

## 5E Lesson Template

<b>Lesson Author(s)</b>	Mike Howard
<b>Lesson Title</b>	Midwest Crops and Precipitation
<b>Lesson Source</b>	
<b>Technology Needs (if any)</b>	Computer/Internet
<b>Date/Time Lesson to be Taught</b>	
<b>School</b>	
<b>Supervising Teacher</b>	
<b>Math or Science?</b>	Science
<b>Lesson Concepts</b>	Crop growth and location and effects of precipitation.
<b>Objectives</b>	
<b>CO State Standards</b>	6 <sup>th</sup> Grade Science 3.3, 3.2, (2.1)
<b>Materials List and Advanced Preparation</b>	Worksheet (attached)
<b>Safety</b>	
<b>Accommodations for Learners with Special Needs</b>	Based exclusively on students' needs but may include the following: Preferential seating, Small-group, one-on-one teacher assistance.

**5Es**

<b>1. ENGAGEMENT</b>		<b>Time: Minutes</b>
<b>What the Teacher Will Do</b>	<b>Probing/Eliciting Questions</b>	<b>Student Responses and Misconceptions</b>
Initiate brainstorming about which crops are important in the U.S. Guide students to focus on wheat and corn.	Where does the U.S. get its food? What areas of the U.S. are agriculturally important?  Why are wheat and corn important? What are they used for?	Students may believe only the "South" has sufficient crops.  Students may believe wheat and corn are only for human consumption.
<b>Evaluation/Decision Point Assessment</b>		<b>Student Outcomes</b>
Are students able to explain the distribution of crops?		Understand important crops.

<b>2. EXPLORATION</b>		<b>Time: Minutes</b>
<b>What the Teacher Will Do</b>	<b>Probing/Eliciting Questions</b>	<b>Student Responses and Misconceptions</b>
Have students go to <a href="http://agcensus.usda.gov">agcensus.usda.gov</a> and access "Atlas Maps" for crops and plants ( <a href="http://arcgis.com/explorer">arcgis.com/explorer</a> and search "Maize Yield Potential" OR <a href="http://nationalatlas.gov">nationalatlas.gov</a> ). As whole group collect and record student data.	Where are wheat and corn primarily grown in the U.S.?	Students will discover the Midwest is main producers of wheat and corn (Record data).
<b>Evaluation/Decision Point Assessment</b>		<b>Student Outcomes</b>
Did students correctly evaluate where these crops are located? Did students choose maps that had pertinent data?		Students will discover the Midwest is main producers of wheat and corn.

<b>3. EXPLANATION</b>		<b>Time: Minutes</b>
<b>What the Teacher Will Do</b>	<b>Probing/Eliciting Questions</b>	<b>Student Responses and Misconceptions</b>
Explain that these crops are dependent upon many factors (soil, sun, temperature, insects), including water/precipitation.	How much water does the Midwest receive? Is it a "dry" area? "wet"?	Too dry/hot for crops.
<b>Evaluation/Decision Point Assessment</b>		<b>Student Outcomes</b>
Are students able to explain the distribution of crop dependent variables?		Students will understand the basic needs of crops.

4. ELABORATION		Time: Minutes
What the Teacher Will Do	Probing/Eliciting Questions	Student Responses and Misconceptions
Have students go to <a href="http://arcgis.com/explorer">arcgis.com/explorer</a> OR <a href="http://nationalatlas.gov">nationalatlas.gov</a> and discover how much precipitation the Midwest states receive.	How much moisture does the Midwest receive? Do you think this is sufficient for crop growth?	Students will record annual precipitation data.
Evaluation/Decision Point Assessment		Student Outcomes
Did students accurately cultivate precipitation data?		Students will discover the Midwest is fertile, but does not receive a great deal or sufficient amount of moisture.

5. EVALUATION		Time: Minutes
What the Teacher Will Do	Probing/Eliciting Questions	Student Responses and Misconceptions
Go over answers with students to worksheet (attached questions).		
Differentiation		Time: N/A
Students who are behind or need support.	For advanced or gifted students.	
Create maps with the data already applied.	Advance students should research soil types and needs, including nitrogen levels. Students should also record longitude and latitude data for Midwest. Students can choose to add cotton to the lesson data.	

## Midwest Crops and Water

- 1) Why is wheat an important crop? What is it used to make?
- 2) Why is corn an important crop? Other than food, what is corn used to make?
- 3) Another name for corn is \_\_\_\_\_.
- 4) List 7-10 states that grow a significant amount of each crop:

Corn	Wheat

- 5) Conditions that are necessary for adequate crop growth include: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- 6) Give a range for the amount of precipitation Midwest states receive on an annual basis: \_\_\_\_\_ to \_\_\_\_\_ (\_\_\_ unit).
- 7) Areas in the Midwest that grow a significant amount of corn or wheat can be characterized by the amount of precipitation listed in question #6. Which TWO of the following fit the information you discovered in question #6 that best describe this agricultural area (circle your answers): Tropical, Polar, Arid, Subtropical, Tundra, Semiarid, Desert, Subarctic).

