Math Problem Design Studio: Teacher's Guide & Cover Page

The Strategy in Brief (Why Design Problems?)

This strategy empowers students to move from passive problem-solvers to active problem-designers. By creating, or even collaborating to create, their own math word problems within a real-world context, they develop a deeper conceptual understanding of variables, constraints, and the underlying mathematics, fostering ownership and creativity.

The Studio Workflow: An Engineering Approach

1. The Hook: Establish a compelling real-world scenario.
2. The Blueprint: Clearly define all knowns, unknowns, and constraints.
3. The Trap: Intentionally add a distractor to test critical thinking.
4. The Final Build: Synthesize all elements into a clear, solvable problem statement.
5. Peer Feedback

Peer Review (and "The Fold" Protocol)

The power of this activity lies in the peer feedback.
Before swapping papers, the "Lead Architect" must FOLD the bottom "Quality Assurance Key" section under. Peers then solve the problem without seeing the solution. After solving, they unfold the key to verify their answer and provide a rating in the "Peer Review" zone.

Bonus: Add a brief reflection, either with the teacher or individually as an exit ticket, to close the learning loop.

EDUTOPIA CREATOR RESOURCE

Created by educator **Rachel Lemansky**
Adapted from an article by educator **Matthew Vogel**
Shared by **Edutopia**

Math Problem Design Studio

Lead Architect: _____

Topic: _____

The Hook: Establishing the scenario

Describe the real world scenario. Where is the math happening?

Examples: Building a Minecraft base, calculating a road trip budget, sports stats

The Trap: Adding a Red Herring

Every good test question has a red herring. Add one piece of information that is TRUE but USELESS to the math.

Example: If the problem is about speed, mention the color of the car.

The Blueprint: Defining your data

STEP 1: The Givens (what we know; values or labels)

Constraint(s): Is there a limit? (budget, time, etc.)

STEP 2: The Variables (what we need)

The Final Build: Drafting the problem statement

Combine The Hook, The Blueprint, and The Trap into a clear paragraph. This is what your classmate will read.

_____

_____

_____

_____

_____

_____

Fold under on this line to hide answer key

Quality Assurance Key: Verify the solution

CLASSIFIED

Peer Review

- ★ Too easy
- ★★ Too hard
- ★★★ Perfect

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