



**UNIT 2: FOOD AND  
THE ENVIRONMENT**

L.14

# THE CHALLENGE TO EVOLUTION

## Note to Teachers

As illustrated in the last lesson, the development of agriculture demanded a strong dialogue with nature. Humans had the ability to notice, respond to, and shape nature, but had very little control over it. In the last 500 years, however, that control increased as humans developed the technology to move and process foodstuffs in new ways. The Columbian Exchange is a key moment in that development as shipping technology spread extremely important crops to new societies. That movement of crops, in addition, brought with it major social change.

This lesson begins with a brief review of what students know about the Columbian Exchange, and then uses two short texts to give students the opportunity to explore the spread and very different consequences of two foods that moved in opposite directions: sugar and sweet potatoes.

### Goals *In this lesson, students will*

- build on their current knowledge of the Columbian Exchange.
- learn that more advanced technology enhanced humans' abilities to shape the natural environments around them.
- understand that new crops brought other changes—both negative and positive—to the societies that began to cultivate them.

### Objectives

- Students will use two maps to re-cap their knowledge of the Columbian Exchange.
- Students will use some guiding questions to understand and analyze a reading on the movement west of sugar cultivation and movement east of sweet potatoes.
- The rubric will enable students to compare the movement of these two crops and their consequences.
- Students will articulate a broader claim about the dissemination of crops and their consequences.

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Please use this margin to notate how to best adapt this curriculum to your students.

## Materials

- Slides

### I. Columbian Exchange: Introduction

Lesson 14 begins with two maps:

#### 1. Slide 2:

**FOCUSED FREE WRITE** (5 minutes)

**PROMPT:** On the basis of this slide, what was the Columbian Exchange? Can you define it, or ask a question about what you see?

Ask students to share their responses in order to build a definition that might look something like this:

*The movement of humans, goods, and diseases prompted by the waves of voyages undertaken by Columbus and other European explorers beginning in the late 15th century.*

#### 2. Slide 3:

Ask students what changes in global communication they see represented by the map on this second slide.

Map of fifteenth and sixteenth century European exploration shows that:

- Europeans created water routes to India, SE Asia and China
- Americas were brought into communication with Eurasia and Africa
- Global trade—the regular exchange between most continents—began in the sixteenth century

#### 3. Remind students that

- Europeans were not the first or only explorers. Although historians disagree on how far Polynesian sailors traveled, current research should teach us more about their contributions to the movement of seeds.
- European explorations led to the dramatic acceleration of the process of diffusing crops across the world.

Seeds were moved further than they could have drifted in the wind or been carried in the gut of an animal. Animals moved further than they could walk, swim, fly, or drift on debris.

The movement of crops and animals shifted, by degree, humans' relationships with the natural world, giving humans greater control over the seeds

New shipping technology that allowed humans to create regular trade routes linking Eurasia, Africa, and the Americas, also gave humans a nudge in their ability to push beyond nature's geographical limits in this way.

- New crops and animals changed the societies in which they were introduced.

**EXAMPLE:** European explorers learned about corn in the Americas. The Portuguese, historians tell us, brought supplies of corn to feed enslaved peoples on their trip across the Atlantic. Suited to the West African environment, African



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farmers began to plant this new food, tragically providing an important new source of food and supply for slave traders.

Corn, one video on the Columbian Exchange claimed, helped to sell Africans into the Atlantic Slave system.<sup>1</sup>

The Columbian Exchange, in other words, moved crops and animals further than they could have travelled by natural means, and their arrival often had powerful economic, political, and social consequences.

## II. Sugar and Sweet Potatoes (Slides 4-10)

1. Distribute the reading and worksheet, and explain to students that these two case studies will help to explain the movements of plants brought about by the Columbian Exchange and the types of changes those crops caused.
2. (15 minutes) Divide the class in half and ask them to find answers to the questions on the worksheets in the reading. Encourage them to explain their answers as fully as they can.
3. (20-30 minutes) Have students share their answers to the questions one food at a time.
4. Use this discussion as a means to get to this larger takeaway for each:
  - Sugar had long been moving slowly westward thanks to the Arabs, but jumped the Atlantic because of Columbus.
  - Arab producers had already begun to use enslaved labor to produce sugar cane. By the time Columbus took sugar cane to the Caribbean, plantations depended upon African enslaved labor. The availability of this economic model encouraged Europeans to construct slave societies in their colonies. Until the nineteenth century, therefore, sugar production was based on exploitation.
  - The sweet potato had already made one massive move to Polynesia before the Columbian Exchange. The Spanish and Portuguese brought it to Europe and India, and then to China. The productivity and ease of cultivation of the sweet potato helped to promote the strength of small farmers in China by the 17th century.
5. (10 minutes) Once students feel comfortable with these ideas, ask them to frame a larger conclusion. An example:

*With the Columbian Exchange, humans impose a new degree of control over nature, when oceangoing ships become able to transport crops across continental systems and hemispheres.*

*And as these stories reveal, they have powerful consequences in shaping the societies that adopt them.*

6. With any remaining time, open the floor for discussion.

## III. Lab: Sweet Potatoes

1. If you have not already done so, show students the images about the sweet potato in Lesson 14 PPT, including the map of where the sweet potato is grown today. The map clearly illustrates the incredible spread of the sweet potato in both tropical and temperate regions.

<sup>1</sup>) "The Columbian Exchange" from *Columbus and the Age of Discovery* (BBC, 1992).



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2. Ask students whether they have ever eaten sweet potatoes and, if so, how was it prepared.

Maybe they have eaten sweet potatoes with marshmallows (sugar) and cinnamon (spices). Their discussion of the spice trade should give them new perspective on this popular combination: sweet potatoes came from the West to Europe, but spices and sugar came through Arab production and trade to the West.

As they share their experiences, see if students can tie sweet potato dishes to regional or ethnic cuisines. A flexible food, the sweet potato blends well with many taste palates and seasonings.

3. In this lab, students will prepare a Thai soup. See attached recipe.



*This program is made possible by generous support from Unilever.*



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### THAI SWEET POTATO COCONUT SOUP

*From Epicurious*

5 students

This recipe should be made along side sweet potato parfait and sweet potato tacos recipes. This recipe is enough for 16 students. 5 students will work on this one while the rest work on the other two recipes.

#### Equipment List

- 8 knives
- 8 cutting boards
- 2 peelers
- 1 large saucepan
- 1 induction burner
- 1 can opener
- 1 x 1 liquid cup measure
- 1 x 1 tablespoon measure
- 1 x ½ tablespoon measure
- 1 wooden spoon
- 1 blender or food processor

#### Food Items

- 1 lb. sweet potatoes
- ¾ lb. kohlrabi
- 2-3 Tbsp. coconut oil
- 2 garlic cloves
- 1 onion
- 1 stalk lemongrass
- 1 ½ Tbsp Thai red curry powder or paste, or to taste
- 1 Tbsp fresh ginger, peeled and grated
- 8 cups vegetable stock
- 2 kaffir lime leaves
- 1, 15-oz can unsweetened coconut milk
- Sea salt, to taste



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### THAI SWEET POTATO COCONUT SOUP

YIELD: 6 servings

#### Ingredients

- 1 lb. sweet potatoes, peeled and cut into ½ inch pieces
- ¾ lb. kohlrabi, peeled and chopped, small-medium dice (roughly 2 cups or less)
- 2-3 Tbsp. coconut oil
- 2 garlic cloves, minced
- 1 onion, medium dice
- 1 stalk lemongrass
- 1 ½ Tbsp Thai red curry powder or paste, or to taste
- 1 Tbsp fresh ginger, peeled and grated
- 8 cups vegetable stock
- 2 kaffir lime leaves
- 1, 15-oz can unsweetened coconut milk
- Sea salt, to taste

#### Directions

1. In a large saucepan, warm oil over medium heat. Add the onions and kohlrabi and cook over medium heat, stirring occasionally, about 12 minutes.
2. Add curry paste and cook, stirring, for 2 minutes.
3. Add ginger, garlic, and lemongrass, and cook until fragrant, about 1 minute.
4. Add sweet potatoes, vegetable stock and kaffir lime leaves, and bring to a simmer. Cook until the sweet potatoes and kohlrabi are tender, about 25 minutes.
5. Stir in the coconut milk and cook for 3 more minutes. Remove from the heat. Remove lemongrass and kaffir lime leaves.
6. Blend in batches, puree the soup until smooth. Season to taste. Serve hot.



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Rubric



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	SUGAR	SWEET POTATOES
Describe your food: Is it a difficult food to grow or process? What made it a desirable food?		
Where did it spread after the Columbian Exchange? Who transported it? What type of food would you likely serve?		
What effect did the crop have on the society that adopted it?		

