STUDIO FIELDNOTES / ARTS INTEGRATION / 3–5

Multiplication in Building Patterns

Teacher guide · 3–5 · 45–55 minutes × 2–4 sessions

Essential question

Can one design show two different multiplication facts?

Why this investigation matters

Translate arrays into windows, tiles, or columns and explain factor pairs

The finished work

Architectural facade composed of labeled arrays

Methods and material suggestions

arrays, factors, structure; choose materials suitable for your space: drawing and collage materials, paper, water-based media, or clean reclaimed objects as appropriate.

Learning targets

Students will: analyze a relevant visual or disciplinary source; experiment with arrays, factors, structure; create an original response; give and use evidence-based feedback; and explain one artistic choice.

Teaching progression

01 / Engage

Show the inquiry question: Can one design show two different multiplication facts? Invite a noticing, a wonder, and an initial interpretation.

02 / Investigate

Examine relevant diagrams, data and field observations. Translate arrays into windows, tiles, or columns and explain factor pairs Students annotate the evidence that supports their thinking.

03 / Skill Studio

Demonstrate arrays, factors with a short material experiment. Students test the technique and record what changes.

04 / Generate

Produce at least two distinct visual approaches to the challenge. Compare how each communicates the idea.

05 / Plan

Choose an approach, identify materials and sketch a sequence of actions. Name one foreseeable difficulty.

06 / Produce

Create the original artwork or design: Architectural facade composed of labeled arrays. Photograph or annotate work in progress.

07 / Critique

Use evidence-based peer feedback: one element that communicates, one question, one suggested next move.

08 / Revise

Make one visible revision in response to critique or new evidence. Record before-and-after choices.

09 / Present

Display or share the result with a student-authored explanation and credits for research sources.

10 / Reflect

Return to the inquiry question and explain what the work now communicates, what changed and what could improve next time.

Standards and adaptation

Visual Arts Creating/Connecting plus Mathematics reasoning; adapt core standards to the exact course and grade level.

Do not substitute artistic polish for accuracy of evidence; assess each discipline separately.

Differentiation and access

Offer visual exemplars, tactile or large-print materials, verbal/audio explanations, partner brainstorming, alternate motor tools, and choice in subject matter. Ask for three thumbnail ideas, a labeled plan, one prototype, peer feedback, and a visible revision.

Teacher checks

Before: Ask students to answer: Can one design show two different multiplication facts? Record a drawing, annotation or discussion response.

During: Look for purposeful use of arrays and a clear link between research evidence and design choices. Ask students to explain an alternative.

After: Compare first plan and revised result; collect a student statement naming one choice, one change, and the evidence that motivated it.

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