla (pods of an orchid vine), walnuts (seeds of the walnut tree).

c) Math extension: Have students double or triple a chocolate brownie recipe.

d) Have students research History of Chocolate facts.
A Chocolate Recipe

Name ________________________________________________

Ingredients for Cacao:

__________________________________________________  ________________________________________

__________________________________________________  ________________________________________

__________________________________________________  ________________________________________

__________________________________________________  ________________________________________

Directions for Making Chocolate:

1)  

2)  

3)  

4)  

5)  

6)  

7)  

8)  

Hot Chocolate Recipe

For One Cup of Hot Chocolate

Ingredients: 1 Cup Milk
1 ounce Baking Chocolate (unsweet)
Sugar to taste
Cinnamon or Red Pepper (optional)

1) Grate chocolate or chop into small pieces.
2) Heat one cup of milk over a low flame.
3) Add chocolate. Stir to dissolve chocolate.
4) Add sugar to taste.
5) Add cinammon or red pepper (if you like it spicy!)
6) Beat with a whisk or molinillo to make it foamy.
7) Enjoy!