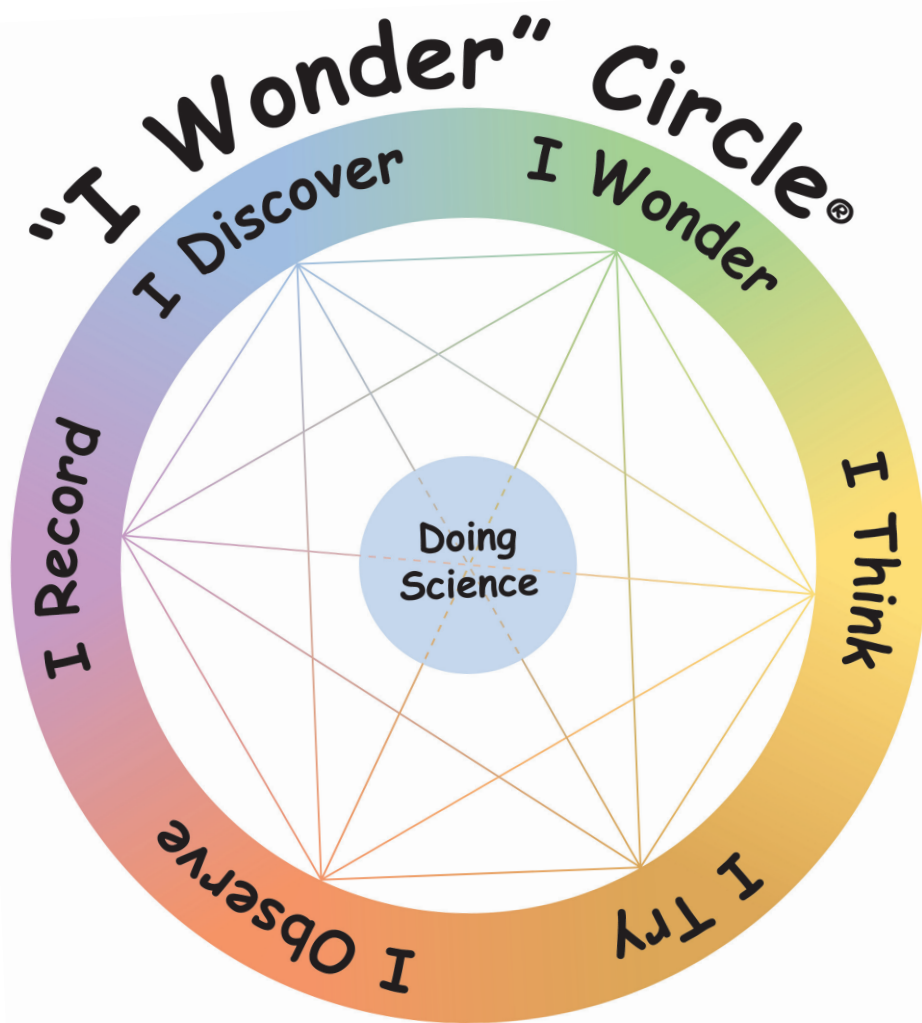


# Next Generation Science Standards



The heart of the Science Companion pedagogy, the “I Wonder” Circle, embodies each of the three dimensions of the Next Generation Science Standards and how they interrelate in a tangible, accessible way for both students and teachers.

## Dimension 1: Practices *Scientific and Engineering Practices*

“Science is not just a body of knowledge that reflects current understanding in the world; it is also a set of practices to establish, extend, and refine that knowledge. Both elements—knowledge and practice—are essential.”

--Framework for K-12 Science Education

The NGSS integrate content knowledge and science practices, giving them equal importance as we nurture young scientists in our schools. In Science Companion, content and practices are always taught together. “Doing Science” has always been at the center of our curriculum.

## Dimension 2: Crosscutting *Crosscutting Concepts*

Each of the seven cross-cutting concepts outlined in the Framework are carefully integrated into Science Companion lessons.

- Patterns
- Scale, Proportion, and Quantity
- Energy and Matter: Flows, Cycles, and Conservation
- Stability and Change
- Cause and Effect: Mechanism and Explanation
- Systems and System Models
- Structure and Function

## Dimension 3: Content *Disciplinary Core Ideas*

With units for Physical Sciences, Life Sciences, Earth and Space Sciences, and Engineering/Applications of Science at each K-6 grade level, Science Companion tracks closely with the Disciplinary Core Ideas.

Just as the Next Generation Science Standards focus on Core Ideas, Science Companion centers each lesson on a Big Idea. Discussions and explorations always circle back to the Big Idea.

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# Next Generation Science Standards

## Important Shared Themes

### ***More attention to Engineering and Technology***

Science Companion units contain integrated engineering design projects, such as building an instrument during the Sound unit that can change volume and pitch, or applying energy transfers by building boats in the Energy unit. Each grade level also has an Engineering Design Project that applies science concepts in engineering contexts. For example, the structure and function of a human joint is applied to designing a robot arm to collect a sample on Mars. Principles of motion and energy are applied to design and build a moving system.

### ***Connections to the English Language Arts Common Core State Standards***

Science Companion supports the “Reading Informational Text” requirements for the ELA Common Core State Standards by providing Science Library lists of trade books compatible with each unit. For seven (upper elementary) units, our Student Reference Books supply engaging reading and graphics – tailored to the science content being explored in class. Science Companion’s Science Notebooks provide a meaningful context each child to write and communicate about his or her science exploration and insights. Language Arts Connections and Extensions are great ways to integrate science learning with language arts.

### ***Connections to the Mathematics Common Core State Standards***

Science Companion has always regarded the study of mathematics and science as occurring hand in hand. Mathematics Connections show where mathematics is being applied in the science tasks of the moment. Mathematics Extensions provide further opportunities to connect math and science. Science Notebooks contain ample applications of collecting, calculating, and analyzing numerical observations and data.

### ***“The Principles of the Framework”***

Science Companion is infused with the same pedagogical philosophy as the Framework for K-12 Education, the building blocks of the Next Generation Science Standards. These shared core values include:

- Children Are Born Investigators
- Focusing on Core Ideas and Practices
- Understanding Develops Over Time
- Science and Engineering Require Both Knowledge and Practice
- Connecting to Students’ Interests and Experiences
- Promoting Equity



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