



SPARK PROBLEM SOLVING

***Igniting Deep Thinking Through
Math Instruction * K-4th Grade***

FROM ROTE STEPS TO REAL UNDERSTANDING

Practical coaching and professional development that helps teachers shift from procedural teaching to rich, conceptual learning.

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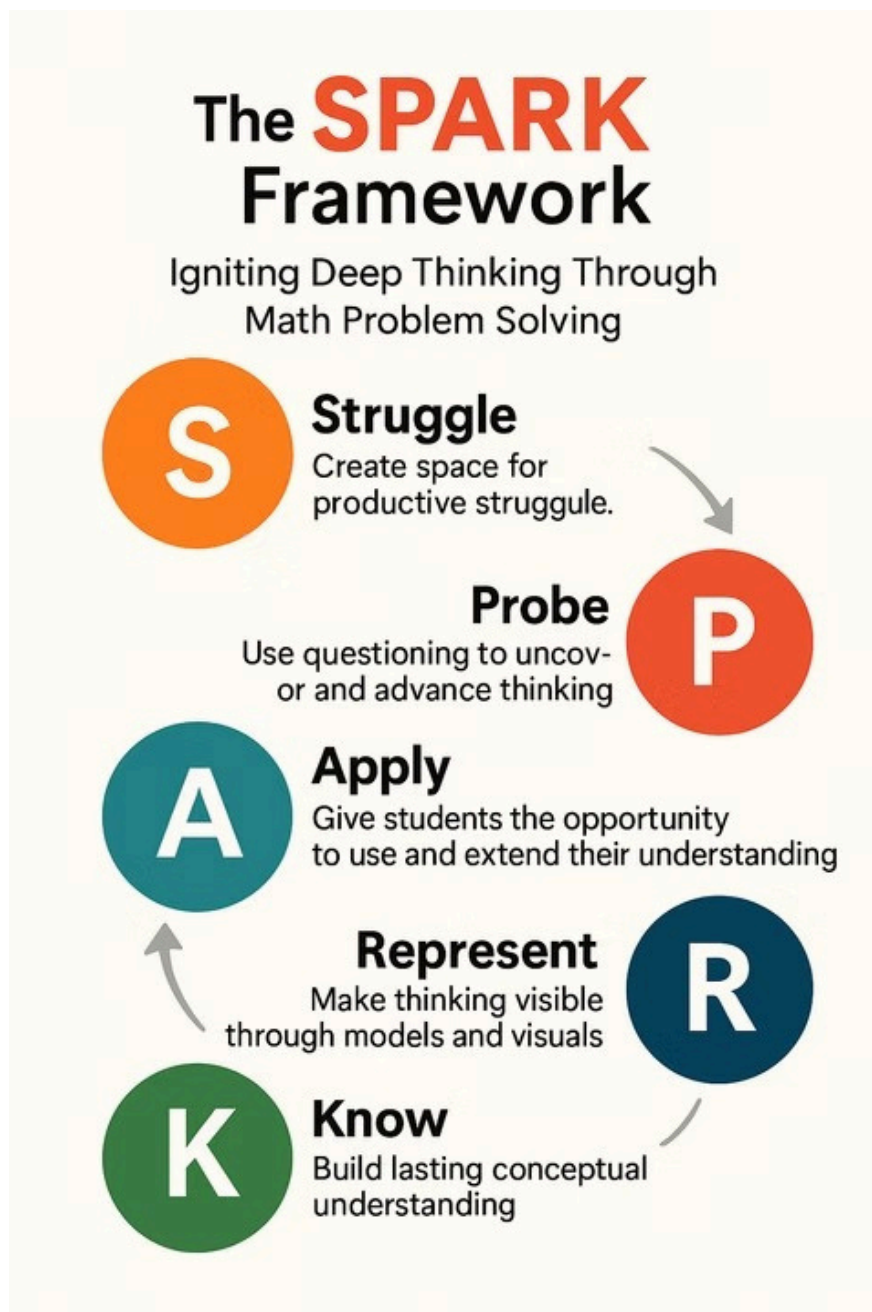


WHAT IS SPARK?

The SPARK Framework is a comprehensive approach to teaching math that fosters deep, meaningful learning for every student. It guides educators in creating classrooms where students engage actively with challenging problems, think critically about their reasoning, apply flexible strategies, and develop strong conceptual understanding. By shifting away from rote memorization and toward authentic problem solving, the framework builds both student and teacher confidence while promoting intellectual curiosity and mathematical depth.

The SPARK Pillars

These five pillars bring the framework to life in classrooms, representing core instructional practices that support student growth and teacher decision-making:



Together, these pillars provide practical guidance for implementing the SPARK vision and nurturing confident, capable math learners.

The SPARK Pillars

Pillar 1: Struggle

Struggle is not failure—it's where learning happens. Students are given time and space to wrestle with ideas before answers are revealed.

Teacher Moves:

1. Allow wait time before stepping in.
2. Normalize mistakes as part of learning.
3. Launch problems without immediately modeling solutions.

Pillar 2: Probe

Teachers probe thinking with questions that press for reasoning and explanation, not just answers.

Teacher Moves:

1. Ask “Why does that work?” or “How do you know?”
2. Encourage multiple strategies and compare them.
3. Use prompts like “What do you notice?” or “What if...?”

Pillar 3: Apply

Students apply strategies flexibly, connecting ideas across problems and contexts.

Teacher Moves:

1. Offer varied problems that allow multiple entry points.
2. Encourage transfer of strategies between problem types.
3. Press students to choose and justify their approach.



Pillar 4: Represent

Students represent their thinking with models, drawings, diagrams, or tools that make ideas visible.

Teacher Moves:

1. Introduce models (tape diagrams, number lines, arrays, etc.).
2. Require students to label and explain models.
3. Display multiple student representations for discussion.

Pillar 5: Keep Thinking & Know Why

Students keep pressing toward the “why” behind solutions, refining and extending their understanding.

Teacher Moves:

1. Ask for justification beyond the answer.
2. Push students to connect procedures to concepts.
3. Highlight reasoning even when answers are incorrect.



How to Use the Pillars

The SPARK Pillars can be used as look-fors in coaching and walkthroughs, as a self-reflection checklist for teachers, or as anchors for PLC discussions and PD cycles. They bring clarity to what powerful math instruction looks like in practice.

Conclusion

Implementing the SPARK Framework transforms math instruction into a dynamic, student-centered process—and a journey of professional growth for educators. When teachers embrace these principles, classrooms become vibrant spaces where challenge is welcomed, reasoning is valued, and understanding is deepened.

SPARK supports educators in guiding students to not only solve problems but to understand the “why” behind the math, preparing them for lifelong success. We encourage teachers and school leaders to explore each element, adapt the teacher moves, and reflect on their practice to foster a culture of curiosity, resilience, and mathematical growth.

- ▶ **With SPARK: Igniting Curiosity, Empowering Understanding, both teachers and students are empowered to explore, question, and thrive in the world of math.**
- ▶ **Want to bring SPARK to your school? Let’s connect to explore the right professional learning experience for your team. Visit www.ericainyourcorner.com to get started.**

