

ACTIVITY 2.1

Simulation: Increasing Your Standard of Living in Neolithic Times

PART I: BACKGROUND INFORMATION (BEFORE THE SIMULATION BEGINS)

Imagine that you are part of a family group in the Middle East 6,000 years ago. Your family and others have settled down as farmers. You grow wheat for food. Your family cooks the wheat into a thick gruel or bakes it into unleavened loaves. Your only tools are fire-hardened wooden sticks that you use to make holes in the ground. After you make holes, you put wheat seed in them and cover the seed with dirt. If your family does not spend all of its time growing wheat, you may not survive.

You also have sheep, which you use for meat and skins for your clothing. You do not make woolen cloth from the wool, because to do so would take time away from growing wheat. However, people from your village have seen people in another village wearing woolen garments. You and your family would like to have this type of clothing. You think that it would be much better than the animal skins that you now wear.

You and your family and the other families in your village live in uncomfortable, fragile mud huts. The huts are likely to fall apart when it rains and do not provide good shelter from rain or high or low temperatures. You would like to have a mud-brick house, instead. A mud-brick house would be sturdier, more permanent and better protection against hot summers, cool winters, and rain and dust storms.

PART II: INFORMATION FOR THE SIMULATION

1. Your goal in this simulation is to raise your standard of living. Each year, your family needs to consume 20 units of wheat in order to have an adequate level of nutrition to stay alive. In order to raise your standard of living, your family would also like to have 10 woolen garments and a sturdy mud-brick house. Therefore, your goal is for your family to have:
 - 20 units of wheat
 - 10 woolen garments
 - 1 mud-brick house

The simulation will end when one or more families have all of these goods.

2. **WHEAT PRODUCED AND SURVIVAL:** In a normal year, your family can produce 20 units of wheat, which is enough to feed you through the year. If in any year you and your family do not have 20 units of wheat to consume, you will all perish and drop out of the simulation. During drought years, your family can only produce 10 units of wheat. Droughts occur about every five to seven years; the last drought was two years ago.
3. **WOOLEN GARMENTS:** It takes time to shear sheep, make thread, weave cloth, and sew garments. To obtain the wool clothing you want, you need enough time after planting, cultivating, and harvesting wheat to make the clothing. Each woolen garment will cost your family **two units of wheat**. These two units represent the time given up from producing wheat to make the woolen garment.

ACTIVITY 2.1, CONTINUED

4. **MUD-BRICK HOUSE:** It takes time to form bricks from mud, lay the bricks out in the sun to bake, and build a house. In order to obtain the mud-brick house you want, you need to have enough time after planting, cultivating, and harvesting wheat to make the house. A mud-brick house will cost your family **20 units of wheat**. These 20 units represent the time given up from producing wheat to make the mud-brick house.
5. **HOES, SICKLES, AND IRRIGATION CANAL SYSTEM:** You must find a way to increase the amount of wheat you produce in order to have enough wheat to obtain woolen garments and a mud-brick house. In a normal year, you produce 20 units of wheat, the amount you need to survive. Your family could produce more wheat if you had capital goods such as hoes, sickles, and an irrigation canal. (**No family may own more than 9 hoes, 9 sickles, or 1 canal system.**)
 - a. **HOES** enable you to produce more wheat because you can keep weeds out of the field more easily. To make a hoe, you must give up time that could have been spent growing wheat. Therefore, each hoe costs **3 units** of wheat. Each hoe you own increases your production of wheat by **8 units** per year.
 - b. **SICKLES** enable you to produce more wheat because you can harvest more quickly. To make a sickle, you must give up time that could have been spent growing wheat. Therefore, each sickle costs **2 units** of wheat. Each sickle you own will increase your production of wheat by **5 units** per year.
 - c. **IRRIGATION CANAL:** Your family lives near a river and can dig a canal to your fields to increase the amount of water for your wheat crops. Initially, digging a canal is quite time-consuming, so the cost is **20 units** of wheat. You may choose to cooperate with one other family to build a more extensive canal system. In that case, the cost will be **15 units** of wheat per family (a total of 30 units of wheat). If your family owns an irrigation canal, it increases your production of wheat by **20 units** per year.

SUMMARY OF INFORMATION FOR THE SIMULATION

- Your family must have 20 units of wheat each year to survive.
- **1 woolen garment** costs 2 units of wheat. (You want 10 woolen garments.)
- **1 mud-brick house** costs 20 units of wheat. (You want 1 mud-brick house.)
- **1 hoe** costs 3 units of wheat. Each hoe you own increases wheat production by 8 units per year.
- **1 sickle** costs 2 units of wheat. Each sickle you own increases wheat production by 5 units per year.
- **1 irrigation canal system** costs 20 units of wheat. It only costs 15 units per family if two families produce it together. A canal system increases wheat production by 20 units per year.

ACTIVITY 2.1, CONTINUED

PART III: PLAYING THE SIMULATION IN YEAR ONE

- In a normal year, your family can produce 20 units of wheat, which is enough to feed your family through the year. This year, the weather has been exceptionally good and you have 30 units of wheat. Over the coming year, your family will consume 20 units of wheat. You will have 10 units left over. You can choose to store these units in case of drought or exchange some units of wheat for hoes, sickles, or clothing. (You do not have enough for an irrigation canal or a mud-brick house at this point.)

Units of wheat produced in this year	30
Units of wheat consumed	<u>-20</u>
Extra units of wheat	10

- DECISION ABOUT WHAT TO DO WITH EXTRA UNITS OF WHEAT THIS YEAR
(Write the number of units of wheat on the lines provided, if instructed by teacher.)
 - units stored in case of a drought _____
 - 2 units per woolen garment _____
 - 3 units per hoe _____
 - 2 units per sickle _____
- Send your Family Representative to the Village Clerk to turn in 20 units of wheat to represent what your family consumed. At that time, the Family Representative should buy any hoes, sickles, or clothing your family has decided to purchase.

PART IV: PLAYING THE SIMULATION IN YEAR TWO AND FOLLOWING YEARS

- At the beginning of each year, your teacher will announce how much wheat your family will have produced that year (not including extra units produced by any capital goods that you own). In normal years, your Family Representative will collect 20 units of wheat **plus additional units for each sickle, hoe, and irrigation canal** your family owns. The Family Representative must show the hoe, sickle, and irrigation canal cards to the Village Clerk to collect the extra units of wheat.
- During the year, your family will decide what to do with any extra wheat over 20 units.
- At the end of each year, your Family Representative will turn in 20 units of wheat to the Village Clerk for wheat consumed. Based on your family's decisions, the Family Representative will also exchange extra units of wheat for hoes, sickles, an irrigation canal, woolen garments, or a mud-brick house.
- When a family group has 20 units of wheat, 10 woolen garments, and a mud-brick house, the entire group should stand. The simulation is ended.

IMPORTANT NOTE:

A drought may occur in any year. When it does, each family will produce only 10 units of wheat. You still need to consume 20 units to survive. Any family that does not have 20 units of wheat to turn in at the end of the year will not survive the drought and will drop out of the simulation. Your teacher will inform you if a drought occurs.

ACTIVITY 2.2

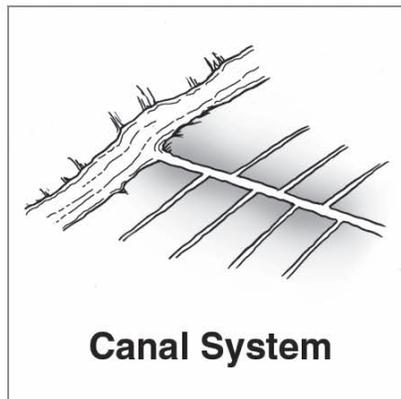
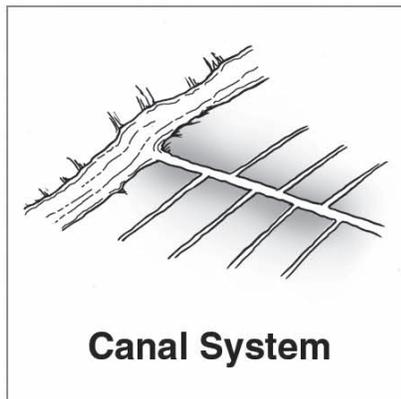
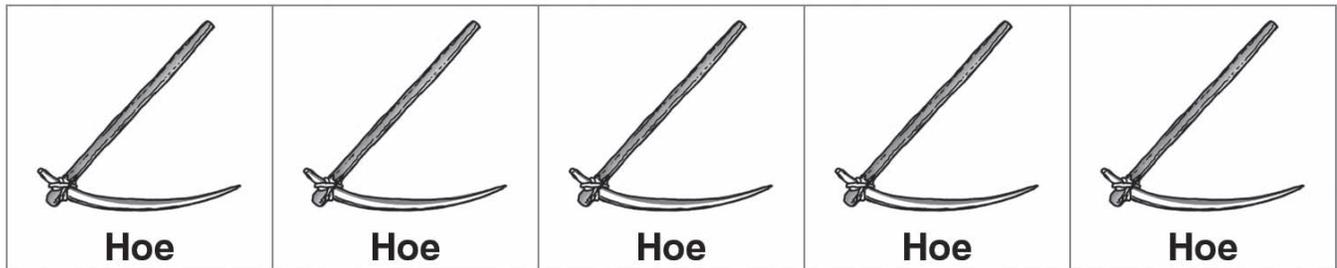
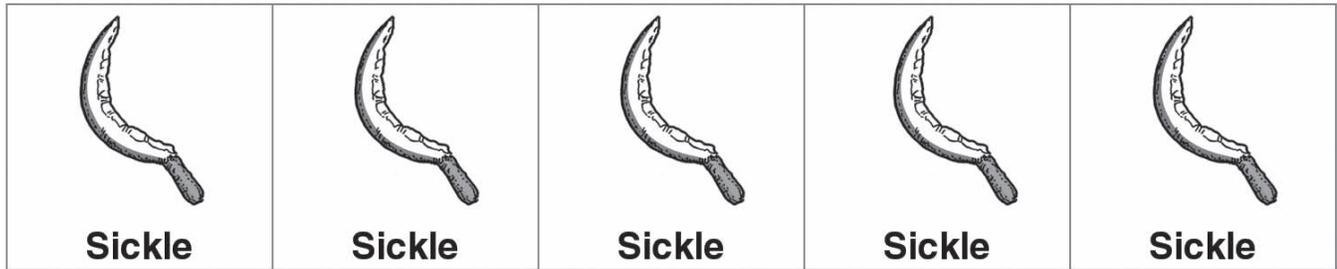
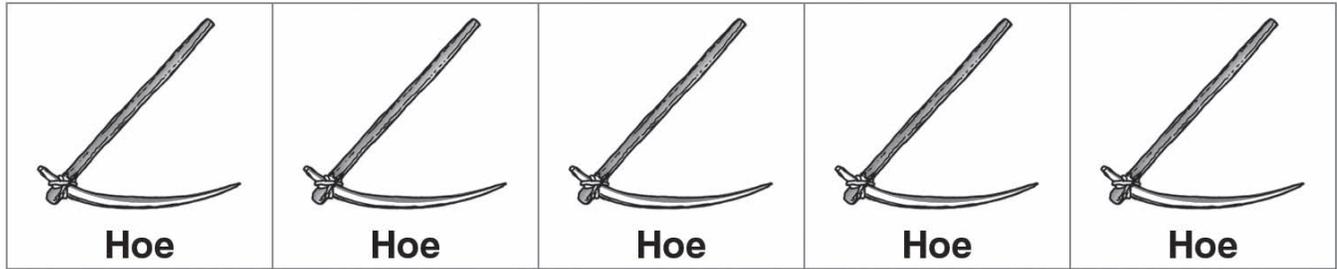
Game Cards: Wheat

 1 Unit of Wheat	 1 Unit of Wheat	 1 Unit of Wheat	 1 Unit of Wheat	 1 Unit of Wheat
 5 Units of Wheat	 5 Units of Wheat	 5 Units of Wheat	 5 Units of Wheat	 5 Units of Wheat
 10 Units of Wheat	 10 Units of Wheat	 10 Units of Wheat	 10 Units of Wheat	 10 Units of Wheat
 1 Unit of Wheat	 1 Unit of Wheat	 1 Unit of Wheat	 1 Unit of Wheat	 1 Unit of Wheat
 5 Units of Wheat	 5 Units of Wheat	 5 Units of Wheat	 5 Units of Wheat	 5 Units of Wheat
 10 Units of Wheat	 10 Units of Wheat	 10 Units of Wheat	 10 Units of Wheat	 10 Units of Wheat

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ACTIVITY 2.2, CONTINUED

Game Cards: Hoes, Sickles, and Canal Systems



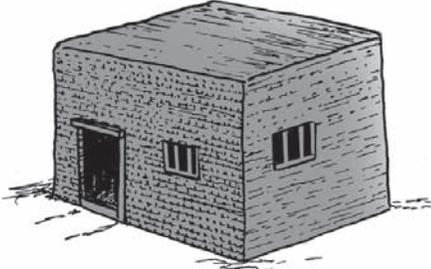
ACTIVITY 2.2, CONTINUED

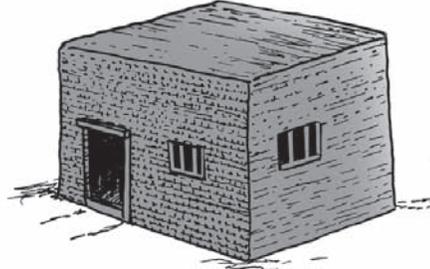
Game Cards: Woolen Garments and Mud-Brick Houses

			
Woolen Garment	Woolen Garment	Woolen Garment	Woolen Garment

			
Woolen Garment	Woolen Garment	Woolen Garment	Woolen Garment

			
Woolen Garment	Woolen Garment	Woolen Garment	Woolen Garment


Mud-brick House


Mud-brick House

ACTIVITY 2.3

Family Record Sheet

Names _____

YEAR _____

Units of wheat stored from prior years: _____

Units of wheat produced this year without capital goods: _____
(announced by teacher at beginning of year)

Units of wheat produced this year from capital goods: _____
(Number of hoes times 8; plus number of sickles times 5;
plus 20 if you own an irrigation canal.)

Total wheat you have (sum of the above): _____

Total wheat that you have _____ minus 20 units consumed = _____ extra units this year

DECISION ABOUT EXTRA UNITS OF WHEAT THIS YEAR:

(Write the total number of units of wheat used for each purpose on the lines provided.)

- units stored in case of drought _____
- 2 units exchanged per woolen garment _____
- 20 units exchanged for a mud-brick house _____
- 3 units exchanged per hoe _____
- 2 units exchanged per sickle _____
- units exchanged for an irrigation canal _____
(15 if with another family or 20 by yourself)

AT THE END OF THE YEAR, WE WILL OWN _____ WOOLEN GARMENTS AND _____ MUD-BRICK HOUSES.

YEAR _____

Units of wheat stored from prior years: _____

Units of wheat produced this year without capital goods: _____
(announced by teacher at beginning of year)

Units of wheat produced this year from capital goods: _____
(Number of hoes times 8; plus number of sickles times 5;
plus 20 if you own an irrigation canal.)

Total wheat you have (sum of the above): _____

Total wheat that you have _____ minus 20 units consumed = _____ extra units this year

DECISION ABOUT EXTRA UNITS OF WHEAT THIS YEAR:

(Write the total number of units of wheat used for each purpose on the lines provided.)

- units stored in case of drought _____
- 2 units exchanged per woolen garment _____
- 20 units exchanged for a mud-brick house _____
- 3 units exchanged per hoe _____
- 2 units exchanged per sickle _____
- units exchanged for an irrigation canal _____
(15 if with another family or 20 by yourself)

AT THE END OF THE YEAR, WE WILL OWN _____ WOOLEN GARMENTS AND _____ MUD-BRICK HOUSES.

ACTIVITY 2.4

Instructions for Village Clerk**1. YEAR ONE**

At the beginning of Year One, give each family 30 units of wheat.

At the end of Year One:

- Collect 20 units of wheat from each Family Representative.
- The Family Representative may exchange extra wheat for hoes, sickles, or woolen garments. If that is the case, you will give them:
 - ◆ 1 hoe in exchange for each 3 units of wheat
 - ◆ 1 sickle in exchange for each 2 units of wheat
 - ◆ 1 woolen garment in exchange for each 2 units of wheat

2. YEAR TWO AND FOLLOWING YEARS

At the beginning of each year:

- Give each Family Representative the amount of wheat announced by your teacher. This will usually be 20 units. If there is a drought, it will be 10 units.
- In addition, give each Family Representative the following:
 - ◆ For each hoe, give them 8 units of wheat
 - ◆ For each sickle, give them 5 unit of wheat
 - ◆ For a canal system, give them 20 units of wheat

At the end of each year:

- Collect 20 units of wheat from each Family Representative.
- At the request of a Family Representative, you will exchange capital or consumer goods for wheat as follows:
 - ◆ 1 hoe for each 3 units of wheat
 - ◆ 1 sickle for each 2 units of wheat
 - ◆ 1 woolen garment for each 2 units of wheat
 - ◆ 1 mud-brick house for 20 units of wheat
 - ◆ 1 irrigation canal for 15 units of wheat if with another family (30 units total), or for 20 units if by themselves

Note: No family may own more than 9 hoes, 9 sickles, and 1 irrigation canal during the simulation.