



# AGRICULTURE, FOOD AND NATURAL RESOURCES CLUSTER

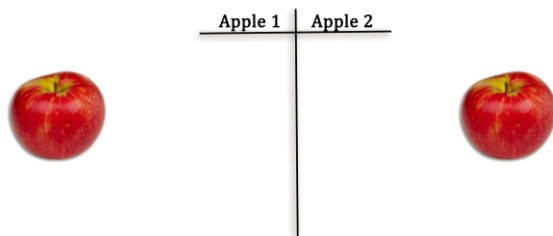
## LESSON 4

<b>Lesson Plan Title:</b>	What's the Difference? Organic & Conventional Foods	<b>Instructor:</b>
<b>Suggested Total Time for Lesson (minutes):</b> 45 minutes (1 day)		
<b>Content Focus - What will Students Learn? (Content Skill Sets)</b>		
<p>Using the claim, evidence and reasoning model, students will compare and contrast organic vs conventionally produced foods to discover the differences and similarities of each farm production style. Students will identify farm practices for plant production and harvest of safe products for consumers.</p> <p>0101.33 Identify and debate the issues associated with biotechnology use in the agriculture industry.</p> <p>0101.37 Discuss the importance of food labeling to consumers.</p> <p>0101.45 Compare and contrast various food labels.</p> <p>0111.48 Conduct sensory analysis experiments for smell, taste and texture of food and food additives and enhancers</p> <p>0111.51 Conduct food product sampling and consumer evaluation activities.</p> <p>0111.58 Demonstrate knowledge of organic foods</p> <p>0111.64 Identify characteristics of organic foods</p>		
<b>Materials and Resources- What do you need to assemble and prepare before the lesson?</b>		
<p>Materials:</p> <p>1 organic apple and 1 conventional apple of the same variety</p> <p>Knife or apple slicer</p> <p>Cutting board</p> <p>Taste Test Supplies:</p> <ul style="list-style-type: none"> <li>• 10 paper plates labeled 1-10</li> <li>• 5 organic food samples, sliced and prepared for individual taste tests</li> <li>• 5 conventional food samples, sliced and prepared for individual taste tests</li> </ul> <p>Note: Choose food samples that you can purchase both an organic version and a conventional version. Choose foods of similar varieties or types to represent equivalent foods with different farming production methods.</p> <ul style="list-style-type: none"> <li>• Toothpicks and napkins for taste tests</li> </ul>	<p><b>Resources:</b></p> <p>Handout: <a href="https://cdn.agclassroom.org/media/uploads/2019/03/22/infographics-conv-organic.pdf">https://cdn.agclassroom.org/media/uploads/2019/03/22/infographics-conv-organic.pdf</a> infographics-conv-organic.pdf (agclassroom.org) handout, 1 per student</p> <p><i>Give it a Minute: Organic &amp; Conventional Farming</i>  <a href="https://www.youtube.com/watch?v=g6TMZZfbUE">https://www.youtube.com/watch?v=g6TMZZfbUE</a></p> <p><a href="#">Microsoft Word - Claim Evidence Reasoning- Organic vs Conv.docx (agclassroom.org)</a> handout, 1 per student</p> <p><i>Agricultural Literacy Curriculum Matrix</i> <a href="#">Whats the Difference? A Look at Organic and Conventional Foods (agclassroom.org)</a></p>	
<b>Lesson Outline: What learning activities will your students do?</b>		
<b>Time</b>	<b>Sequence/Description of Learning Activity</b>	
5 minutes	<p><b>Get Started/Explain:</b></p> <p>Define Organic Farming and Conventional Farming and instruct students to record the definitions and the discussion facts below.</p> <p>Present and discuss the following facts:</p> <ul style="list-style-type: none"> <li>• While organic-label foods are offered in each section of the grocery store, fresh fruits and vegetables are the top selling category of organically grown food.</li> <li>• Consumer demand for organically produced goods has shown double digit growth during most years since the 1990s.</li> <li>• Organic foods do not have a nutritional advantage over their conventional counterparts.</li> <li>• Synthetic pesticides approved for use on conventional and organic crops undergo the same rigorous scientific evaluation by U.S. EPA. The agency evaluates scientific data on the pesticide to ensure that when used according to label directions, the product will not harm people, non-target species or the environment.</li> <li>• 100 percent organic - Products that are completely organic or made of all organic ingredients.</li> <li>• Organic - Products that are at least 95 percent organic.</li> <li>• Made with organic ingredients - These are products that contain at least 70 percent organic ingredients.</li> </ul> <p>The organic seal can't be used on these packages.</p>	

## Discover/Engage/Practice:

### Part 1:

1. Ask students questions to generate thought, "What is the definition of the word, organic?" "Where do you see the word *organic* most?" Allow students to offer several answers directing students to think about their food and the labels they see in the grocery store.
2. Ask for two student volunteers. Inform them that one will be doing a taste test and the other will serve as a scribe.
3. Reveal two apples to the students labeled 1 and 2. Inform students that one apple was produced using organic farming practices and the other was produced using conventional farming practices. (Be sure you keep note of which apple is organic and which is conventional.)
4. Draw a T-chart on the board. Label one side "Apple 1" and the other side "Apple 2." Instruct the scribe to list all of the adjectives that are used during the observation.
5. Ask the other student volunteer to carefully examine each apple and describe them to the class. The volunteer should visually observe, taste, and touch the apple. Cut the apples with a knife or an apple slicer once the exterior of the apple has been thoroughly examined. (Remind the scribe to be recording the description of each apple.)
6. Once the observation is complete, the student volunteer(s) should select which sample they think is the organic apple and which is the conventionally farmed apple. Give the student an opportunity to explain why they made their choice.
7. Reveal to the students which apple is which and have a short discussion that answers the questions:
  - Was there a difference in physical appearance? (Size, Shape, Color, Texture)
  - Is there an observable difference between the two samples that you can see, feel, or taste?
  - What are your perceptions about both methods of farming?



45 minutes

### Part 2:

1. Give each student one copy of the [Claim, Evidence and Reasoning- Organic and Conventional Food Production handout](#).
2. Now that students have been briefly introduced to the terms *conventional* and *organic*, they will begin to develop a clear definition of the terms as they progress through the CER model.
3. Have students brainstorm the questions they have concerning the two farming practices. Examples could include:
  - Are organic foods safer or more nutritious than conventionally grown foods?
  - Is one method "better" for farmers?
  - Is one method "better" for the environment?
  - Is there a measurable difference between conventionally grown food and an organically grown food?
  - Does organic/conventional food taste better?
4. Introduce the *Claim, Evidence, and Reasoning* model. Explain that after a question is asked, this model can be used to find a credible answer to a question by using the following steps:
  - a. **Claim:** State a direct response to the question.
  - b. **Evidence:** Find reliable information that supports the claim.
  - c. **Reasoning:** Link the claim to evidence by explaining how the evidence supports the claim.
5. Instruct students to complete two of the four steps in the CER model on the first page of their worksheet. First, they should select and record one question they would like to answer about organic and conventional food production practices (step 1). Next, they will formulate a claim by answering their question using their best guess and background knowledge. This should also be recorded in the corresponding box on their handout (step 2).
6. Let students know we will come back to the evidence (step 3) and reasoning (step 4) portions momentarily. First, we will spend some time gathering evidence and learning about farming practices.
7. As students participate in the following activities, they should be filling out the Venn Diagram on page 2 of their handout listing the similarities and differences found in the farming production styles.

	<ol style="list-style-type: none"> <li>8. Show the video, <a href="#">Give it a Minute: Organic and Conventional Farming</a>. (1:27 minutes)</li> <li>9. Next students will participate in a taste test. Prior to class choose five different foods that you can purchase both an organic label product and a conventional product. Prepare the samples and label them 1-10 placing like foods next to each other (e.g., strawberries #1 and #2, carrots, #3 and #4, etc.) and select a random order for organic vs conventional. Be sure to keep a key.</li> <li>10. Inform students that they will be examining and tasting five different foods. Each food will have both an organic and a conventional sample. Direct students to page three of their handout. Explain that for every food they will observe and taste each sample, record their observations (columns 1-3), determine if it is a conventional or organic food product (column 4), and then explain their choice (column 5).</li> <li>11. After all samples have been evaluated and identified by the students, reveal the correct answers. Have students place a star next to the samples that they guessed correctly.</li> <li>12. Hold a class discussion about the differences and similarities observed. <ul style="list-style-type: none"> <li>• <b>Note to Teacher:</b> With a 50/50 chance, students will guess some of the samples correctly. As your students discuss differences they could taste, discuss reasons why. In many cases it will not be due to organic vs conventional farming practices. Possible reasons for differences include the use of different plant varieties or cultivars and different packaging or processing methods. Ripening may also impact taste. For example, a tomato that was vine ripened will likely taste better than one that was picked and ripened during transport to the grocery store.</li> </ul> </li> <li>13. Direct students back to their Venn Diagram. Have students record the differences and similarities they observed during the taste tests and review the following as a class, in small groups, or individually to complete the Venn Diagram: <ul style="list-style-type: none"> <li>• <a href="#">Organic vs Conventional Farming infographic</a></li> <li>• <a href="#">Organic and Conventional Farming: What's the Same? What's Different?</a> website.</li> </ul> </li> </ol>
--	---

10 minutes	<p><b>Check for Understanding/Summarize/Close:</b>  Instruct students to complete their handout by answering the reflection questions on the last page and returning to the first page to complete the "Evidence" and "Reasoning" sections of their CER models.</p> <p>After conducting these activities, review and summarize the following key concepts:</p> <ul style="list-style-type: none"> <li>• The nutrition and overall food safety of organic and conventionally produced food is the same. The difference lies in the production methods used on the farm.</li> <li>• The USDA Organic program is federally regulated with specific requirements for farmers to meet in order to label their food product as "organic."</li> <li>• A variety of farming methods can be used to produce a safe and nutritious food supply.</li> </ul> <p>Compare the labeling of both types of products and discuss this impact on consumers.</p>
------------	--

***Modifications, Support, and Extensions (for those students with IEP)***

***Reflection- Did the students learn the content outlined in the lesson focus? Why or why not?***