

CSU-TIPS Biology Lesson Study 2025/26

Food Systems and Staple Crops

Lesson Study Team Members:

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Taught in the following courses:

- CSU Chico: BIOL 105, “Food, Fiber, Drugs”
- CSU Stanislaus: BIOL 1150, “General Biology II, Eco, Evo, Diversity”
- College of Marin: BIOL 111A, “Organismal Biology, Ecology and Evolution”

Brief Lesson Description:

This lesson explores food systems in a variety of ways. First, students share about a dish that has cultural, familial or historical significance to them. After being introduced to the concept of staple crops, students identify the staple crop(s) used in their dish. They then perform a “jigsaw” activity to learn more about five staple crops (potatoes, corn, wheat, rice, and acorns). In “expert” groups, students learn about the history of cultivation and ecological significance of one of the crops, and then share back with their “home” group, so every member of the class is able to learn about all of the crops. This lesson is grounded in the ecology of California, particularly regarding oak trees whose acorns were a staple food for indigenous people, and as well as discussion of the Columbian Exchange, which marks the beginning of globalization of foods in a more profound way. . Rehumanizing STEM dimension and goal

Rehumanizing STEM dimension: Culture and Ourstories/Theirstories

Students are given the opportunity to explore plants in their own lives, communities, and cultures through memories of food.

Themes: ethnoscience, non-western contributions (e.g. Native California food systems and cultural practices like burning). Help students see themselves in the curriculum by bringing in foods/plants/crops from their history, family, culture, and seeing those as relevant.

1. Research Lesson Plan

Indicated time percentages are recommendations; adjust as necessary

Steps, Learning Activities Teacher's Questions and Expected Student Reactions	Teacher Support	Formative Assessment
ACT 1 :: IGNITE AND LAUNCH (15%)		
Ignite: Before the lesson, students will be asked to do a brief homework assignment in which they choose a dish that has significance to them, because of its association with family or culture. Wondering: Students will be asked to identify the ingredients in their dish, and come prepared to share about this during the lesson.	In this case, all knowledge resides in the students themselves, and sources of information that they have for gathering the details. (For example, they could speak with family members about ingredients in their favorite dish, if it is not something they have personally prepared).	<Are students motivated to do the work?>
Launch Task (35 minutes, including introduction) After a brief lecture/presentation introducing the activity, students will be asked to share about the dish that they researched. They will also need to identify the staple crop(s) that are part of their dish. Students will also be encouraged to share a bit about why this dish is important, any meaningful memories, etc. Exact phrasing: TBD <i>How will students unpack the task so can access problem without being led to a strategy or solution</i> This task doesn't require any particular problem solving - most of it is just coming out of their memory and knowledge of this dish that has cultural significance to them.	Teacher support includes: • A 10 - 15 minute presentation that introduced the activities, including information about staple crops, so students can identify which one(s) are found in their dish, and some basic ecological concepts to start them thinking in that direction. • Providing students with a worksheet that contains: ○ A table in which to take notes about what the other students in their group are sharing ○ World maps that show climates and biomes and where crops are being grown (modern and historical) • Prompting students to look for connections across the information being shared - patterns about where dishes come from, growing conditions, etc.	<Do focal students unpack the task?>

Steps, Learning Activities Teacher's Questions and Expected Student Reactions	Teacher Support	Formative Assessment
<i>ACT II :: WORK TIME (50%)</i>		
Jigsaw Activity (60 minutes) Students will be sorted into “expert” groups, each of which will investigate a particular staple crop: potatoes, rice, wheat, corn, or acorns. In this group, students will be provided with tools to answer some questions about their crop that explore historical, cultural, ecological, and agricultural aspects of that food and its use and production. After the expert group discussions, students will return to a “home” group that consists of at least one member of each expert group. Students will then teach one another about their staple crops.	<Support students’ multiple competencies>	

Ideas for Extension Activities

- **Pre-activity Homework assignment:** students interview a family or community member about traditions surrounding food in their family, community, culture. The discussion can include ingredients, techniques for preparing the foods, any associations with holidays or other special events, etc. Students then research the origin of one (or a few) ingredients. Students can include this information when sharing about their “meaningful meal” during the in-class activity.
- **Lesson Extension:** Explore the differences between agriculture and ecosystems where food is plentiful enough to allow for gathering, and how this impacts the way people spend their time. Overarching idea is how place is connected to diet, but how human cultures today transcend that (for example with technology).
- **Post-lesson activity:** Students investigate food production in their county (or other defined local region). What foods are produced, and how are they grown? What happens to locally-grown products (how and where are they distributed)? Students could also plan a meal using the top five crops grown in their region.

- **Lesson Extension:** After students learn about various plant-based foods, have them imagine what would happen if a particular resource was no longer available (for example, due to changes in climate). What would be the impact on them personally? In the broader community of people? Ecological effects? How might current events impact the future of food production? What alternative options might we use for feeding human populations in the future? Students can also imagine what they want for the future, and brainstorm techniques that could help get to that future (lab-grown foods, insect proteins, etc). How can we imagine local food production that supports ecological and human communities?