

COLUMBIAN EXCHANGE ACTIVITY

GRADES 9-12

OVERVIEW: Students walk through the exchange of vegetables after the Columbus' arrival in the "New World."

LEARNING OBJECTIVES: To understand the origins of various "New" and "Old World" fruits, vegetables, and grains and to learn how the voyage of Columbus facilitated the exchange of these foods across continents. In the final discussion the group will trace these concepts into the modern globalized food system and discuss the ecological impacts associated with consumer food choices.

PREPARATION: Have a visual map of the world posted for reference in the classroom. Create five continent posters three on each side of the room to represent the three regions of the "Old" and "New" Worlds: North America, Central America and South America on one side; Europe, Africa and Asia on the other side of the classroom. Create crop name cards. Write each vegetable, fruit or grain listed in the table on number 2 below. Make duplicates if you have more than twenty-two students so that everyone will have a card. Prepare a large segment of chalkboard bisected into "Old" and "New World" and divide those two columns into three sections.

"New" World		"Old" World	
North America		Europe	
Central America		Africa	
South America		Asia	



PROCEDURE

1. Review the nomenclature for “Old” and “New” World and make sure students understand that Columbus really discovered another Old world. Since we realize that now we continue to use the traditional dichotomy of “New” and “Old” worlds but we put them in quotation marks.

2. Engage the students by asking them what fruits or vegetables are indigenous to the “New” World. If/when they get stumped have them reflect on the enduring ethnic cuisines of “New” World regions (ex. For Mexico, elicit basic responses such as corn, beans, chili peppers). Gradually fill in the “New” World list with the help of student suggestions, making sure you include at least the following foods:

North America	Sunflowers Corn (Mexico) Avocadoes
Central America	Peppers Beans Chocolate
South America	Potatoes Tomatoes Peanuts

3. Then ask the students to help fill in the “Old” World chart to include the following. Have them consider climate and enduring culinary legacies (though some of these, as we shall see, were established post-Columbus).

Europe	Wheat Beats Onions Cabbage Apples Peas Carrots
Africa	Radishes Watermelon Coffee
Asia	Rice Sugarcane Mangoes



THE ACTIVITY

4. Pass out the crop name cards. Everyone moves to their continent, as designated by the pre-posted signs on classroom walls.
5. When everyone has found the appropriate place, go around the “world” and have each student state where they are standing, describe the climate as best she can and show which crop she are representing. Have them reflect on the reason this food originated in this area, thinking back to the discussion and considerations of climate. Encourage people to help each other.
6. Now that everyone can visualize the state of the world in 1492, have students think back to the Columbian voyage and imagine a “world” of Europeans who had never tasted potatoes or beans, likewise indigenous Americans who had never seen wheat and tasted bread or pasta. Stress the tremendous nature of the historical influence of this Columbian Exchange – economically, socially, and environmentally.
7. Identify the student(s) representing five important crops: potatoes, sugar, corn, tomatoes, and coffee. Have all students consider the historical scope of each crop one by one and have the representative student walk from the continent of origin to other continents that have a historical connection to that food since the voyage of Columbus. To encourage thought as to where the crop went, ask students about what the cuisine is like in different countries. Use the summaries at the end of the lesson to help guide students.

The teacher may facilitate the journeys of as many crops as she wishes, making sure to keep in mind the role of climate and the environmental and social impacts of each move.

8. After having participated in a re-enactment of the far reaching global consequences of the Columbian Exchange, lead a discussion of the larger implications of the movement of vegetables around the world. Ask the questions:

Can these crops grow in the places where they have ended up as a result of trade?

How are these countries getting this vegetable?

Before the Columbian Exchange, how did people get food? Where did it come from?

What are the environmental impacts of trading food globally?

DISCUSSION

Lead the group in a discussion of the environmental impact of eating food that needs to be shipped extremely long distances.

California teachers can start by engaging students in California’s role as the supplier of half of this country’s fresh produce. Have the students consider the impact of buying grapes grown in Chile at a California supermarket while grapes



grown in California are shipped to South America. Outline all the inputs that increase with distance: trucks, processing, distribution, refrigeration, etc. Tie this lesson in with the potato diagrams.

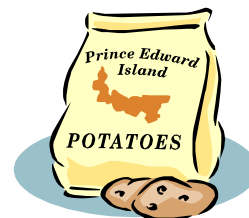
Have students reflect on how and why this global food system has evolved. You might want to bring up considerations of desire for exotic items, as throughout history peoples have developed cravings for luxury items not produced in their own lands, such as the Romans' desire for Asian spices.

Speculate with students about sustainable agriculture. Note how this is actually an old concept applied to the current food system. Before the Industrial Revolution, agriculture existed solely in small-scale, diversified farms that had many similarities with the current movement towards organic and sustainable agriculture. Engage students' understanding about farms and the processor side of modern food production.



POTATO

In the Andes Mountains of South America indigenous people, including the ancient Incas, survived on potatoes for the past 7,000 years. After the Spanish conquistadores arrived in South America in 1531, their sailors recognized the potato's nutritional value and adopted it as a food source for long voyages. By 1600 farmers in Spain were planting crops of potatoes and by 1800 the potato had become one of the most important foods in Europe due to its combination of essential vitamins, minerals and fiber and its easy adaptation to different climates. The potato was so productive and easy to grow in rocky soil that the people of Ireland developed an exclusive dependence on potatoes as a primary food source. The lack of alternative foods led to the Irish Potato famine when a potato blight began in 1845.¹ This precipitated a mass emigration to the United States where current Americans consume more potatoes than any other vegetable, mostly in the form of French fries.²



- *What was the social impact of famine in Ireland?*
- *What were the social implications of thousands of Irish immigrants in the eastern United States in the late 1840s?*

SUGAR

Sugar cane, though native to Polynesia, was first refined into sugar in India in about 700 BC. It made its way west for the next couple thousand years and finally, in the Middle Ages, to Europe, which had previously relied on honey for sweetener. Sugar is unnecessary to the human diet, and even becomes harmful in excess and addictive, but was prized for its medicinal use in making herbal concoctions more palatable. In 1400 it was still a very expensive commodity due to small production, and Europeans were just beginning to learn to grow sugar cane outside of the tropics. The Spanish had planted sugar cane in the Canary Islands, where Columbus acquired it for his second trip to the Americas in 1493. Sugar cultivation is very labor-intensive and the Spaniards set about enslaving the native inhabitants of Hispaniola to grow and process sugar for growing markets in Europe. In 1516 the first shipment of sugar arrived in Europe which fueled demand for sugar, especially among the British, as a sweetener for tea, coffee,



¹Davis and Hawke, Seeds of Change: The Story of Cultural Exchange after 1492. Menlo Park: Addison-Wesley, 1992.

²Schlosser, Fast Food Nation. New York: Houghton Mifflin, 2001.

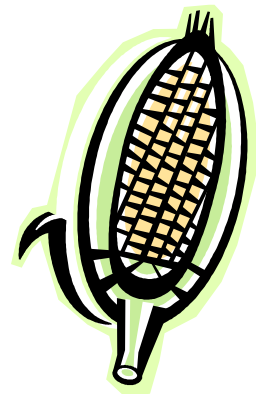


and chocolate. Meanwhile the enslaved indigenous labor force in the Caribbean was dying off due to the introduction of “Old” World disease so sugar producers turned to Africa to supply labor. These producers cleared large swaths of land with slash-and-burn techniques, to great ecological detriment, to build plantations which depended on slavery to produce an adequate supply of sugar to satisfy the demand of the European upper classes. Some 12 million Africans were transported to the Americas as slaves between 1450 and 1900 as part of the triangular trade system.³ Demand for sugar remains high all over the globe, and causes tooth decay, digestive disease, and addictive dependence.

- *What are the social costs in terms of human lives caused by demand for sugar?*
- *What rich cultural traditions remain in the Americas as a result of the African slave trade?*
- *What environmental problems have ensued from sugar plantations, particularly monocropping?*

CORN

Corn, or as the indigenous Americans called it, maize, is native to the area around present day Mexico City. It was first cultivated 7,000 years ago and rapidly spread from Mexico throughout the Americas to become a staple of the Mayan, Aztec and Incan civilizations. These people relied heavily on corn for a primary source of energy and prepared it by boiling the ears or grinding the kernels into meal which helped preserve it through the winter. The Spaniards who arrived in the Caribbean saw corn growing everywhere but had never seen it before, since it was unknown in Europe, Asia, or Africa. Columbus introduced corn to Europe where it spread widely and then on to Turkey, Africa and Asia. Many Europeans did not develop a taste for the grain but they used it to feed livestock which increased the availability of protein sources throughout the continent. Corn continues to play a vital role in the Americas and it reigns supreme in the Midwestern U.S. where 40% of the world’s corn is grown. Most of our corn is not eaten but fed to livestock and used to make a variety of products, including explosives, paint, and gasoline additives. Plus, cornstarch processed into syrup (high-fructose corn syrup) has surpassed sugar as a sweetener and can be found in soda and almost every processed food.⁴



- *What are the environmental and social implications, in terms of world hunger, of growing so much corn and feeding most of it to animals?*

³ Hobhouse, Seeds of Change: Five Plants That Transformed Mankind. New York: Harper and Row, 1985.

⁴ Davis and Hawke, Seeds of Change: The Story of Cultural Exchange after 1492. Menlo Park: Addison-Wesley, 1992.



COFFEE

This shrub with red berries that can only grow in tropical climates originated on the mountainsides of Ethiopia under rainforest canopy, although it's now more commonly associated with Central America and the South Pacific isles. The demand for coffee began as a medicinal drink (prescribed at various times as an enema, aphrodisiac, nerve calmer and life-extender) for the elite but soon became a working-man's pick-me-up.⁵ In the 1870s industrialization of roasting technology and railroads facilitated the global spread of coffee consumption, though it has always been more popular in the West, as peoples in the East generally maintain a preference for tea. Coffee is the second most widely exported legal commodity (second only to petroleum) and Americans consume more coffee than any other nation.

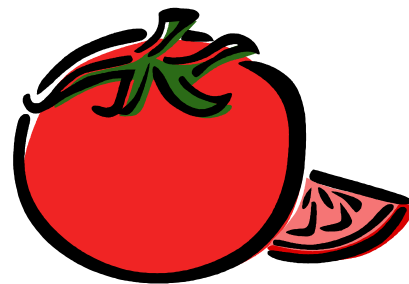


Over 20 million people in the world produce coffee, over fifty percent of them small, family farmers who mostly live in poverty, subject to the whim of constantly fluctuating commodity markets or large plantation owners who clear-cut rainforest. For example, coffee production in the hands of society's elite has led to the continued subjugation of Mayan Indians in Guatemala.⁶ Now consumers can buy coffee that has been certified as 'fair trade' which means farmers are paid a fair market price for their coffee and thereby ensured a sustainable future.

- *What has been the ecological cost of clear-cutting rainforests for coffee plantations in Brazil and Central America?*
- *What kind of biodiversity is lost when coffee is planted in open fields instead of under rainforest canopy?*

TOMATO

The Aztecs deserve the credit for introducing the world to the tomato, not the Italians as many people assume. The Spanish first encountered this fruit during their conquest of Mexico in 1519. The Aztecs ground tomatoes with chilis to make salsa to accompany a wide array of dishes. Though the Spanish in Mexico enjoyed tomatoes, many Europeans considered them poisonous upon arrival because they belong to the same family as



⁵ Pendergrast, Mark. Common Grounds. New York: Basic Books, 1999.

⁶ Conservation International, 2004.



the deadly nightshade. It wasn't until the early 1800s that the poisonous myth was debunked and the tomato was adopted in Europe, particularly Italy, for its versatility in sauces and soups. Today the tomato is one of the most popular fruits or vegetables across the globe, and the U.S. is the largest commercial producer of tomatoes in the world. Americans consume 12 million tons of tomatoes annually, both fresh and, most often, in processed foods like ketchup.⁷

⁷ Smith, [The Tomato in America](#). Columbia, South Carolina: University of South Carolina Press, 1994.

