

Name \_\_\_\_\_  
**Building an  
 1840s Adobe House**


It is 1841 and you have just arrived to the Los Angeles area. After settling on a piece of land, you begin to build a home.

To build this house, you have to make adobe bricks that are 2 feet long, 1 foot 3 inches deep, and 4 inches tall. Each adobe brick weighs 60 pounds, and 1 stack equals 3 bricks.



Solve the following problems using the above information:

1. Record the size of the adobe brick in inches.

Height= \_\_\_\_\_            Depth= \_\_\_\_\_  
 Length= \_\_\_\_\_

2. You need to make a stack of dried bricks. How many inches tall will one stack be?

\_\_\_\_\_ inches

Convert the number of inches into feet.

\_\_\_\_\_ foot

3. You built a wall that is 4 bricks in length. How many inches long will the wall be?

\_\_\_\_\_ inches

Covert the number of inches into feet.

\_\_\_\_\_ feet

**Background information:** Adobe is a very simple yet durable building material. It can be shaped by hand, made quickly, provides excellent insulation from heat and cold, and is made from materials that are often readily available: sand, clay, water, and straw.

People who came to the Los Angeles region in the 1840s often built their houses out of adobe. First, a pit was dug to mix sand, clay, straw, and water together. The adobe was then packed tightly into wooden molds to shape it into a brick. These bricks were laid out on the ground for four to six weeks and were turned from time to time to dry them. When finished, each brick usually weighed about sixty pounds. Walls were created by laying down bricks with mud in between them to hold them together and openings for doors and window were left as needed. Since rain could easily transform an adobe house into a mud pile, houses were plastered with more adobe. For further protection the walls were covered in a lime plaster and whitewashed. The house was then finished with a simple, flat roof.

Although the use of adobe lessened in Los Angeles in the late 1800s due to new building materials coming to the area, such as red brick and wood, its popularity returned by the 1920s. Remembering California's earlier history inspired architects to use adobe as a building material again and helped to create a new architectural style known as Spanish Colonial Revival.

When students visit the Homestead, they will learn more about this popular building material.

# Building an 1840s Adobe House Lesson Plan

## Objective:

1. To solve math problems based on adobe-making

**Time:** 40-45 minutes

## Materials:

1. "Building an 1840s Adobe House" activity sheet
2. Pencils

## Directions:

1. **Distribute** the "Building an 1840s Adobe House" activity sheet.
2. **Review** the background information regarding adobe and explain that it is still a building material used today.
3. Students may **work** on the problems individually or as a class.
4. After students have finished, **discuss the answers** to the problems (see Answer Key).

## Additional activity:

1. **Sugar cubes or dominoes:** Have students create an adobe house using sugar cubes or dominoes.

### Links to standards

**Language Arts:** RI.4.1

**Math:** 4.OA 2, 4.NBT 4, 4.NBT 5, 4.NBT 6, 4.MD 1, 4.MD 2, MP1, MP2

## Building an 1840s Adobe House

It is 1841 and you have just arrived to the Los Angeles area. After settling on a piece of land, you begin to build a home.

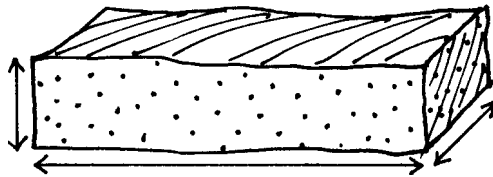
To build this house, you have to make adobe bricks that are 2 feet long, 1 foot 3 inches deep, and 4 inches tall. Each adobe brick weighs 60 pounds, and 1 stack equals 3 bricks.



**Solve the following problems using the above information:**

1. Record the size of the adobe brick in inches.

Height= \_\_\_\_\_



Depth= \_\_\_\_\_

Length= \_\_\_\_\_

2. You need to make a stack of dried bricks. How many inches tall will one stack be?

\_\_\_\_\_ inches

Convert the number of inches into feet.

\_\_\_\_\_ foot

3. You built a wall that is 4 bricks in length. How many inches long will the wall be?

\_\_\_\_\_ inches

Covert the number of inches into feet.

\_\_\_\_\_ feet

4. Your friend makes 4 stacks of bricks and you make 6 stacks. How many bricks do you have together?
  
5. If you make 9 stacks of bricks and one of your friends makes 5 stacks, how many bricks have you made together?
  
6. You made 5 bricks. How much do 5 bricks weigh together?
  
7. In one day you can make 8 stacks of bricks. How many bricks can you make in 5 days?
  
8. In 5 days, 150 bricks were made. How many bricks were made per day?
  
9. How many stacks can be made from 150 bricks?
  
10. Reduce the size of the adobe brick by  $\frac{1}{2}$ . Show your answer in inches.

Height=\_\_\_\_\_

Length=\_\_\_\_\_

Depth=\_\_\_\_\_

## Building an 1840s Adobe House

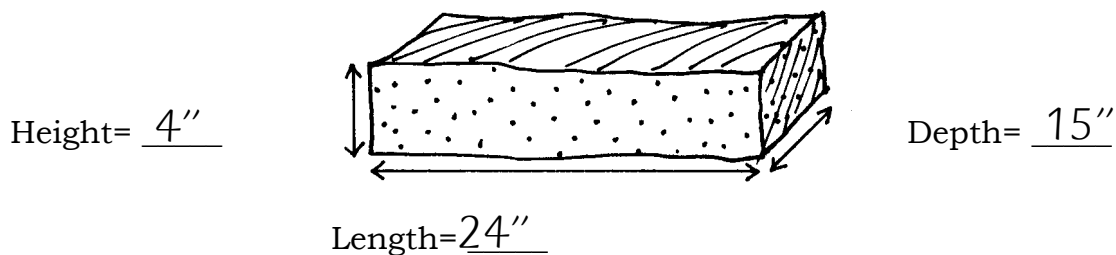
It is 1841 and you have just arrived to the Los Angeles area. After settling on a piece of land, you begin to build a home.

To build this house, you have to make adobe bricks that are 2 feet long, 1 foot 3 inches deep, and 4 inches tall. One adobe brick weighs 60 pounds, and 1 stack equals 3 bricks.



**Solve the following problems using the above information:**

1. Show the size of an adobe brick on this picture.



2. You need to make a stack of dried bricks. How many inches tall will one stack be?

$$\underline{4" \times 3 = 12} \text{ inches}$$

Convert the number of inches into feet.

$$\underline{1} \text{ foot}$$

3. You built a wall that is 4 bricks in length. How many inches long will the wall be?

$$\underline{24" \times 4 = 96} \text{ inches}$$

Convert the number of inches into feet.

$$\underline{8} \text{ feet}$$

4. Your friend makes 4 stacks and you make 6 stacks. How many bricks do you have together?

$$\begin{array}{l} 4 \times 3 = 12 \quad \text{or} \quad 4 + 6 = 10 \\ 6 \times 3 = 18 \quad \quad \quad 10 \times 3 = 30 \text{ bricks} \\ 12 + 18 = 30 \text{ bricks} \end{array}$$

5. If you make 9 stacks and one of your friends makes 5 stacks, how many bricks have you made together?

$$\begin{array}{l} 9 \times 3 = 27 \quad \text{or} \quad 9 + 5 = 14 \\ 5 \times 3 = 15 \quad \quad \quad 14 \times 3 = 42 \text{ bricks} \\ 27 + 15 = 42 \text{ bricks} \end{array}$$

6. You made 5 bricks. How much do 5 bricks weigh together?

$$5 \times 60 = 300 \text{ pounds}$$

7. In one day you can make 8 stacks of bricks. How many bricks can you make in 5 days?

$$\begin{array}{l} 8 \times 3 = 24 \quad \quad \quad \text{or} \quad \quad 8 \times 5 = 40 \\ 24 \times 5 = 120 \text{ bricks} \quad \quad \quad 40 \times 3 = 120 \text{ bricks} \end{array}$$

8. In 5 days, 150 bricks were made. How many bricks were made per day?

$$150 \div 5 = 30 \text{ bricks/day}$$

9. How many stacks can be made from 150 bricks?

$$150 \div 3 = 50 \text{ stacks}$$

10. Reduce the size of the adobe brick by  $\frac{1}{2}$ . Show your answer in inches.

$$\text{Height} = \underline{\frac{4}{1} \times \frac{1}{2} = \frac{4}{2} = 2''}$$

$$\text{Length} = \underline{\frac{24}{1} \times \frac{1}{2} = \frac{24}{2} = 12''}$$

$$\text{Depth} = \underline{\frac{15}{1} \times \frac{1}{2} = \frac{15}{2} = 7 \frac{1}{2}''}$$