What is *PhD Science*?

PhD Science® is a phenomenon-based K–5 curriculum in which students' natural curiosity drives the learning as they build enduring knowledge about the real world and its everyday wonders. Classrooms transform into a place of exploration as students learn to think and act like real scientists. Three-dimensional teaching and learning are at the heart of the curriculum. As students uncover Disciplinary Core Ideas by engaging in Science and Engineering Practices and applying the lens of Cross-Cutting Concepts, they move from *reading* about science to *doing* science.

AT THE CORE OF *PhD SCIENCE*

AUTHENTIC PHENOMENA

Students explore rich, authentic phenomena through observation, questioning, modeling, investigation, and evidence-based argumentation.

STUDENT DRIVEN

Teachers act as facilitators, allowing students to drive the learning as they wonder and ask questions about phenomena, analyze and synthesize information, and apply new knowledge to solve real-world problems.

COHERENT STORYLINE

Each module weaves a storyline through which students make sense of compelling phenomena, as each lesson builds on previous lessons.

PhD Science in Sync™

PhD Science and *PhD Science in Sync* are complementary educational programs: one for classroom instruction, the other a continuous learning program designed to help students and teachers continue rich science education from anywhere. Now, teachers and students can toggle seamlessly from classroom instruction to distance learning.

Open Educational Resource

At Great Minds®, we believe students should have access to coherent, knowledge-building instructional materials as soon as they begin elementary school. That's why we're offering Levels K–2 of *PhD Science* as a free PDF open educational resource (OER).

Hands-On Investigations
Carefully crafted hands-on activities allow students to practice collaboration and problem solving as they build enduring knowledge.

Fine Art
Students engage with art in every module, allowing them to make observations, ask questions, and interact with scientific phenomena in a new, accessible context.

Core Texts
Each module integrates authentic, content-rich texts that support or explain the science while giving students an opportunity to practice and strengthen literacy skills.

GREAT MINDS

every child
is capable of
greatness

Program Components

Every component of *PhD Science* serves a specific purpose in helping teachers facilitate student-driven learning in and out of the classroom.

Print Materials & Manipulatives:

- Teacher Edition
- Science Logbooks
- Hands-on Materials Kit
- Core Texts
- Assessment Pack
- Student Science Pack
- Knowledge Deck™

Digital Materials:

- *PhD Science in Sync*™
- Digital Teacher Edition
- Science Journal
- Daily Videos
- PhD Projected
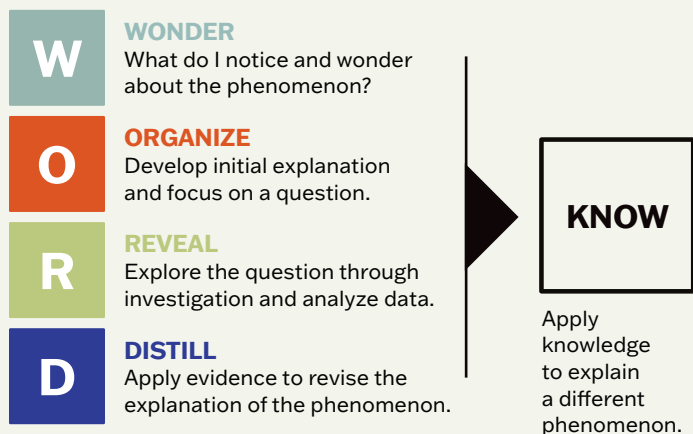- Learn Anywhere Plan
- K–2 OER PDFs

Professional Development

Professional learning sessions are designed for teachers and leaders to deeply understand and prepare for implementation. Delivered virtually or in person, our team of current and former educators have experience implementing *PhD Science* in the classroom.

Learning Cycle

During each concept sequence in a module, students engage in the following learning stages.

W WONDER
What do I notice and wonder about the phenomenon?

O ORGANIZE
Develop initial explanation and focus on a question.

R REVEAL
Explore the question through investigation and analyze data.

D DISTILL
Apply evidence to revise the explanation of the phenomenon.

KNOW

Apply knowledge to explain a different phenomenon.

Pacing

Each of the four modules in a level focuses on a different anchor phenomenon. Students seek to answer each module's Essential Question about that phenomenon. Alternative planning calendars are available to help teachers adjust pacing as needed.

- 25–30 lessons per module; approximately 100 days of lessons
- 35–45 minutes per lesson
    - ☐ Launch: the lesson opening, which engages students as they begin thinking about the lesson phenomenon
    - ☐ Learn: the heart of the lesson, during which students develop new knowledge and apply prior knowledge to explore phenomena
    - ☐ Land: the lesson closing, in which students reflect on what they have learned

> " *I would just reiterate what a fantastic program* PhD Science *is. I think it goes beyond a curriculum—that it really is a program, a way to teach. It's just the best that I've seen anywhere.* "
>
> —JULIE P., PRINCIPAL, STOCKTON, CA

Assessments

PhD Science assessments help teachers affirm student understanding and assess students' ability to apply the conceptual knowledge and skills they've acquired to decipher new phenomena.

Formative Assessments
- **Checks for Understanding**
- **Conceptual Checkpoints**

Summative Assessments
- **Engineering or Science Challenges**
- **End-of-Module Assessments**

greatminds.org/science