HMH | into Science®

Connected Teaching Program Resources

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GRADES 6–8

Think Connected

Like you, we're focused on growth–for all students. HMH's connected solutions support every moment in teachers' and students' journeys. Effective and flexible science instruction, digital assessments with actionable data to inform teaching, and meaningful professional learning are uniquely connected to empower science educators. It's all in one place, with one username and password, to support education–no matter where or how it takes place. How could connected teaching and learning empower you?

- **FLEXIBLE INSTRUCTION**
  Connect to the tools, resources, and curricula you need to help your students learn from anywhere.

- **SUPPORT FOR ALL STUDENTS**
  Differentiated instruction and remediation strategies for modifying existing activities or assigning new activities are available to provide extra, on level, extension, and ELL support.

- **ASSESSMENT**
  Embedded assessment supports differentiation and benchmarking to drive grouping and targeted instruction.

- **REMOTE TEACHING AND ACCESS**
  The *HMH Go*™ app provides access to core content from *Ed*®, the HMH Learning Platform, at any time, even with limited internet access.

- **PROFESSIONAL LEARNING**
  On-demand and live online resources give educators point-of-use support for class, community, and caregivers.

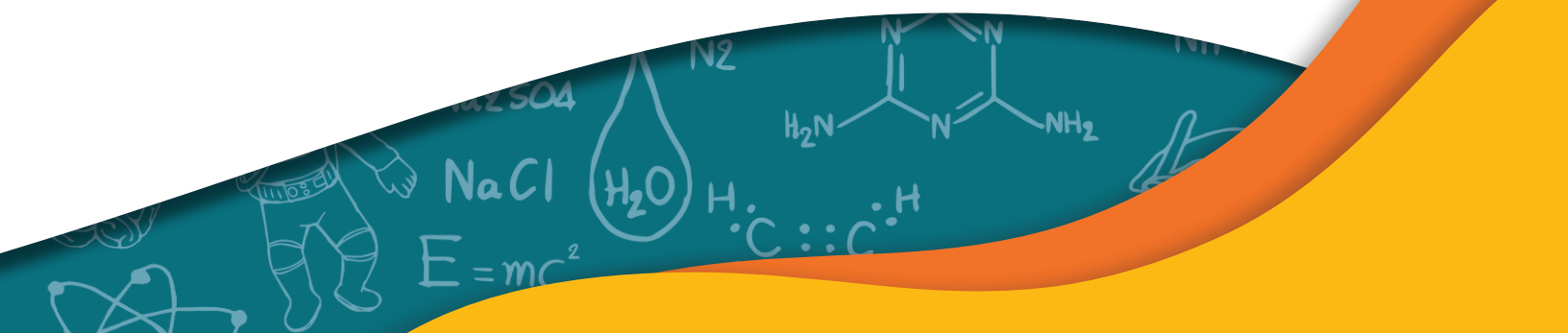
HMH into Science®

HMH ¡Arriba las Ciencias!™

Flexible, Phenomenal, Student-Centered Science

Science programs should be student-centered, easy to implement, and flexible. ***HMH Into Science***® for Grades 6–8 delivers a flexible solution that streamlines the support, strategies, inspiration, and rigorous content you need to engage your students in doing and learning science.

What's Inside



HMH Into Science Is Right for You

1

Features Flexibility and Ease of Use

Organized by Disciplines aligned to the Next Generation Science Standards (NGSS), *HMH Into Science's* unitized configuration allows you to purchase and implement only the content you need.

2

Engages Students

Hands-On Labs and digital, open-ended simulations allow students to use technology as a scientist would.

3

Meets Science Standards

Research-based best practices for rigorous science instruction encourage students to collaborate, think critically, and explore science, all within the context of a coherent phenomenon storyline.

4

Supports Professional Growth

Learning is available on your terms, whether live or through asynchronous opportunities.

5

Provides Equitable Experiences

Embedded supports for Social Emotional Learning and Culturally Responsive Education nurture students along their learning journeys. A fully equitable Spanish version created using transadaptation is also available.

Continued on page 3

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"I need a curriculum that includes all of the content to meet my standards so I don't have to go searching elsewhere."

"It would be helpful if we could purchase only what is needed so that we aren't using our budget for extraneous content."

"My students need relevant and engaging content that gets them excited about learning science."

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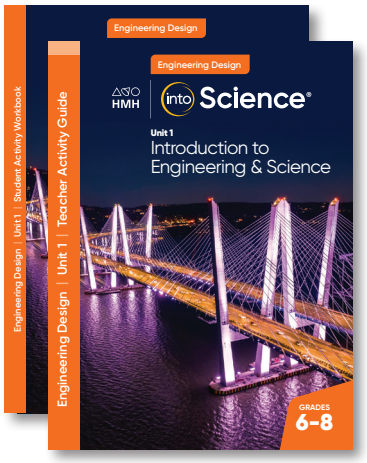
Where do you find relevant content to support your science instruction?

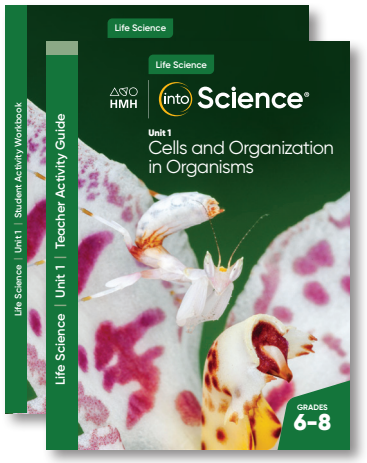
HMH Into Science is organized by Disciplines aligned to the NGSS. Its flexible, unitized configuration allows you to purchase and implement only the content you need.

ENGINEERING DESIGN



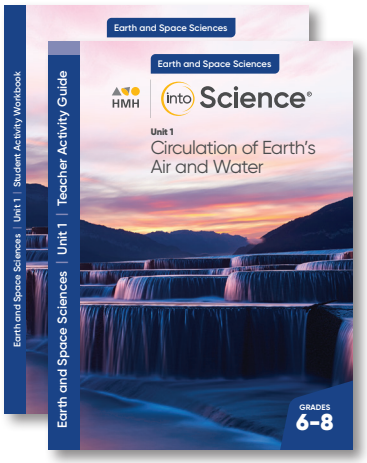
1 UNIT

LIFE SCIENCE



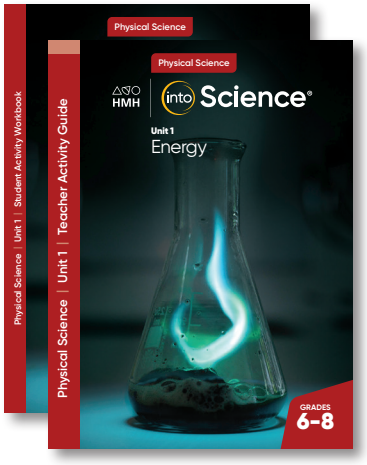
6 UNITS

EARTH AND SPACE SCIENCES



9 UNITS

PHYSICAL SCIENCE



8 UNITS

To see the full list of the Units available for each Discipline, please reference our **Scope and Sequence Brochure.**

The Discipline-aligned, consumable, and unitized **Student Activity Workbooks** contain the "Can You Solve the Problem?", Unit Introduction, Lesson Worksheets, and Unit Review. They are designed to be used along with the Student eBook content on *Ed*.

The Discipline-aligned and unitized **Teacher Activity Guides** contain support for unit and lesson planning, along with support for each worksheet in the Student Activity Workbook.

The **Teacher and Student eBooks** include everything found in the print Teacher Activity Guides and Student Activity Workbooks plus Explorations with Hands-On Labs, Take it Further Opportunities, Unit Performance Tasks, Unit Starters, and Unit Connections.

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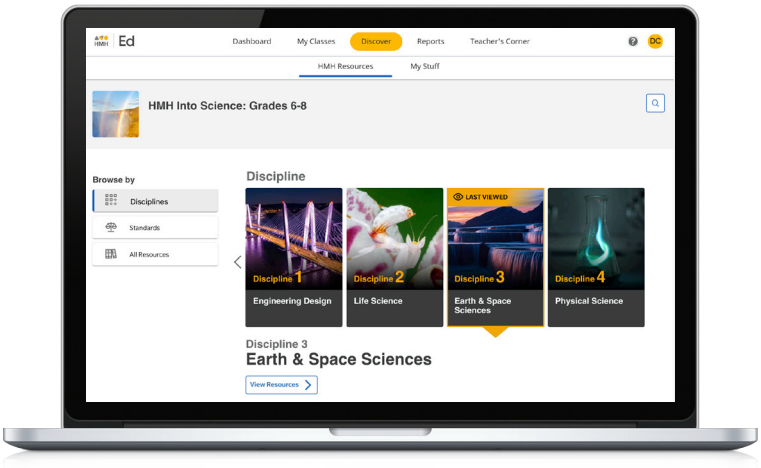
Access ALL *HMH Into Science* 6-8 content digitally via *Ed*, the HMH Learning Platform

- Interactive Student and Teacher eBooks
- Student Activity Workbook PDFs
- Teacher Activity Guide PDFs
- Interactive, Editable, and Printable Assessments
- NGSS Trace Tool
- Simulations and Video-Based Projects
- Student and Teacher Digital Resources
- On-Demand Professional Learning



Instructional Resource	Student eBook	Student Activity Workbook	Teacher eBook	Teacher Activity Guide
Unit Planning Support				X
Unit Opener: Unit Phenomenon + Connect Your Learning	X	X	X	X
Unit Starter Activity	X		X	
Unit Project	X		X	
Lesson Planning Support				X
Lesson Engage: Can You Explain the Phenomenon? + Gather Data Prompts	X	X	X	X
Lesson Explorations	X		X	
Hands-On Lab Support			X	X
Hands-On Labs	X	X	X	X
Take It Further	X		X	
Lesson Self-Check	X	X	X	X
Unit Connections	X		X	
Unit Review	X	X	X	X
Unit Performance Task	X		X	

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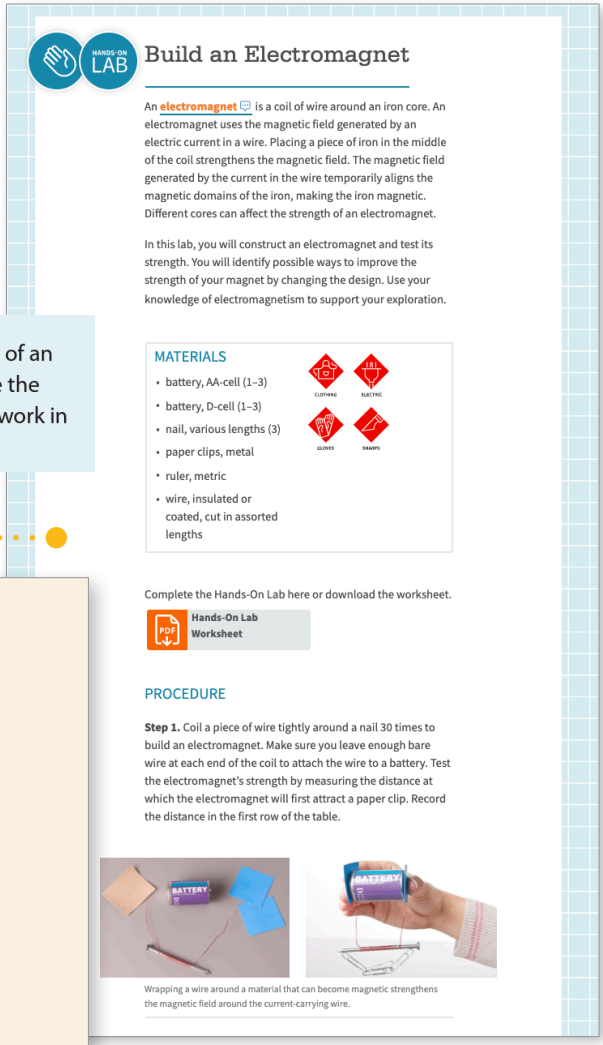
How do you promote active learning?

HMH Into Science includes **ample opportunities for hands-on learning**, where students work together collaboratively and are actively engaged in doing science like scientists do in the real world. They are encouraged to think critically; have conversations around their scientific thoughts, ideas, and claims; investigate; and explore further.



HANDS-ON LAB

Build an Electromagnet

An electromagnet is a coil of wire around an iron core. An electromagnet uses the magnetic field generated by an electric current in a wire. Placing a piece of iron in the middle of the coil strengthens the magnetic field. The magnetic field generated by the current in the wire temporarily aligns the magnetic domains of the iron, making the iron magnetic. Different cores can affect the strength of an electromagnet.

In this lab, you will construct an electromagnet and test its strength. You will identify possible ways to improve the strength of your magnet by changing the design. Use your knowledge of electromagnetism to support your exploration.

MATERIALS

- battery, AA-cell (1–3)
- battery, D-cell (1–3)
- nail, various lengths (3)
- paper clips, metal
- ruler, metric
- wire, insulated or coated, cut in assorted lengths

Complete the Hands-On Lab here or download the worksheet.

Hands-On Lab Worksheet

PROCEDURE

Step 1. Coil a piece of wire tightly around a nail 30 times to build an electromagnet. Make sure you leave enough bare wire at each end of the coil to attach the wire to a battery. Test the electromagnet's strength by measuring the distance at which the electromagnet will first attract a paper clip. Record the distance in the first row of the table.

Wrapping a wire around a material that can become magnetic strengthens the magnetic field around the current-carrying wire.

Responsible Decision-Making Lead a discussion about the value of an engineering design process, and how it allows students to improve the design of their electromagnet. Emphasize the importance of collaborative work in going through the steps of an engineering design process.

Self-Awareness and Decision Making Self-perception and the ability to recognize one's strengths are key parts of self-awareness. Create space for students to work with these skills by leaving 5 minutes at the end of the lesson for reflective writing in response to these questions:

What parts of this lesson did you find challenging?

What parts did you find interesting?

Culturally Responsive Education

As an alternative way to finish the lesson, students could complete this activity instead of the Reflect and Summarize student activity.

Explaining a concept to someone else strengthens understanding and recall of a concept. Using visual aids and words to explain a topic can further support learning.

Have students research a device they use every day that uses an electromagnet. Have them make a poster explaining how the device makes use of electromagnetism to solve a problem.

Encourage students to explore reasons why the electromagnet is a good solution for this problem. What constraints might limit the usefulness of this solution?

Embedded **Social Emotional Learning** prompts and **Culturally Responsive Education** supports help create a caring, participatory, and equitable learning environment with evidence-based practices that actively involve all students in their social, emotional, and academic growth.

Understanding the need to support diverse languages, the **Multilingual Glossary** provides translations of common science terms and definitions in over ten languages while the **Interactive Glossary** helps students learn how to spell and define vocabulary terms in English and Spanish.

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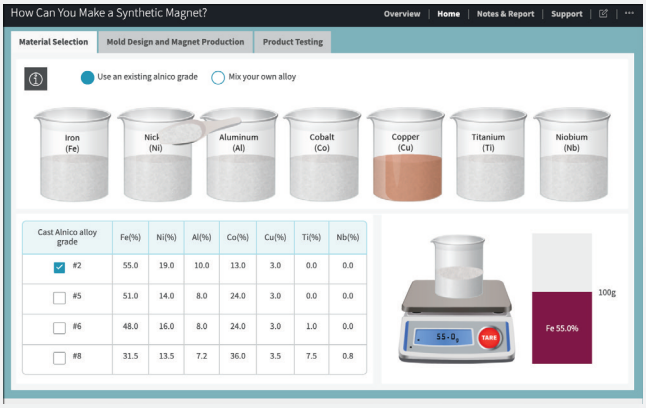
Hands-On Learning

When you don't have time to gather materials, **Consumable** and **Non-Consumable Equipment Kits**, available in Discipline-aligned and Integrated versions, provide the majority of materials needed for hands-on labs.

Alternatively, the labs are designed with **easy-to-source materials**, allowing you to purchase locally only what you need.

Remote Learning

What does hands-on learning look like at home? **You Solve It** computer simulations allow students to run experiments and use computer modeling to explore ideas in completely open-ended simulations, just like scientists and engineers.



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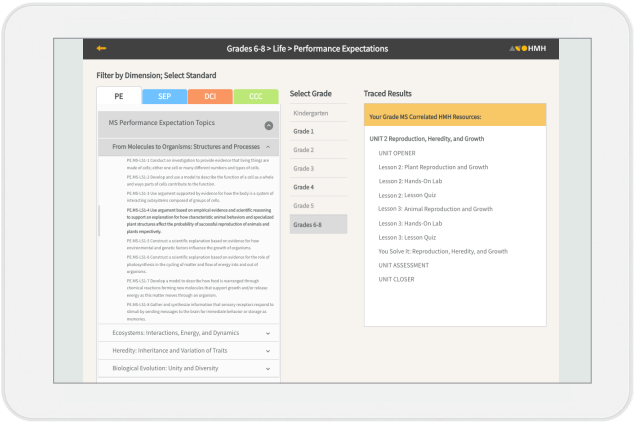
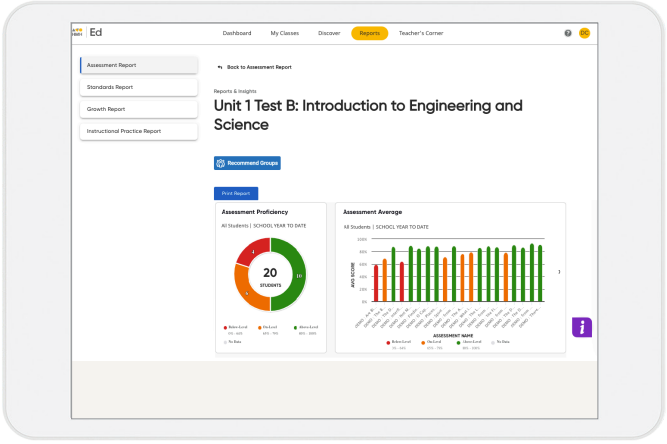
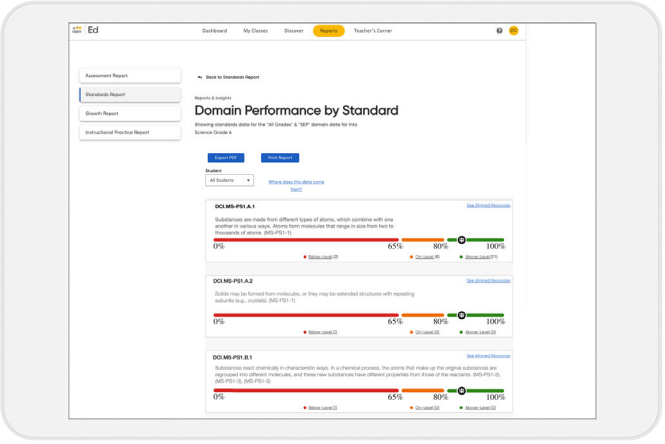
How can you ensure you cover the standards?

The HMH Trace Tool:

- Maps the **Next Generation Science Standards**
- Shows connections and spiraling of the standards across grade levels
- Identifies HMH® resources to support NGSS-based instruction
- Traces the Performance Expectations, Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core Ideas
- Allows teachers to quickly view what students should already know and what they need to be prepared to learn next







Data and Reporting to Drive Instruction

Assessment plays a key role in providing teachers with the data they need to carefully plan and deliver instruction. You can view reports of your entire class or any individual student and see how they are performing on the standards.

What if you have a student who needs remediation? You can easily search the resources by the standard they address so you can select exactly what will most benefit your students. With *HMH Into Science* you have access to all Disciplines and Units via *Ed*, regardless of what you purchased in print. This means there are even more resources to choose from for students who could benefit from some enrichment or additional support.

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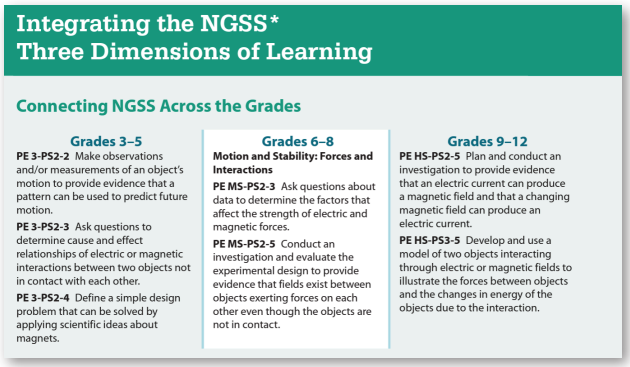
Three-Dimensional Instruction

Every lesson includes the three dimensions of learning from the NGSS. The **Science and Engineering Practices** and the **Crosscutting Concepts** weave around the **Disciplinary Core Ideas** to turn your science lesson into an impactful experience for your students.



Integrating the NGSS* Three Dimensions of Learning

Connecting NGSS Across the Grades

Grades 3–5

PE 3-PS2-2 Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

PE 3-PS2-3 Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

PE 3-PS2-4 Define a simple design problem that can be solved by applying scientific ideas about magnets.

Grades 6–8

Motion and Stability: Forces and Interactions

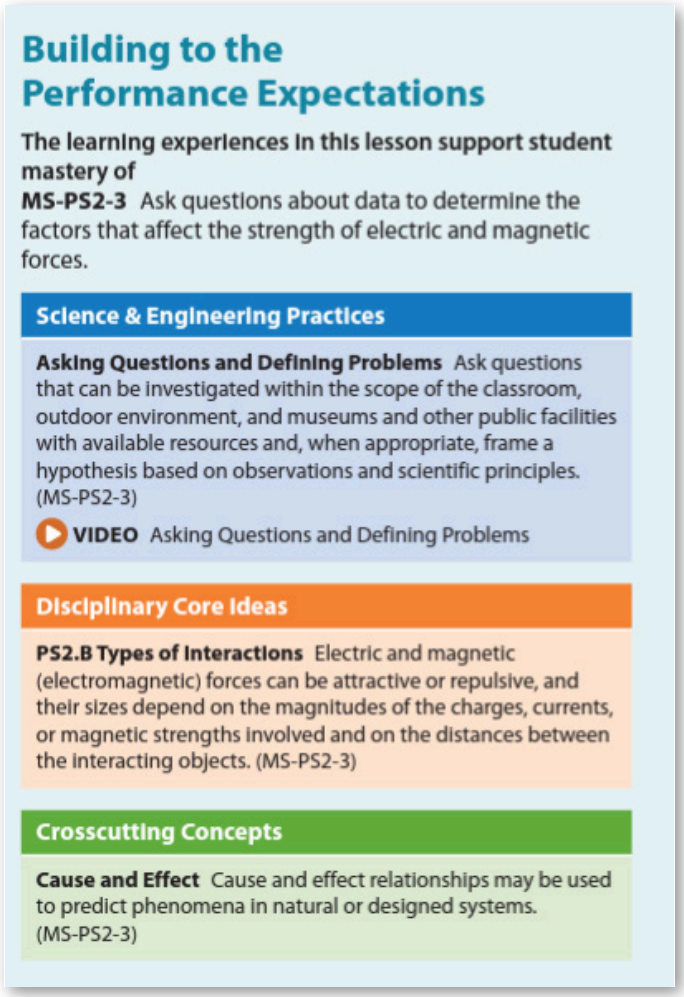
PE MS-PS2-3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

PE MS-PS2-5 Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

Grades 9–12

PE HS-PS2-5 Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

PE HS-PS3-5 Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction.



Building to the Performance Expectations

The learning experiences in this lesson support student mastery of

MS-PS2-3 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

Science & Engineering Practices

Asking Questions and Defining Problems Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles. (MS-PS2-3)

VIDEO Asking Questions and Defining Problems

Disciplinary Core Ideas

PS2.B Types of Interactions Electric and magnetic (electromagnetic) forces can be attractive or repulsive, and their sizes depend on the magnitudes of the charges, currents, or magnetic strengths involved and on the distances between the interacting objects. (MS-PS2-3)

Crosscutting Concepts

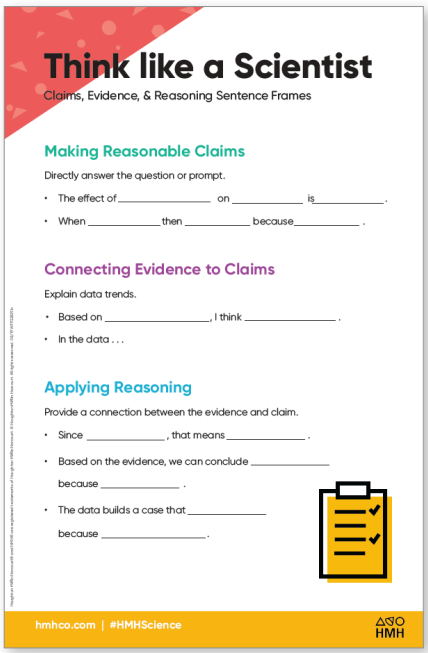
Cause and Effect Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-PS2-3)

Claims, Evidence, and Reasoning

HMH Into Science encourages students to think like scientists. Making sense of phenomena requires an initial explanation followed by a revised understanding after a series of explorations. With the **Claims, Evidence, and Reasoning model**, students gather evidence to support or refute their claim and then apply reasoning to explore their understanding of the data to develop more in-depth explanations.

Claims, Evidence, and Reasoning

Have students make a graphic organizer that illustrates a central idea surrounded by supporting concepts. Students should place their claim in the center. Students can then place each piece of evidence around the claim. Each piece of evidence should have a line connecting it to the claim. Along the line, have students write short statements that explain how the evidence relates to or supports the claim. Students can then use these visuals to support their writing.



Think like a Scientist

Claims, Evidence, & Reasoning Sentence Frames

Making Reasonable Claims

Directly answer the question or prompt.

- The effect of _____ on _____ is _____.
- When _____ then _____ because _____.

Connecting Evidence to Claims

Explain data trends.

- Based on _____, I think _____.
- In the data . . .

Applying Reasoning

Provide a connection between the evidence and claim.

- Since _____, that means _____.
- Based on the evidence, we can conclude _____ because _____.
- The data builds a case that _____ because _____.

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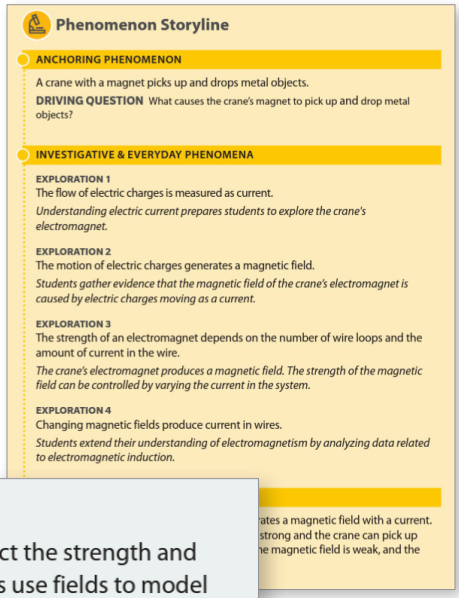
Are you implementing phenomena-based science instruction?

Coherent Phenomenon Storyline

Research-based science instruction includes phenomena-based learning, and with *HMH Into Science,* the coherent **Phenomenon Storyline** provides a connection across the units and lessons.

The **Unit Storyline** provides a path toward mastery of the Performance Expectations, making clear how each of the three dimensions builds logically and progressively over the course of units and lessons.



Phenomenon Storyline

ANCHORING PHENOMENON

A crane with a magnet picks up and drops metal objects.

DRIVING QUESTION What causes the crane's magnet to pick up and drop metal objects?

INVESTIGATIVE & EVERYDAY PHENOMENA

EXPLORATION 1
The flow of electric charges is measured as current.
Understanding electric current prepares students to explore the crane's electromagnet.

EXPLORATION 2
The motion of electric charges generates a magnetic field.
Students gather evidence that the magnetic field of the crane's electromagnet is caused by electric charges moving as a current.

EXPLORATION 3
The strength of an electromagnet depends on the number of wire loops and the amount of current in the wire.
The crane's electromagnet produces a magnetic field. The strength of the magnetic field can be controlled by varying the current in the system.

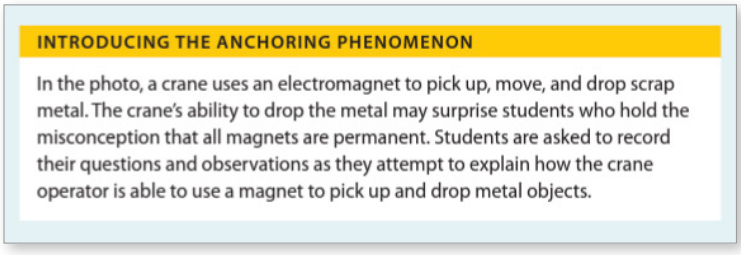
EXPLORATION 4
Changing magnetic fields produce current in wires.
Students extend their understanding of electromagnetism by analyzing data related to electromagnetic induction.

ates a magnetic field with a current.
strong and the crane can pick up
e magnetic field is weak, and the

Unit Storyline

In **Physical Science Unit 7,** students explore what factors affect the strength and direction of the magnetic force and the electric force. Students use fields to model these forces and investigate the relationship between these forces.

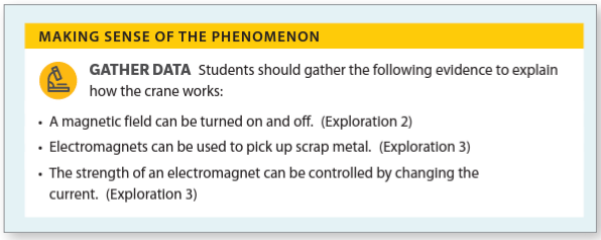
In **Lesson 1,** students explore properties of magnets and what factors affect the strength and direction of the magnetic force. In **Lesson 2,** students analyze factors that affect the strength and direction of the electric force. In **Lesson 3,** students use fields to model noncontact forces including the gravitational force, the magnetic force, and the electric force. And in **Lesson 4,** students investigate the relationship between electric current and magnetic fields.



INTRODUCING THE ANCHORING PHENOMENON

In the photo, a crane uses an electromagnet to pick up, move, and drop scrap metal. The crane's ability to drop the metal may surprise students who hold the misconception that all magnets are permanent. Students are asked to record their questions and observations as they attempt to explain how the crane operator is able to use a magnet to pick up and drop metal objects.

Each lesson begins with an **Anchoring Phenomenon** that students will explore throughout the lesson.



MAKING SENSE OF THE PHENOMENON

GATHER DATA Students should gather the following evidence to explain how the crane works:

- A magnetic field can be turned on and off. (Exploration 2)
- Electromagnets can be used to pick up scrap metal. (Exploration 3)
- The strength of an electromagnet can be controlled by changing the current. (Exploration 3)

Gather Data prompts provide opportunities for students to record data that may be used as evidence to explain the phenomenon—such as lab results and observations.

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HMH Into Science unit and lesson pacing is developed around the Core Path and a daily 45-minute class period. But because the lessons were developed using the 5E instructional model, they can be flexibly adjusted to meet classroom needs.

Section	Core Path	Customizable Options
PHYSICAL SCIENCE Unit 7 Electric and Magnetic Forces	**24.5 days**	**Additional**
Lesson 1 The Magnetic Force	6.5 days	+1–3 days
Lesson 2 The Electric Force	5.5 days	+1–3 days
Lesson 3 Fields	4.5 days	+1–3 days
Lesson 4 Electromagnetism	5.5 days	+1–3 days
Unit Materials	2.5 days	+1–2 days

At the lesson level, the Core Path ensures standards coverage. Customizable options can be used to reinforce content, as extension or as assessment. At the unit level, options for assessment can be selected to best support your students in the time you have available. Additional opportunities for enrichment are also provided for each unit.

Lesson	Core Path	Customizable Options
Engage: Anchoring Phenomenon	✓	
Explore-Explain: Explorations with Hands-On Labs	✓	
Explore-Explain: Hands-On Lab Worksheets	✓	
Elaborate: Take It Further		✓
Evaluate: Anchoring Phenomenon	✓	
Evaluate: Reflect and Summarize; Checkpoints		✓
Lesson Quiz		✓
Unit Assessment	**The Core Path allots 2.5 days to unit assessment for each unit.**	
Unit Pretest	0.5 day	
Unit Project	4–5 days (may require customized unit pacing)	
Unit Review	0.5 day	
Unit Performance Task	1 day	
Unit Test	1 day	
Performance-Based Assessment	2 days	
Additional Unit Resources	**These opportunities for enrichment can be used as time allows.**	
You Solve It	1 day	
Connect Your Learning (Unit Phenomenon)	0.5 day	
Unit Starter	0.5 day	
Unit Connections	0.5 day	

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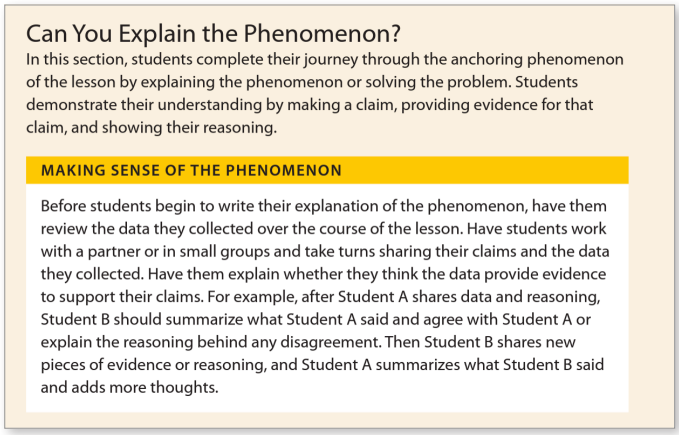
How will you allow students to demonstrate understanding?

Formative Assessments

HMH Into Science provides formative assessments to give you maximum flexibility in assessing what your students know and can do, as well as where they may need additional support.

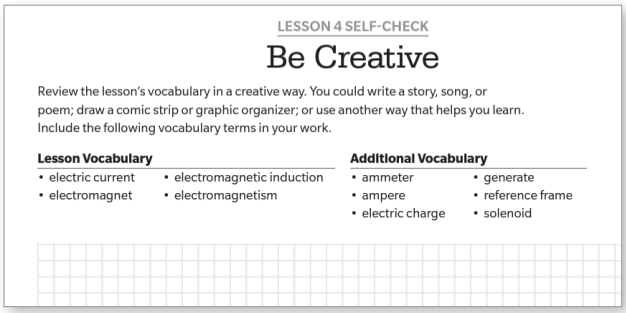


Can You Explain the Phenomenon?

In this section, students complete their journey through the anchoring phenomenon of the lesson by explaining the phenomenon or solving the problem. Students demonstrate their understanding by making a claim, providing evidence for that claim, and showing their reasoning.

MAKING SENSE OF THE PHENOMENON

Before students begin to write their explanation of the phenomenon, have them review the data they collected over the course of the lesson. Have students work with a partner or in small groups and take turns sharing their claims and the data they collected. Have them explain whether they think the data provide evidence to support their claims. For example, after Student A shares data and reasoning, Student B should summarize what Student A said and agree with Student A or explain the reasoning behind any disagreement. Then Student B shares new pieces of evidence or reasoning, and Student A summarizes what Student B said and adds more thoughts.



LESSON 4 SELF-CHECK

Be Creative

Review the lesson's vocabulary in a creative way. You could write a story, song, or poem; draw a comic strip or graphic organizer; or use another way that helps you learn. Include the following vocabulary terms in your work.

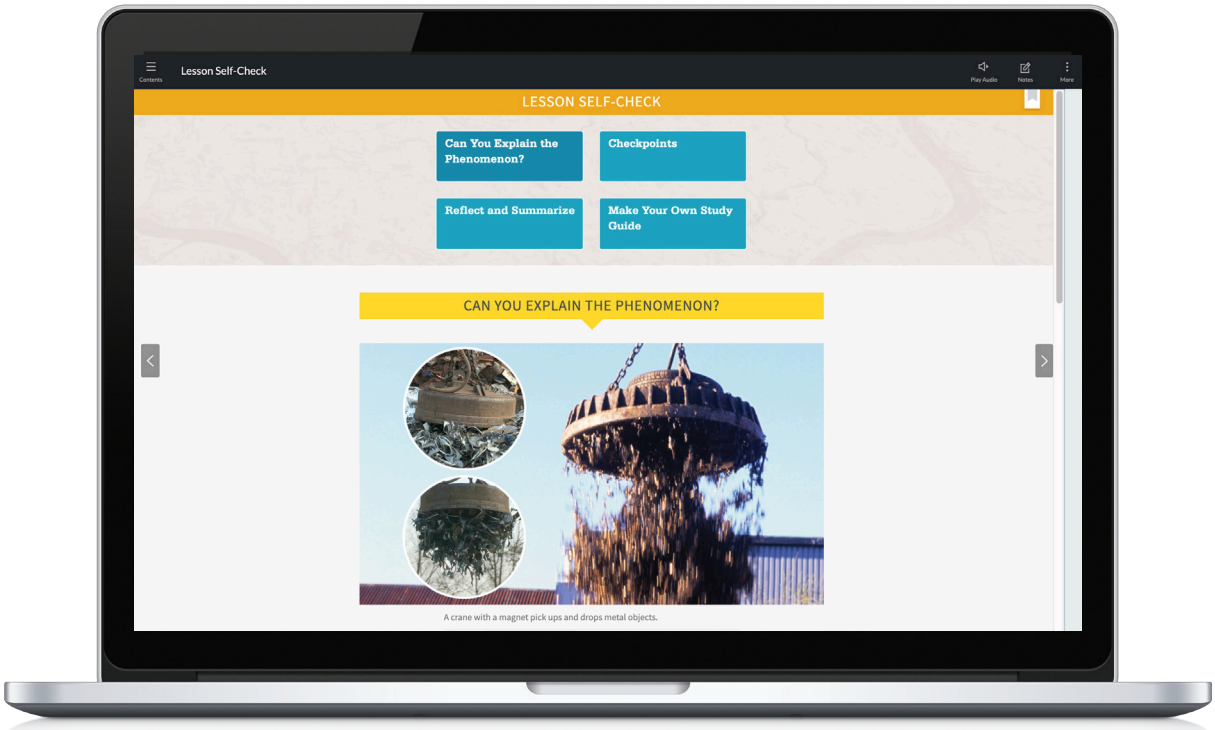
Lesson Vocabulary

- electric current
- electromagnet
- electromagnetic induction
- electromagnetism

Additional Vocabulary

- ammeter
- ampere
- electric charge
- generate
- reference frame
- solenoid

During the **Lesson Self-Check** students reflect and summarize what they learned in the Explorations. Then they revisit the "Can You Explain the Phenomenon?" section that was presented at the beginning of the lesson.



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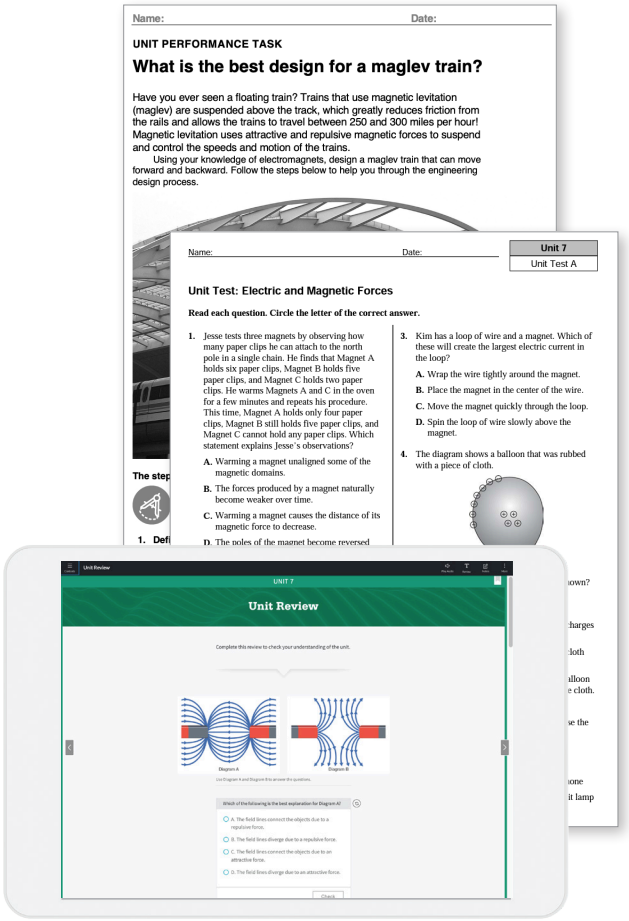
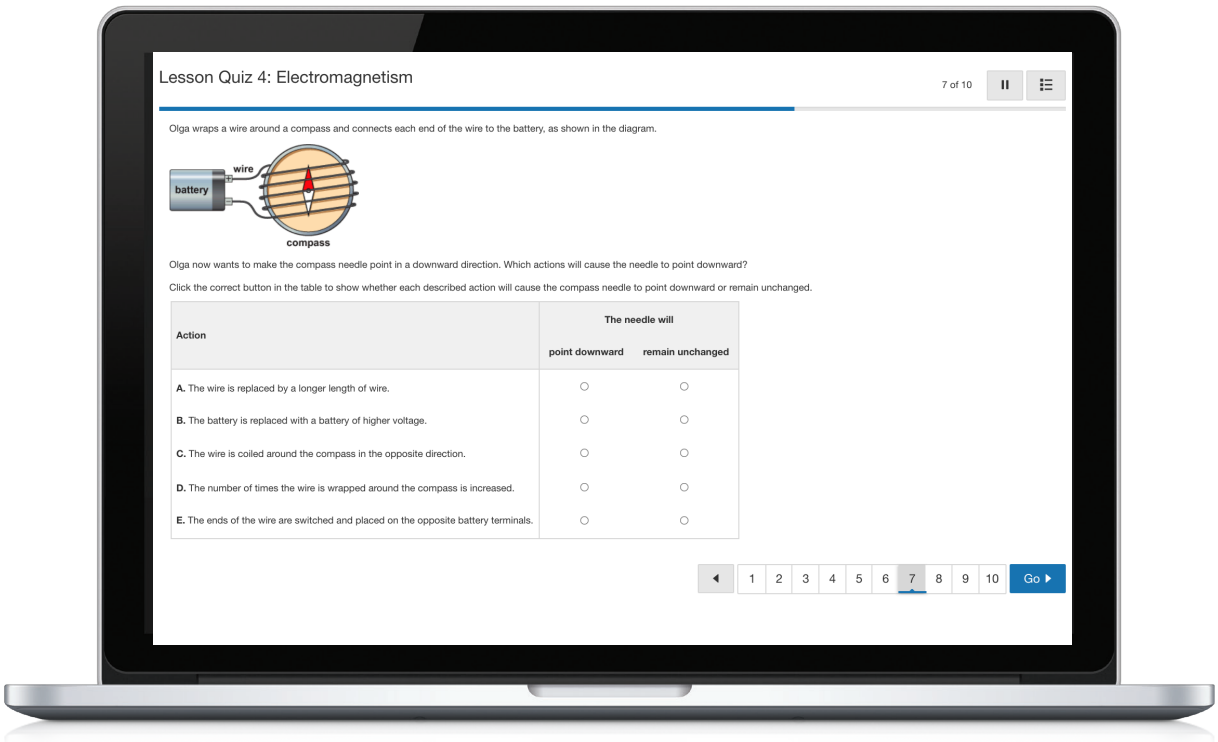
Summative Assessments

Monitor progress and mastery with a wide variety of summative assessments including print, digital, and hands-on assessments:

- The **Lesson Quiz** provides a quick assessment of each lesson objective and of the portion of the Performance Expectation aligned to the lesson.
- The **Unit Review** provides students with an opportunity for a quick assessment of the Performance Expectations aligned to the unit.
- The **Performance Task** provides students with an opportunity to collaborate with classmates in order to practice or be assessed on aspects of the Performance Expectations aligned to the unit.
- **Unit Test A** provides an in-depth assessment of the Performance Expectations aligned to the unit. **Unit Test B** can be used to assess students who need extra support.





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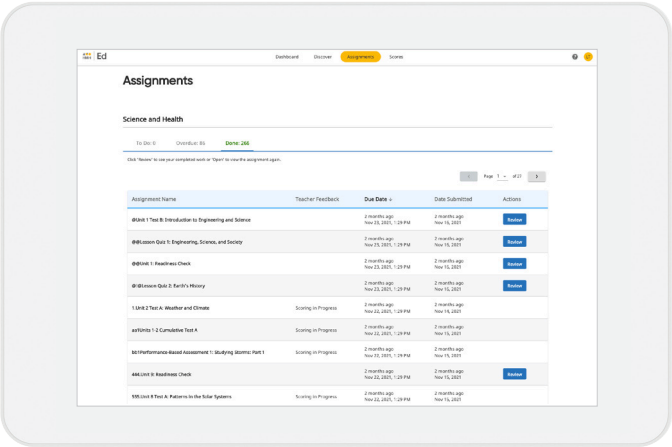
How do you connect with your students and their families?

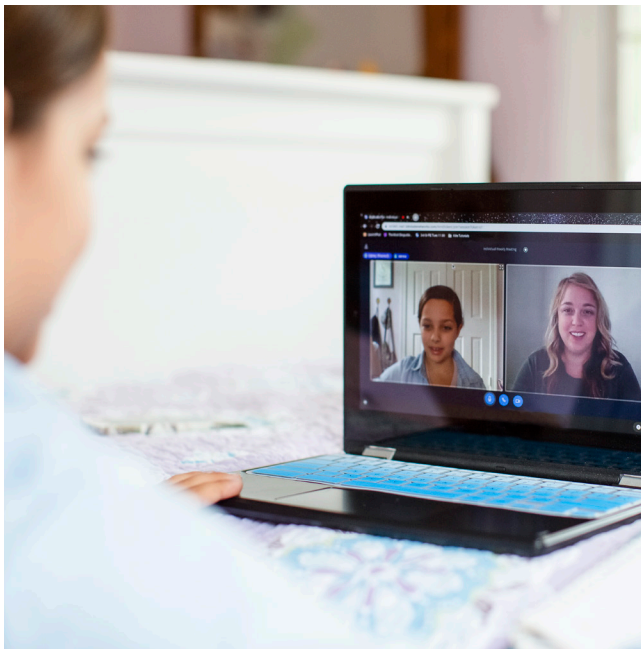
Ed, the HMH Learning Platform, supports both in-person and online learning. The flexibility of *HMH Into Science* allows for data across all four Disciplines to remain in one digital experience as educators and students move between units. Instruction can be assigned and completed right from *Ed*, and results can be shared from teacher to student easily. Teacher's Corner™ and Family Room™ provide the resources educators and caregivers need to support students.

With ***HMH Into Science*** students can:

- Access their course materials and interactive components
- Use their single sign on to access and complete assignments
- Review scores and feedback



The Assignments tab enables students to view their assignments for all Disciplines and units in a single place.



Launch a Virtual Classroom

With *HMH Into Science*, instruction can easily be delivered in a virtual environment. Links directly to Microsoft Teams®, Google Meet™, and Zoom® allow teachers to set up a web conference call right from within *Ed*.

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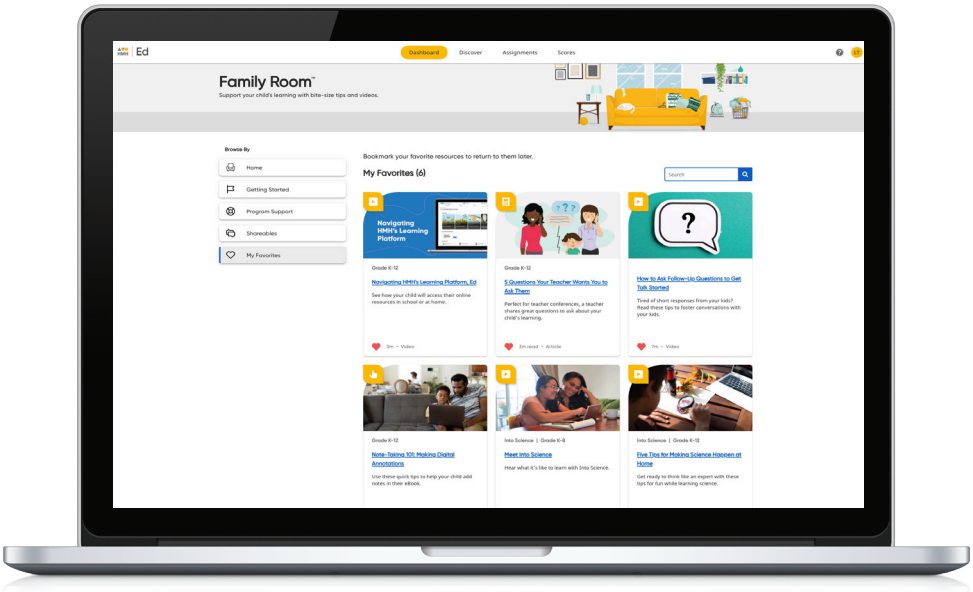
Teach and Learn Anywhere

Virtual learning can be a valuable and imperative tool. We understand that there are multifaceted challenges that can prevent students from accessing the internet. HMH is committed to access for all students, from anywhere.

The *HMH Go* app is available for Android™, iOS®, and laptops (including Chromebook™ devices). The app enables users to work on core content offline and sync it back up once they're online.



Family Room–Created with Caregivers in Mind

Family Room provides all the information and resources caregivers need, in one place, to support their student's learning. With their student's *Ed* login, caregivers can access:

- Their student's assignments, online learning sessions, and resources
- On-demand, bite-size articles, videos, and tips from teachers and other families
- Resources in both English and Spanish

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How can you get the professional learning support you need?

Connected learning means *you* continue to learn, too. Access HMH's best-in-class professional learning offerings live-online, in person, and asynchronously, which can work with any school or district no matter the size.

On-Demand Program Support

Teacher's Corner puts best practices at your fingertips, on your schedule. Plus, free **Live Events** give you the opportunity to build community around solutions to today's instructional challenges. Your subscription includes continuous implementation support all year long. Get energized about *HMH Into Science* and learn best practices to maximize your time.

Teachers benefit from:

- On-demand, solution-specific teaching resources
- Live events with your colleagues
- Printable parent and caregiver letters in English and Spanish to help with at-home support and more!

What types of resources are included?

- **Getting Started** resources are the perfect refresher for a returning teacher or a thorough introduction for someone teaching *HMH Into Science* for the first time.
- **Program Support** features in-depth teaching support and professional learning based on the programs a teacher is using.
- **Breakroom** was designed to be a place where teachers can extend their learning beyond their program. It includes teacher reflections and ideas; inspirational videos from prominent researchers, speakers, and practitioners; practical support for relevant or hot topics; and self-care advice.

For more information, please visit us at **hmhco.com/classroom-solutions/professional-services**

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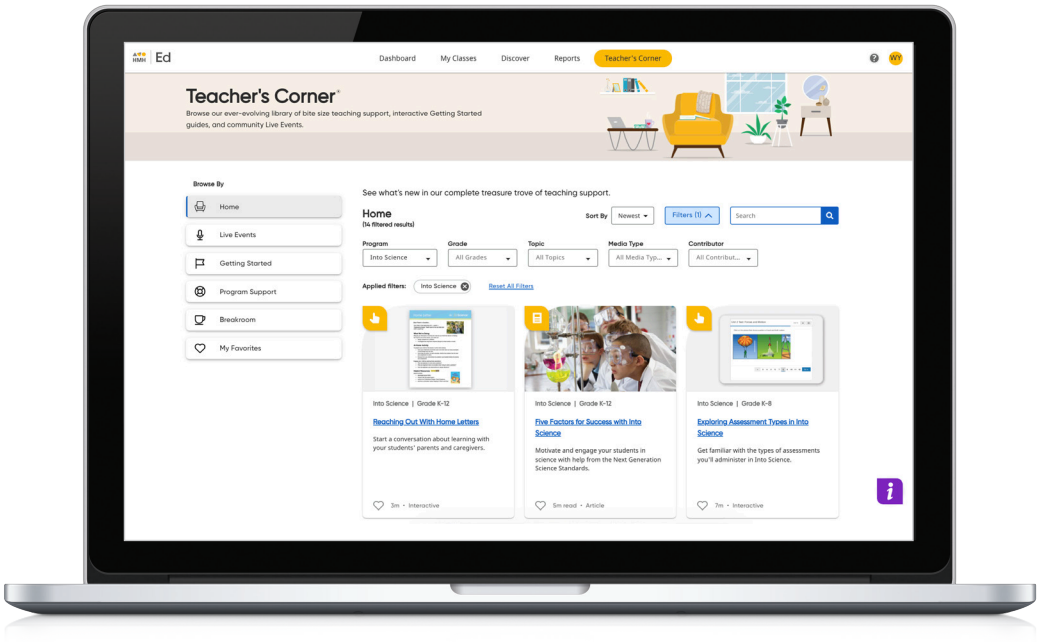

HMH | Professional Learning

Flexible Professional Development

The **Coaching Membership**, available at an additional cost, allows you to partner with an HMH Instructional coach to meet your district's specific needs. New and veteran teachers alike will benefit from collaborative sessions that meet them where they are and provide support from day 1 to 180. Driven by the award-winning platform **HMH Coaching Studio**, HMH Professional Learning provides the perfect opportunity to focus upon standards-aligned instruction and practice.

The **Coaching Studio** is your online collaboration center. Meet with your coach and your team to boost communication and collaboration. Engage with videos and resources shared by your Coach and team, or upload your own videos or resources to share. Coaches help translate theory into practice and ideas into behaviors.

TECH & LEARNING AWARDS OF EXCELLENCE BACK TO SCHOOL SECONDARY EDUCATION WINNER

//CODiE// 2021 SIIA CODiE FINALIST

THE EDTECH AWARDS COOL TOOL FINALIST 2020

PLPG CERTIFIED PROVIDER

Did you know HMH Professional Learning has been nationally recognized for our ability to support implementation and provide ongoing teacher and leader professional development?

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HMH | into Science®

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Flexible, Phenomenal, Student-Centered Science

To learn more visit

hmhco.com/MSIntoScience