



# System Model of a Wheat Farm in the Inland Pacific Northwest

## Week 2 – Day 5

### Lesson Overview

The purpose of this lesson is to provide students with an opportunity to synthesize their thinking around inland Pacific Northwest wheat farms and climate change. Students will craft a high-quality system model of a wheat farm in the inland Pacific Northwest. This model will include the major inputs and outputs of a wheat farm and the influences of climate change on that system. This lesson is intended to have a constructivist approach where students are synthesizing their own thinking around the evidence collected throughout the past week.

### Lesson Vocabulary

system model

Standards and Learning Targets for Lessons
<p><b>Learning Targets</b></p> <ul style="list-style-type: none"> <li>• I can craft and revise a high-quality system model of a wheat farm that includes the influences of regional climate change.</li> </ul>
<p><u>Next Generation Science Standards</u></p> <ul style="list-style-type: none"> <li>• 5-ESS2-1 – Earth’s Systems                             <ul style="list-style-type: none"> <li>- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</li> </ul> </li> </ul>
<p><u>Idaho Science Standards</u></p> <ul style="list-style-type: none"> <li>• 5.S.1.2.3 – Goal 1.2 Understand Concepts and Processes of Evidence, Models, and Explanations                             <ul style="list-style-type: none"> <li>- Use models to explain or demonstrate a concept.</li> </ul> </li> </ul>
<p><u>Common Core ELA Standards</u></p> <ul style="list-style-type: none"> <li>• RI.5.9 – Reading Informational Text                             <ul style="list-style-type: none"> <li>- Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.</li> </ul> </li> <li>• SL.5.1.a – Speaking and Listening                             <ul style="list-style-type: none"> <li>- Engage effectively in a range of collaborative discussions with diverse partners on 5<sup>th</sup> grade topics and texts, building on others’ ideas and expressing their own clearly.</li> </ul> </li> </ul>

### Materials

- Large pieces of blank paper, one for each student to draw model.



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- Writing and art supplies: pencils, colored pencils, markers, protractors, rulers, etc.
- Anchor chart paper or board

### Lesson Duration

Approximately 2 hours

### Lesson Description

This is an assessment activity where students will be synthesizing their thinking on the inputs, outputs, and influences of climate change on wheat production. The teacher should promote creativity, evidence-based thinking, and high-quality scientific, artistic, and written craftsmanship throughout the assessment.

#### Engage (20 minutes)

- Have the whole class circle up and introduce the learning target.
- Unpack the learning target: *I can craft and revise a high-quality system model of a wheat farm that includes the influences of climate change.* Write the learning target on the board or on chart paper. Discuss the meaning of key words. Discuss the purpose of the lesson in terms of what students will be able to do by the end of the lesson.
- To tap into student background knowledge, lead a brief discussion/reflection on the students' system models created at the end of Week 1.
- Ask students to turn to side-by-side partners and have a 2-minute discussion on what a high-quality system model should look like.
- After the side-by-side discussions have each group share its thinking.
- Create (and guide the development of) an anchor chart detailing the student-created criteria list for what a high-quality system model should include.
- The criteria list should include ideas around scientific accuracy, high-quality craftsmanship (neatness, spelling, conventions, use of color, organization, etc.) and evidence-based thinking.

#### Assessment (60 minutes)

- Ask students to independently craft high-quality system models.
- Monitor and provide support as needed.

#### Peer Critique and Feedback (15 minutes)

- In groups of three have students share their models.
- Have students use the criteria list to provide warm and cool feedback (things that worked, things that didn't work) to each member of the group.

#### Assessment Revision (10 minutes)

- Using peer feedback, have students revise their models.
- Have students submit their finished work to you for assessment.



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**Debrief (15 minutes)**

- Have the whole class circle up.
- Have each student share his/her thinking on the following reflection question:  
*I used to think \_\_\_\_\_, but now I think \_\_\_\_\_.*