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# Uncovering Student Ideas IN PHYSICAL SCIENCE



32

**NEW** Matter and Energy Formative Assessment Probes

Have you been wanting to probe your students' thinking about major concepts in matter and energy? Have you been wishing for formative assessment tools in both English and Spanish? Then this is the book you've been waiting for.

Like the other 10 books in the bestselling *Uncovering Student Ideas in Science* series, *Uncovering Student Ideas in Physical Science, Volume 3* does the following:

- Presents engaging questions, also known as *formative assessment probes*. The 32 probes in this book are designed to uncover what students know—or think they know—about the concept of matter and particle model of matter; properties of matter; classifying matter, chemical properties, and chemical reactions; and nuclear processes and energy. The probes will help you uncover students' existing beliefs about everything from a particle model of matter to ways of describing energy.
- Offers field-tested teacher materials that provide the best answers along with distracters designed to reveal conceptual misunderstandings that students

commonly hold. Since the content is explained in clear, everyday language, teachers can improve their own understanding of the science they teach.

- Is convenient and saves you time. The probes are short, easy-to-administer activities for speakers of both English and Spanish that come ready to reproduce. In addition to explaining the science content, the teacher materials include connections to *A Framework for K–12 Science Education* and the *Next Generation Science Standards*, provide summaries of the research on students' ideas, and suggest grade-appropriate instructional methods for addressing students' ideas.

*Uncovering Student Ideas in Physical Science, Volume 3* has the potential to help you transform your teaching. As the authors write in the book's introduction, "When teachers take the time to uncover [existing] ideas, understand where they came from, and make instructional decisions that will help students give up their strongly held ideas in favor of scientific ways of thinking, they are taking an important first step in teaching for conceptual understanding."

GRADES 3–12

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