

TEACHER LESSON GUIDE/ANSWER KEY

Aim: How revolutionary was the Middle Age's Agricultural Revolution?

Do Now: What does it mean to call something revolutionary?

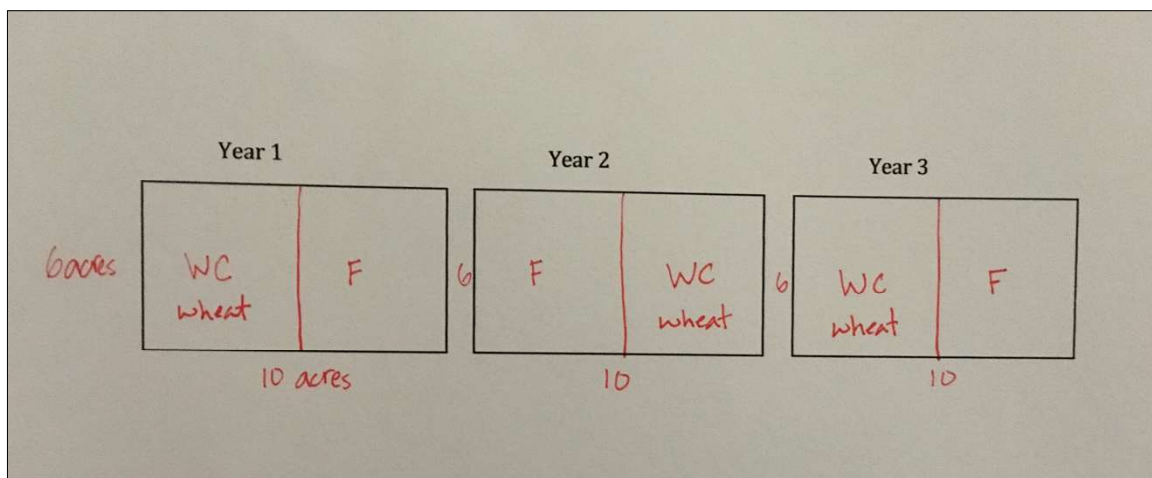
Student answers will vary, but should convey the idea of dramatic change. Their definitions should set them up to assess at the end of the lesson just how "revolutionary" they feel the Agricultural Revolution can be called.

Review: What was it like to be a serf in the early Middle Ages, and why might serfs' lives have been so difficult?

Students will probably have learned about feudalism, the different medieval social classes, and the manor system at this point. They should use their previous knowledge and the indicators in the poem to discuss the details of serfs' lives. They were bound to the land, owed fealty to their lord in exchange for protection from danger, and had to give a large part of the crops they farmed to their lord every year. Most never traveled more than 10 miles from where they were born and their life expectancy was very short. They lived in small huts with their animals inside in the winter for body heat. Their diet was poor and insufficient and many were malnourished and prone to disease. During times of famine, starvation may have been a threat.

Two-Field Rotation System Simulation (Pre-Agricultural Revolution)

Steps: Have students follow the directions as they plant and harvest crops in their simulation of the Two-Field Rotation System. Their fields should look like the below images when they are done:

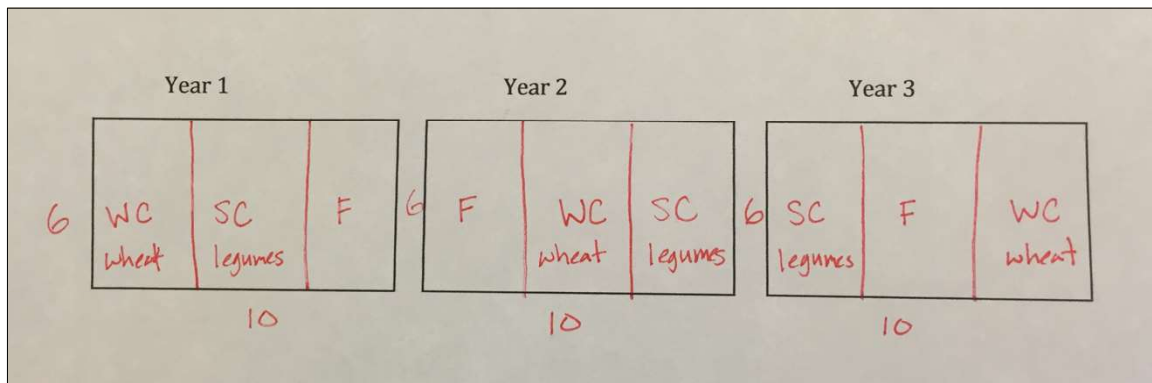


Analysis:

1. How many acres of food are you harvesting each year? 30 acres
2. You have to plow your planted area *once* per year and your fallow area *twice* a year (to keep the weeds down). How many acres of land do you have to plow each year? 90 acres
3. What is the ratio of food harvested per acres plowed? 30:90 or 1:3
4. What is the basis of your diet? (What crops did you harvest each year?)
mainly wheat

Three-Field Rotation System Simulation (Post-Agricultural Revolution)

Steps: Have students follow the directions as they plant and harvest crops in their simulation of the Three-Field Rotation System. Their fields should look like the below images when they are done:

**Analysis:**

1. How many acres of food are you harvesting each year? 40 acres
2. You have to plow your planted area *once* per year and your fallow area *twice* a year (to keep the weeds down). How many acres of land do you have to plow each year? 80 acres
3. What is the ratio of food harvested per acres plowed? 40:80 or 1:2
4. What is the basis of your diet? (What crops did you harvest each year?)
wheat and legumes

Simulation Takeaway: What was the overall impact of the three-field system of farming? Which was the better method, and what were the advantages?

Student answers will vary but should mention that the three-field system was a better method because it produced more food in the same amount of land, required less active work (less plowing), didn't exhaust the soil's nutrients as much, and allowed multiple crops to be planted in the same year giving serfs a healthier and more varied diet.

Developments of the Agricultural Revolution: The Heavy Plow

1. Give the definition and/or function of each of the following from the excerpt:

- a. coulter:** heavy knife on the plow that cut through the soil vertically
- b. plowshare:** part of the plow that cut through the soil horizontally
- c. mouldboard:** part of the plow that turned the soil to one side
- d. furrows:** little ridges and valleys that were created in each plowed row

2. Why was the heavy plow a significant development for medieval Europe? Describe at least three impacts.

The previous “scratch plow” couldn’t cut into the soil as deeply or effectively, so it required “cross plowing,” meaning double the work with less time remaining to plow and plant more land. The new heavy plow also created furrows which helped protect crops in times of drought and flood. More food production resulted in population growth with the ability to harvest even more food. Socially, the heavy plow resulted in increased connection and cooperation between peasants and villages. Farmers and villages shared use of the more expensive heavy plow, and also hitched their horses together to pull it, since it was too heavy for one horse to pull alone.

Developments of the Agricultural Revolution: The Plow Horse

1. Give the function and significance of each of the following from the excerpt:

- a. horseshoe:** placed on the horse’s foot to prevent hooves from cracking in the cold, wet soil of northwest Europe. Previously oxen would have been mainly used.
- b. horse collar:** allowed the horse to pull weight from its chest instead of its neck, like the previous yoke collar. This allowed horses to pull up to five times more weight without choking.

2. Why was the plow horse a significant development for medieval Europe? Describe the advantages, results, and side effects of its use.

Knights and lords had cross-bred new, larger horses to use in war. Peasants were able to use these large horses as plow horses to pull the new heavy plow. This new plow horse could pull faster and work longer than oxen, resulting in 30% more land plowed and harvested, and corresponding population growth. The increasing use of the horse also resulted in the growth of towns’ size, since horses could bring food to towns from further distances, meaning towns could support more residents.

Impact of the Agricultural Revolution

- 1. “Demographics” refer to the specific characteristics of populations. What demographic changes did the Agricultural Revolution lead to? Why?**

Because of the increase in crop production and subsequent population growth, many people began to move to cities, increasing the size of urban areas. Surplus food led to more job and skill specialization, creating more trade and connection between towns in Europe. People on average began to be healthier and have longer life spans.

- 2. Wrap it all up – Based on everything you have learned about the Agricultural Revolution, how “revolutionary” was it? Do you think it deserves the title of “revolution”? Why or why not?**

Student answers may vary. If they choose to argue that it was not a “revolution” they still must show that they understand the changes that took place and give appropriate reasoning based on their definition of “revolution” (i.e. it took place over a period of time, or most of the technology and methods developed had been in place before during Roman times, etc.).