A small stack, a big story

Brickyard scenery | Scale, sequence, and work

Grades 4-8 | Adaptable for families | **45-minute lesson** + model-building time

THE BIG QUESTION

How can a miniature brick stack help us think about the work of a brickyard?

STUDENTS WILL

Use the shared 1:36 scale; put a general brickmaking sequence in order; explain why careful drying matters; plan a model storage and loading area.

PREPARE

Brick-stack model or picture; student worksheet; pencils; ruler. For building: the 2-page brick-stack PDF, cardstock, scissors, and glue. Finished stacks are about 1 1/3 inches square.

TEACH IT IN FOUR STEPS

Notice (5 minutes). Look at a stack and list jobs that must happen before bricks reach it.
Explain (10 minutes). Introduce the general sequence: prepare, form, dry, fire, cool, store or ship. Explain that methods varied.
Work (20 minutes). Calculate scale, order the steps, and draw a storage area; start one stack if time allows.
Share (10 minutes). Trace a route from the kiln area to storage and transport.

ADAPT AND EXTEND

Younger learners can arrange spoken or written step cards and use whole-inch examples. Older learners can compare a model dimension with the represented size in feet and inches. Invite pairs to combine their yard plans.

PRINT AND BUILD

Download the matching model at **restoringwhatwaslost.com/printables**. Print the model on US Letter at **Actual size / 100%**, single-sided; let the printer follow each page's orientation. Print this handout on plain paper. Use child-appropriate scissors and glue; adults should help with small cuts and difficult folds. Allow extra time if every student builds several stacks. One stack can be a shared group demonstration.

Free to copy for classroom, community, and home learning. Suggested timing is an estimate, not a tested completion time.

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Name: _____ Date: _____

Model scale: 1 model inch = 3 feet. The pictured bricks are not an exact count of full-size bricks.

1. Use the shared scale: 1 model inch = 3 feet. Complete these relationships and show one calculation.

1 inch = _____ feet 1 1/3 inches = _____ feet 2 inches = _____ feet

2. Number this general brickmaking sequence from 1 to 6.

___ Fire in a kiln ___ Prepare the clay ___ Store or ship

___ Form the bricks ___ Cool the bricks ___ Dry carefully

3. Why might a brickmaker dry newly formed bricks carefully before firing them?

4. Sketch a place to store finished stacks and a clear route for loading a truck or railcar. Label both.

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WHAT TO LISTEN FOR

1. 1 inch = 3 feet; 1 1/3 inches = 4 feet; 2 inches = 6 feet. Example: 1 1/3 x 3 = 4.
2. Prepare clay, form bricks, dry carefully, fire in a kiln, cool, then store or ship. The worksheet blanks read **4, 1, 6 / 2, 5, 3**.
3. Removing moisture carefully helps prevent damage; uneven drying can cause cracks.
4. Accept a labeled storage space and a clear loading route. Ask students to explain their choices.

KEEP HISTORY AND THE MODEL DISTINCT

Firebrick was made for demanding high-temperature uses; it should not be treated as identical to every common building brick. The 1926 source describes several manufacturing methods, including dry pressing. Our six-step sequence is a teaching overview, not a verified layout or operating record of Louisville Fire Brick Works. The stack dimensions are representative.

QUICK CHECK FOR UNDERSTANDING

Ask: "Which step comes before the kiln, and why?" Then ask a learner to explain why multiplying model inches by 3 gives represented feet.

SOURCES FOR THE TEACHER

U.S. Bureau of Standards, Circular 282 (1926). Fire-clay brick: their manufacture, properties, uses and specifications. Printed pp. 26-32 describe pressing, drying, and firing.

https://www.govinfo.gov/content/pkg/GOVPUB-C13-4ec4ef7caff1f0b4abfd5e5974e4d918/pdf/GOVPUB-C13-4ec4ef7caff1f0b4abfd5e5974e4d918.pdf

Restoring What Was Lost History Workshop. Current model collection, completed-model illustrations, dimensions, and printing guidance.

https://restoringwhatwaslost.com/printables

Model and lesson design: Restoring What Was Lost History Workshop. Sources document the historical context; they do not endorse or certify these paper models. Free to print and copy for educational use.