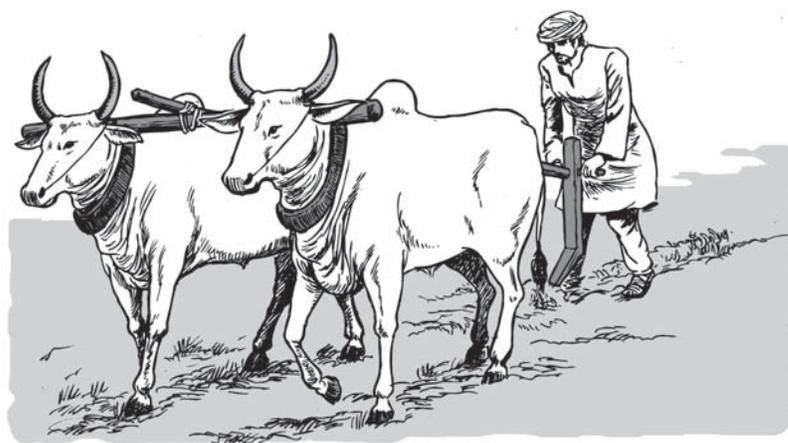


ACTIVITY 3.1

The Neolithic Agricultural Revolution

Between 10,000 and 3000 B.C.E., people in several areas around the earth developed new agricultural methods and machines, such as the plow pulled by horses or oxen. During this time, people also began the slow domestication and development of both crops and animals. The results of these changes made agricultural production much more productive. Food output increased. More land could be farmed by fewer people or in fewer hours. This resulted in greatly improved production and increased the availability of food.

**RESULTS:**

1. Agricultural innovation greatly increased food production output and created a surplus beyond what was needed for survival.
2. Producing more food freed people's time from agricultural work. Some people continued to work in agriculture, while others did other forms of work.
3. People could specialize in work other than agriculture. The amount of non-agricultural goods produced increased.
4. With more food and temporarily better nutrition, population increased. Often, a population increased at a faster rate than an area's resources were capable of sustaining it, and nutrition per person returned to its original level.
5. As families and the number of potential workers grew, food production could increase even more.

ACTIVITY 3.2

Timeline of Agricultural Innovation and World Population – 10,000 to 500 B.C.E.

World Population	Year	Agricultural Innovation
1–5 million	10,000 B.C.E.	Neolithic Revolution begins in Southwest Asia and other areas. Climate change resulted in longer dry seasons and the end of a 100,000-year ice age. Abundance of wild grains enabled hunter-gatherers to settle in villages. Domestication of dogs begins in Asia and North America.
	9500 B.C.E.	The “founder crops” of agriculture appear: wheat, barley, peas, lentils, bitter vetch, chickpeas, and flax.
8–10 million	8000–6000 B.C.E.	Nomadic hunter-gatherers begin to grow food and domesticate animals: Rice in China, 7500 B.C.E. Squash in Mexico, 7000 B.C.E. Wheat in Mesopotamia, 8500 B.C.E. Cattle in SW Asia and India, 7000 B.C.E. Domestication of sheep, goats and pigs begins in SW Asia. Irrigation systems introduced.
	7000–6000 B.C.E.	Domestication of cattle begins in Southwest Asia, Pakistan, and India.
	6000–3000 B.C.E.	A wooden plow, the ard, used in Mesopotamia and Egypt. Permanent villages established in the Fertile Crescent. Farming established on the banks of the Nile River.
	5000–3000 B.C.E.	Domestication begins of horses in Ukraine, donkeys in Egypt, and water buffalo in China. Corn (maize) production in Mexico.
14–20 million	3000 B.C.E.	Irrigation systems and dams built on the Nile River. Crop production increases trade and spread of agriculture. Potatoes domesticated in Peru.
	2000 B.C.E.	Iron plow developed in China.
50 million	1000 B.C.E.	Manure used as fertilizer. Iron plows widely used in China and Southwest Asia.
100 million	500 B.C.E.	Mouldboard plow with a V-shaped iron cutting edge developed in China.

ACTIVITY 3.3

Nurishtar Invents the Ard

***Directions:** Read this fictional story about a farmer named Nurishtar, who lived in the Fertile Crescent of Mesopotamia around 4000 B.C.E. After reading the story, complete the assessment by answering the questions.*

Nurishtar was the eldest son in a very large family of farmers who grew grain used to make bread called bappir. Bappir was made from starch extracted from wild grains. Bappir was spread on a flat rock, placed over a fire and cooked into a primitive form of flatbread. Bappir could be stored for a long time.

Nurishtar and his five brothers spent over 60 days in the spring each year tilling the soil on their small plot of land. They used long pointed wood spikes to work the soil by hand. It was very hard work. Each year, they grew just enough grain to produce the bappir the family would eat for the year. If the weather was good, they might have enough bappir to trade a small surplus of grain to others. If the weather was bad, they risked periods of hunger and had to forage for other food.

One day, Nurishtar had an idea: If he could attach the spike to one of the cows they raised, the cow could pull the spike through the hard soil. He designed a tool he called an ard. He attached the spike to a frame that was harnessed to the cow. The cow dragged the ard through the soil, creating furrows in which to plant seeds. Nurishtar or one of his brothers put their weight on the frame to sink the spike into the ground. It took a long time to determine the right way to use the new tool and to train the cow to pull the ard.

By using this **innovation**—the ard, pulled by the cow—Nurishtar and his brothers could work their plot of land in far less time and increase their **productivity**. Because they saved so much time, some of the brothers could spend their time making a new harness for the cow or building an irrigation ditch to bring more water to their land. When they had more water, they could plow a larger plot of land and grow more grain to make more bappir. They increased their **production** of grain and bappir.

With some of the brothers free to work on other jobs, they built better homes and more tools. With a more abundant and sure food supply, they could have more children and enjoyed better health. Their **standard of living** improved, and they made a major contribution to the **Neolithic Agricultural Revolution**.

ACTIVITY 3.3, CONTINUED

Nurishtar Invents the Ard – Assessment

Fill in the blanks with the correct economic term (bolded in the reading).

1. When Nurishtar and his brothers were able to plow their land in a shorter period of time, they improved their _____.
2. The ard was a/an _____ that made farming easier.
3. When Nurishtar’s family could consume more food and build better homes, they improved their _____.
4. Because Nurishtar could work more land with the ard, he was able to increase his _____ of grain.
5. The invention of the ard was an important part of the _____.

SHORT-ANSWER QUESTION

What resulted when ancient farmers like Nurishtar created new tools, such as the ard, and used new systems of farming?

ACTIVITY 3.3, KEY

Nurishtar Invents the Ard – Assessment

Fill in the blanks with the correct economic terms.

1. When Nurishtar and his brothers were able to plow their land in a shorter period of time, they improved their productivity.
2. The ard was a/an innovation that made farming easier.
3. When Nurishtar's family could consume more food and build better homes, they improved their standard of living.
4. Because Nurishtar could work more land with the ard, he was able to increase his production of grain.
5. The invention of the ard was an important part of the Neolithic Agricultural Revolution.

SHORT-ANSWER QUESTION

What resulted when ancient farmers like Nurishtar created new tools, such as the ard, and used new systems of farming?

Sample Answer:

Using innovations such as the ard and irrigation increased the productivity

of farmers and enabled them to produce more food. When they were able to

produce more food, they were able to do other jobs and improve their lives.

The agricultural revolution increased food production and the world's

population grew.