

PROBLEM-SOLVING LABS

Explore. Organize. Notice. Explain.

The goal is not to finish first. The goal is to make sense of a challenging problem, try useful ideas, learn from what happens, and make your reasoning visible.

WHY WE DO LABS

- Build confidence when a problem does not announce which operation or formula to use.
- Connect mathematical ideas instead of practicing only one procedure at a time.
- Strengthen reasoning, communication, persistence, and creativity.

OUR PROBLEM-SOLVING ROUTINE

1. **Find a way in.** Restate the problem, identify what you know, and try a simple case.
2. **Organize.** Use a list, table, diagram, number line, model, or equation to make information easier to see.
3. **Look for structure.** Notice patterns, relationships, constraints, and what must remain true.
4. **Explain and revise.** Show why your solution works, check it, and improve your approach when needed.

WHAT GOOD LAB WORK LOOKS LIKE

- A genuine attempt—even if the solution is not complete.
- Work that another student can follow, including labels and units when appropriate.
- Explanations in words, diagrams, examples, or equations—not answers alone.
- Evidence that you checked, questioned, or revised an idea.

WORKING WITH OTHERS

- Think independently first, then compare strategies—not just answers.
- Ask questions such as “Why does that work?” and “How do you know?”
- Listen carefully, build on classmates’ ideas, and be willing to change your mind.

WHEN YOU FEEL STUCK

Try one new move: draw a picture, test a smaller case, make a table, work backward, estimate, explain the problem to a partner, or ask a specific question. Being stuck is part of solving—not a sign that you cannot do the mathematics.