



Experiential Learning Team

2026 Virtual Hackathon

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Problem Selection



Key Problem

Students are hesitant to engage in productive struggle, demonstrating limited confidence, motivation, initiative, prior knowledge, and growth mindset, coupled with a fear of incorrect responses and academic challenges.

Activities to Promote Productive Struggle



Scenarios

1. Form student groups.
2. Establish guidelines (e.g., participate actively, listen respectfully, support your own ideas, stay on task, encourage everyone, disagree respectfully, use evidence and logic, reach a consensus, assign roles, be ready to explain).
3. Have student explore and discuss scenarios where the answer or solution is ambiguous.

Sample Scenario 1: Community Emergency

A flood has affected your town. Emergency supplies are limited, and your group is responsible for distributing food, water, and shelter resources. The city population is 4,000 citizens. You have access to \$10,000 for aid. How would you distribute the supplies?

Questions to Consider:

- What supplies are you distributing?
- Who should receive aid and supplies first, and why?
- How can resources be distributed fairly?
- What information would help you make decisions?

Sample Scenario 2: New School

Your group has been asked to design a brand-new high school from scratch with a limited budget.

Questions to Consider:

- What programs and facilities are essential?
- How should the budget be spent?
- What would make students successful and engaged?

Sample Scenario 3: School Power Outage

A week-long power outage at school requires shifting to off-grid operations. Top priorities are ensuring student safety, managing building environments, and shifting from digital devices to paper-based, project-based, or outdoor learning to keep the school year moving forward.

Questions to Consider:

- How should the school continue educating students?
- What should the school's top priorities be?
- How can students and staff stay safe and productive?

Sample Scenario 3: School Power Outage (cont.)

Make the scenario more complex by adding further considerations:

- **Life-Safety & Communication:** Ensure emergency lighting is functioning. Establish a clear communication protocol for parents detailing how the school day will operate or if the school must temporarily release students.
- **Air Quality & Temperature:** Open windows to cross-ventilate stuffy classrooms. If it is dangerously hot, rotate students into shaded outdoor areas or move classes outside entirely.
- **Food Safety:** Since the cafeteria cannot be used, communicate with families to have students pack non-perishable lunches and extra water.
- **Medical Needs:** Ensure the school nurse has a log of students who rely on power-dependent medical equipment and secure alternative power for refrigeration of essential medications (e.g., insulin).
- **Asynchronous Packets & Reading:** Teachers should deploy pre-printed "take-home" or in-class packets. Encourage deep-dive reading, creative writing, and physical books instead of relying on devices.
- **Project-Based Learning:** Group projects that rely on collaboration and physical materials (e.g., poster-making, building physical models) keep students engaged without needing electricity.
- **Alternative Environments:** Utilize outdoor spaces, gymnasiums (if safe), or auditoriums for larger lecture-style instruction or group collaboration.
- **Adapt Routine & Flexibility:** Teachers should adjust their daily objectives to prioritize discussions, debates, and group problem-solving over digital testing.
- **Maintain Morale:** A crisis tests the community. Keep students focused on what they can do, utilizing things like puzzles, games, and non-electronic team-building activities.
- **Monitor Students:** The loss of connectivity and air conditioning causes stress. Provide a supportive environment where students can openly discuss their feelings.

Sample Scenario 4: Save the Town

Your town has numerous projects to be completed. You receive a \$5 million grant to spend on one of the following projects:

- New Park
- Community Center
- Hospital Expansion
- Public Transportation
- Environmental Cleanup

What project should be prioritized?

Questions to Consider:

- Which project benefits the most people?
- What short-term and long-term impacts should be considered?
- How can you justify your choice?

The Mystery Box Challenge

This activity teaches students how to make claims, provide evidence, and test models without directly looking at an answer.

Setup: Place various small items into opaque, unlabeled film canisters (e.g., a cotton ball and a paperclip, a marble and sand, a single penny). Seal canister lids with tape.

The Challenge: Students shake, drop, and roll the canisters. They must record observations, guess what is inside, and build a replica canister that sounds exactly like the mystery one.

Concepts Learned: Students learn Inference, deductive reasoning, and experimental design.

[Directions and worksheet](#)

Teaching Strategies



Encouraging Resiliency

This list of classroom practices is meant to develop a classroom culture of student resiliency by addressing common student mindsets that impede learning. Consistent, intentional messaging with follow-through will impact culture.

- Group work with guidelines
 - When students work in small groups, they shouldn't ask the teacher any questions until they have asked at least two classmates first.
- Review time
 - During quiz or test reviews, have students read all of the material first and circle their questions. Work on those areas first and physically show them the answers in their notes.
- Responding to "I don't know how to do this"
 - Ask the student if they've reviewed their notes.
 - Prompt them to ask a specific question to convey where their confusion lies.
 - Ask probing questions about their confusion (e.g., Where are you getting stuck? What have you tried so far? What part about this is difficult?).
- Reinforcing their knowledge
 - Highlight when students share correct information, even when it's a small detail of a larger question they have.
 - When they provide an incorrect strategy, identify what made sense about their thought process.
- Reframing learning
 - Emphasize that learning is an opportunity, learning is fun, and learning is meaningful.
- Encouraging self-awareness
 - Praise students for recognizing personal emotions, thoughts, and triggers.
 - Teach students to reflect on how they solved a challenge or struggle.
 - Remind students of strategies that helped them succeed previously.
 - Probe students to acknowledge their feelings and figure out how to meet goals despite negative emotions.

Resiliency Strategies (cont.)

- Reframing mistakes
 - Emphasize the acronym FAIL (First Attempt In Learning).
 - Remind students there are multiple ways to reach a solution and highlight students' different processes.
 - Encourage students to check in with the teacher throughout units to avoid making continuous, habitual mistakes without correction.
- Seeking support
 - Encourage students to ask for help from the teacher and their peers and use resources (e.g., Khan Academy, artificial intelligence, YouTube).
 - Emphasize the value of goals and help students strategize how to meet those goals through resources.
- Sticking to deadlines
 - Demonstrate how to set reasonable deadlines.
 - Show students how to prioritize tasks and manage their time appropriately to ensure they make consistent progress on their work.
 - Send reminders and allow for extensions when handled professionally.
 - Help students put missed deadlines in perspective, offer understanding and support, and help ensure they don't become a recurring habit.
- Encouraging additional support
 - Refer students to academic coaches and tutors.
 - Share personal stories, if applicable, to show that struggling is okay and relatable.
 - Emphasize the connections between accepting additional support and accountability.