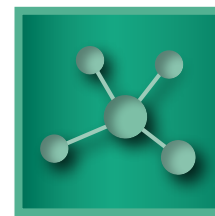


# Instructional Practices Inventory

# Science



At HMH, our coaching model is learner focused, partner based, and data driven. We are looking forward to partnering with you on your learning journey toward a student-centered, 21<sup>st</sup> century science classroom. Use this inventory to identify instructional practices that already enhance your science instruction, and as a guide for areas of deeper exploration with your coach.

## Conceptual Connections

### TEACHER

- Connecting learning to real-world situations both inside and outside the classroom
- Implementing project- and phenomenon-based learning that represents a balance of conceptual understanding and procedural fluency
- Integrating cross-curricular experiences for exploration and application of scientific content and concepts

### STUDENT

- Defining systems and developing models to test variables or claims
- Identifying and utilizing a variety of information sources and approaches to explain phenomena
- Relating causes of events with their effects to predict outcomes and justify their reasoning using evidence
- Reflecting on and revising their designs and claims based on evidence
- Using cross-curricular skills and knowledge to deepen their understanding of science concepts
- Applying and expanding their learning through the lens of appropriate crosscutting concepts

## Scientific Reasoning and Processes

### TEACHER

- Addressing students' initial understanding and preconceptions
- Asking students to communicate their claims and provide evidence to support or refute the claims
- Facilitating questioning and scientific discourse
- Engaging students in the iterative engineering design process

### STUDENT

- Developing and arguing evidence-based claims using prior and newly acquired knowledge
- Engaging in discourse that reflects an understanding of how to gather and evaluate information and evidence
- Defining problems and generating testable questions leading to further study
- Applying the engineering design process to solve problems involving real-world phenomena
- Identifying and working within the confines of criteria and constraints as they experiment, develop models, and resolve explanations of phenomena

## Learning Environment

### TEACHER

- Providing a respectful, safe, and culturally responsive environment in which mistakes are seen as an opportunity to learn
- Structuring the class for independent work, pairs, groups, and whole class in a thoughtful and deliberate way
- Asking high-level questions that both build and reveal new understanding of content and practice
- Making appropriate tools available and encouraging their use

### STUDENT

- Taking an academic risk and relying on their own thinking and the thinking of other students
- Listening and asking questions to each other to clarify information and respectfully challenge ideas
- Explaining their reasoning; constructing viable arguments and critiquing the reasoning of others
- Showing perseverance and effort when faced with challenging tasks
- Working productively in a variety of grouping structures

## Formative Assessment

### TEACHER

- Using data to make instructional decisions based on student need
- Providing feedback to students and structuring opportunities for students to provide feedback to each other
- Establishing and communicating the learning outcome(s) of the lesson
- Monitoring learning and adjusting teaching during instruction

### STUDENT

- Taking responsibility for their learning by monitoring their progress toward a learning outcome
- Applying teacher and peer feedback to strengthen and deepen learning
- Articulating what one is learning and why