

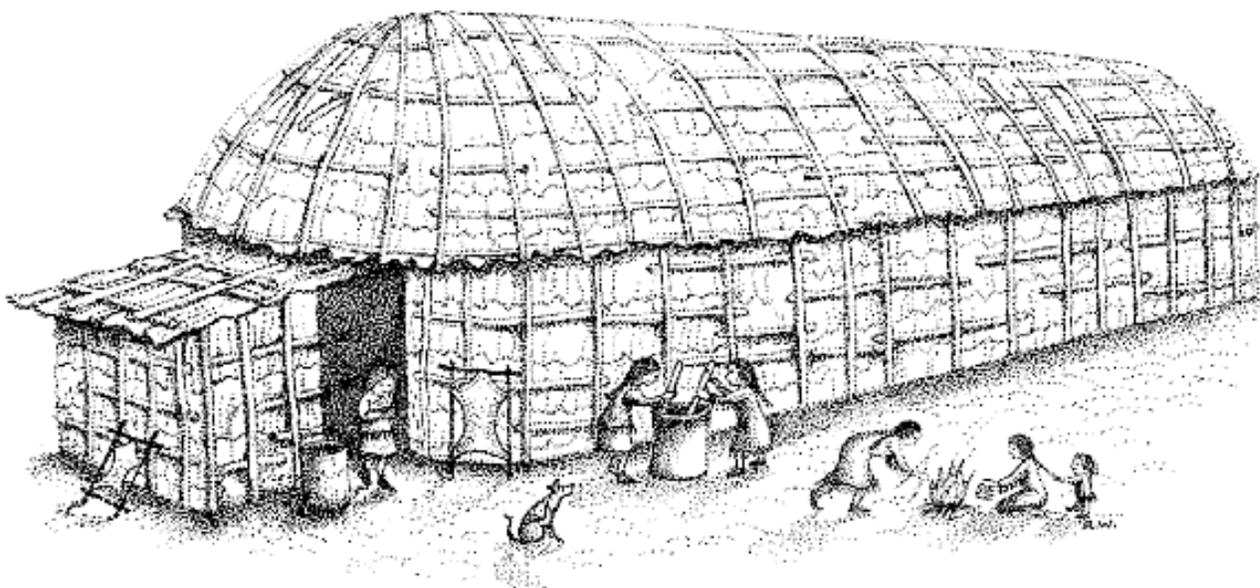
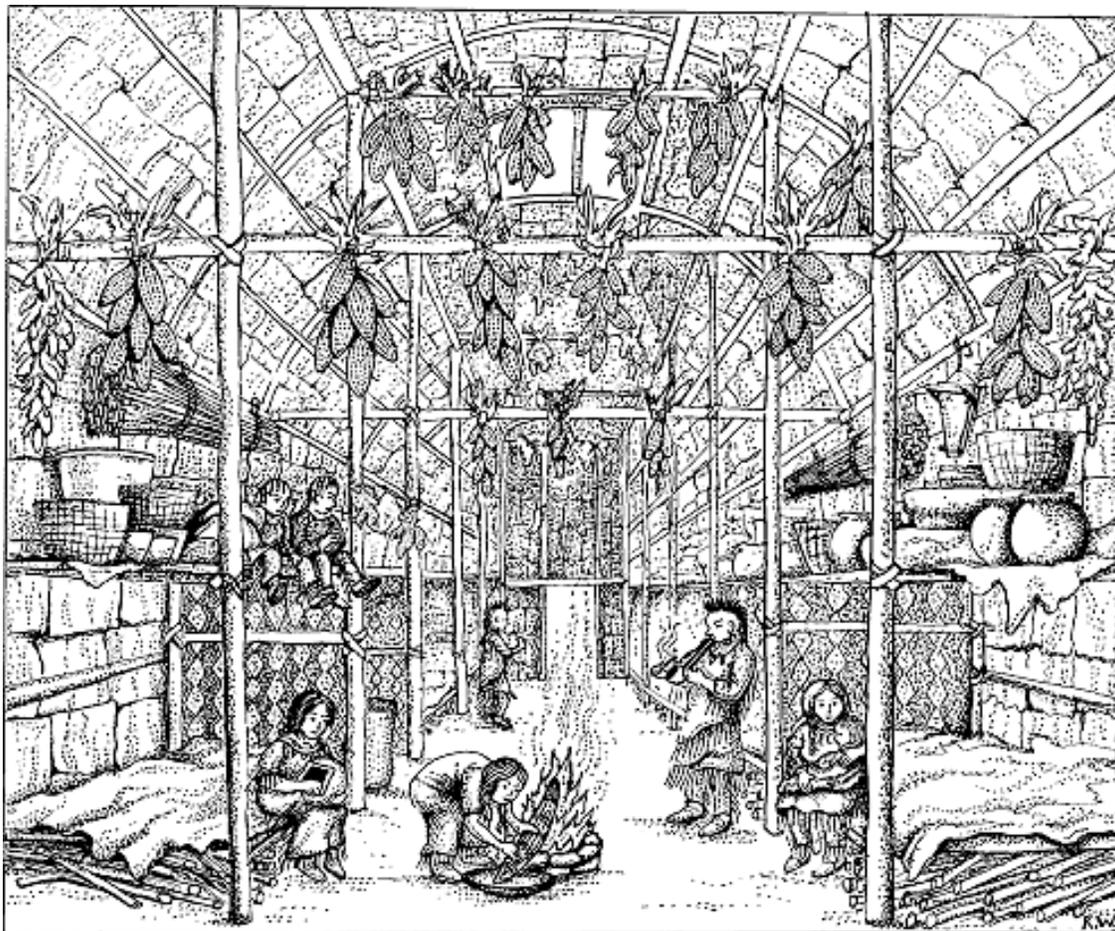
## Iroquois Longhouse

Iroquois longhouses were found in the area that is now the state of New York. A longhouse had a framework built of posts and poles and was covered with sheets of bark. Different types of trees were used in various parts of the building. A strong stiff tree would be used for the outer posts. The rafters were made from young sapling trees that were flexible. The parts of the building were held together with long strips of bark or with ropes made by braiding strips of bark. Basswood and hickory trees were used for making the strips. The framework of the longhouse was covered with sheets of bark also. Trees whose bark could be peeled into large sheets were preferred. Elm bark was used if it was available. Another framework of small poles on the outside of the bark was used to hold the bark down, keep it flat, and to keep the wind from lifting it.

A longhouse ranged in length from 30 feet to several hundred feet. A typical longhouse was 180 to 220 feet long. The length of a longhouse was determined by the size of the extended family that would live in it. As the size of the extended family grew, the building was enlarged to make room for the expanding population. The longhouses were almost always 20 feet wide and 20 feet high. The roof was rounded rather than peaked. The rounded roof was heat efficient because it allowed the heat to rise and then fall. There were two doors for the entire building, one at each end. Longhouses were symmetrical around a centerline along their length. Inside, the right and left sides were identical.

The length and interior space of the longhouse was divided into compartments, which were 20 feet long. Two families lived in each compartment, one on each side of the aisle that ran down the center. The aisle was 10 feet wide, running the full length of the longhouse. It was a common space used by both families in the compartment. A fire area was in the middle of the aisle in the center of each compartment for heating, cooking, and light. Each family had its own space on one side of the aisle for sleeping and storage of personal items. In the family space, a bench was built about a foot above the floor for sitting, sleeping, and working. Another bench was built about 5 feet above the lower bench. Storage closets filled the spaces along the wall that were not occupied by the benches. The inside of the wall was lined and insulated with woven mats or furs. The benches were also covered with mats and furs for comfort.

The diagrams and plan of a traditional Iroquois Longhouse were provided by New York State Museum ([www.nysm.nysed.gov/IroquoisVillage/](http://www.nysm.nysed.gov/IroquoisVillage/))



Name: \_\_\_\_\_

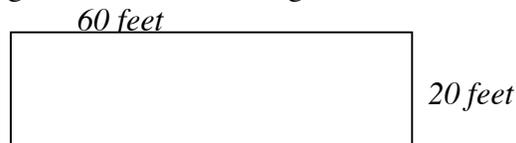
### Longhouse Assessment

1. The framework of a longhouse was covered with \_\_\_\_\_.
2. How many families lived in each compartment of a longhouse? Circle the answer.
  - a. 8
  - b. 4
  - c. 2
  - d. 1
3. What type of tree was not used to construct a longhouse? Circle the answer.
  - a. Basswood
  - b. Hickory
  - c. Elm
  - d. Oak
4. \_\_\_\_\_ were used to insulate the inside wall of the longhouse.
5. What is the length of a typical longhouse? (Keep in mind that this is different than the typical length of a 2-family compartment) Circle the answer.
  - a. About 20 feet
  - b. About 200 feet
  - c. About 2000 feet
6. Sketch a 6 family longhouse. Label the length and the width of the longhouse.
7. Calculate the perimeter of a 6 family longhouse by adding the lengths of all the sides of your longhouse. Show your work.
8. Calculate the area of a 6 family longhouse by multiplying the length and the width of your longhouse. Show your work.

## Assessment Key for Longhouse Assessment

1. The framework of a longhouse was covered with   *sheets of bark*  .
2. How many families lived in each compartment of a longhouse?
  - a. 8
  - b. 4
  - c. 2**
  - d. 1
3. What type of tree was not used to construct a longhouse?
  - a. Basswood
  - b. Hickory
  - c. Elm
  - d. Oak**
4.   *Woven mats or furs*   were used to insulate the inside wall of the longhouse.
5. What is the length of a typical longhouse? (Keep in mind that this is different than the typical length of a 2-family compartment)
  - a. about 20 feet
  - b. about 200 feet**
  - c. about 2000 feet

6. Sketch a 6 family longhouse. Label the length and the width of the longhouse.



7. Calculate the perimeter of a 6 family longhouse. ( $P = 2L + 2W$ )

$$\begin{aligned} P &= 2 \times 60 + 2 \times 20 \\ &= 120 + 40 \\ &= 160 \text{ feet} \end{aligned}$$

8. Calculate the area of a 6 family longhouse. ( $A = LW$ )

$$\begin{aligned} A &= 60 \times 20 \\ &= 1200 \text{ sq. feet} \end{aligned}$$

## Spanish Adobe Homes

Spanish adobe homes were found in the southwestern United States including New Mexico, Arizona, and southern California. The word adobe comes from the ancient Arabic building tradition called al-tob. The Spanish knew the process from their contact with the Moors of North Africa and called it adobe. Adobe is made from a mixture of clay, sand, straw and water. Wooden molds were used to produce bricks with the same size and shape. These bricks dried quickly and were used to make walls about 2 feet to 2 1/2 feet thick. The bricks were laid with mud mortar. The houses were built on foundations made of bricks, fieldstones, or double walls filled with rubble stone, tile fragments, or seashells. A long wooden timber was often placed within the top rows of adobe brick. Strong timber beams were used for roof supports. The roof consisted of wooden poles on which layers of twigs were covered with 6 or more inches of packed adobe earth. When available, hand-split planks of cedar, cypress, aspen or mesquite were used instead of poles and twigs. In some areas of the Southwest, saguaro ribs were used to span the beams rather than poles or planks. The flat roofs were sloped toward hollowed logs used as drains. This method of roof construction was not waterproof and the roofs often leaked. The outside of the house was covered with mud plaster made of the same materials as adobe. The plaster was smoothed by hand using deerskins, sheepskins, or a small slightly rounded stone.

The adobe house began as a single, square, flat-topped room. Additional rooms were added in a single file. These rooms enclosed an open patio, so the shape of the house resembled an O. The rooms opened onto the patio. No windows were on the exterior of the house, only the patio area. The entrance was through a large wooden gate, wide enough for wagons and livestock to pass through. A smaller pedestrian gate was often set within the larger gate. As defense became less of a concern, many houses took on an I, L, or U shape.

The interior of the adobe house was covered with whitewash, which consisted of ground gypsum rock, water, and clay. It was either brushed on the wall or applied with large pieces of coarse fabric such as burlap. The homes included a corner fireplace with a flue to direct smoke out of a room, a pantry where food was stored, and dome-shaped beehive ovens where harvests were baked before drying. Carved spaces for placing revered objects and built in clay benches were also common. Floors were made of packed earth with flooring materials placed directly on the earth. Some flooring materials used included earth brick, adobe brick, fired brick, tile, flagstone, and wood. Floor coverings included woven rugs.

The photograph and plan of a traditional Hispano House are courtesy of the National Park Service (<[www.cr.nps.gov/nr/twhp/wwwlps/lessons/96ranchos/96visual1.htm](http://www.cr.nps.gov/nr/twhp/wwwlps/lessons/96ranchos/96visual1.htm)>)

### A TRADITIONAL HISPANO ADOBE HOUSE



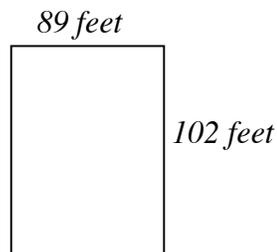
Name: \_\_\_\_\_

## Spanish Adobe Home Assessment

1. What was the shape of the earliest Spanish adobe homes? Circle the answer.
  - a. I-shaped
  - b. L-shaped
  - c. O-shaped
  - d. U-shaped
2. The exterior of the adobe house was covered with \_\_\_\_\_.
3. The thickness of the walls in an adobe house were \_\_\_\_\_. Circle the answer.
  - a. 6"
  - b. 1' - 1 1/2'
  - c. 2' - 2 1/2'
  - d. 3' - 3 1/2'
4. What type of material was not used on the roof? Circle the answer.
  - a. Mesquite
  - b. Hickory
  - c. Saguaro ribs
  - d. Aspen
5. \_\_\_\_\_ were used to drain water from the flat roof of the adobe house.
6. Sketch the outside edges of the adobe house. Label the length and the width of the adobe house.
7. Calculate the perimeter of the adobe house by adding the lengths of all the sides of your adobe house. Show your work.
8. Calculate the area of the adobe house by multiplying the length and the width of your adobe house. Show your work.

## Spanish Adobe Home Assessment Key

1. What was the shape of the earliest Spanish adobe homes?
  - a. I-shaped
  - b. L-shaped
  - c. O-shaped**
  - d. U-shaped
2. The exterior of the adobe house was covered with mud plaster.
3. The thickness of the walls in an adobe house were
  - a. 6"
  - b. 1' - 1 1/2'
  - c. 2' - 2 1/2'**
  - d. 3' - 3 1/2'
4. What type of material was not used on the roof?
  - a. Mesquite
  - b. Hickory**
  - c. Saguaro ribs
  - d. Aspen
5. Hollowed logs were used to drain water from the flat roof of the adobe house.
6. Sketch the adobe house. Label the length and the width of the adobe house.



7. Calculate the perimeter of the adobe house. ( $P = 2L + 2W$ ) Show your work.

$$\begin{aligned} P &= 2 \times 102 + 2 \times 89 \\ &= 204 + 178 \\ &= 382 \text{ feet} \end{aligned}$$

8. Calculate the area of the adobe house. ( $A = LW$ ) Show your work.

$$\begin{aligned} A &= 102 \times 89 \\ &= 9078 \text{ sq. feet} \end{aligned}$$

## Comparison Assessment

1. Both types of houses are generally \_\_\_\_\_ in shape.
2. One major difference is the roof of each house. A longhouse has a \_\_\_\_\_ roof and an adobe house has a \_\_\_\_\_ roof.
3. Since defense was a concern, both houses had limited entrances and no \_\_\_\_\_ windows.
4. Both homes used \_\_\_\_\_ in the roof, although the ones in the longhouse were smaller / larger (*circle the correct answer*) in diameter than the adobe house.
5. How does the area of a 6 family longhouse compare with the area of a 6 family adobe house? The adobe house is about \_\_\_\_\_ times the longhouse.

## Comparison Assessment *Key*

1. Both types of houses are generally   *rectangular*   in shape.
2. One major difference is the roof of each house. A longhouse has a   *rounded*   roof and an adobe house has a   *flat*   roof.
3. Since defense was a concern, both houses had limited entrances and no   *exterior*   windows.
4. Both homes used   *trees*   in the roof, although the ones in the longhouse were   *smaller*   in diameter than the adobe house.
5. How does the area of a 6 family longhouse compare with the area of a 6 family adobe house?  
The adobe house is about   *7 or 8*   times the longhouse.

## Grading Rubric for Mathematics Questions

### Question 6

- 4** - The student sketched a rectangular shape and correctly labeled the length and the width.
- 3** - The student sketched a rectangular shape and incorrectly labeled the length and/or the width.
- 2** - The student sketched a shape that was not rectangular and put a length and width on two of the sides.
- 1** - The student did not sketch a shape, but listed the length and the width.
- 0** - The student made no effort.

### Questions 7&8

- 4** - The student used the correct formula and the correct values to determine the correct answer.
- 3** - The student used the correct formula and correct values, but came up with an incorrect answer.
- 2** - The student used the incorrect formula or incorrect values.
- 1** - The student used both the formula and values incorrectly.
- 0** - The student made no effort.