

Updated for the 2025–26 school year and aligned to Maryland's Next Generation Science Standards and the MSDE Science HQIM Identification Framework.

Delivering High-Quality Instructional Materials Through Phenomena-Driven, Three-Dimensional Learning

Alignment to the Maryland State Department of Education's Science High-Quality Instructional Materials (HQIM) Identification Framework, operationalized through Maryland's Next Generation Science Standards.

Introduction

Maryland's own results tell the story. On the 2024–25 Maryland Integrated Science Assessment (MISA), just 25.6% of fifth graders scored proficient in science, far behind English language arts (50.8%) and roughly level with mathematics (26.5%). Science is, by the state's own numbers, among the disciplines furthest behind. Inquisitive PreK–5 Science is a comprehensive, phenomena-based curriculum intentionally designed to close that gap while it meets and exceeds the Maryland State Department of Education's definition of High-Quality Instructional Materials (HQIM).

Inquisitive delivers full alignment to Maryland's Next Generation Science Standards, which Maryland adopted in 2013 as one of the 26 NGSS lead states and which the grade 5 and grade 8 MISA now assess, while ensuring instruction is affirming, grade-level and standards aligned, intentionally designed, and supported by robust educator resources.

These qualities are not addressed independently; they are realized through the four categories of the MSDE Science HQIM Identification Framework, which the Maryland State Board of Education adopted on April 30, 2024 and which was developed in collaboration with Student Achievement Partners: Designed to Affirm Students, Grade-Level and Standards Aligned, Instructional Design, and Educator Supports. Each is embedded in every lesson.

Instruction is structured through the 5E model (Engage, Explore, Explain, Elaborate, Evaluate), including the engineering design process integral to Maryland's engineering, technology, and applications of science (ETS) standards, and integrates high-impact research from John Hattie and Robert J. Marzano, ensuring that evidence-based practices are consistently visible in classroom implementation. This integrated approach supports the world-class science learning experience envisioned by the Blueprint for Maryland's Future.

1. Alignment to Maryland's Next Generation Science Standards

Inquisitive meets and exceeds alignment to Maryland's Next Generation Science Standards by embedding three-dimensional learning, Science and Engineering Practices (SEPs), Disciplinary Core Ideas (DCIs), and Crosscutting Concepts (CCCs) within every lesson and across units. Standards are not taught in isolation; they are integrated into coherent learning sequences that require students to apply knowledge in meaningful contexts.

Teachers observe students regularly engaging in modeling, data analysis, and evidence-based reasoning aligned to grade-level performance expectations. Because the grade 5 and grade 8 MISA assess these same three-dimensional performance expectations, Inquisitive's anchoring-phenomenon lesson design maps directly to the way Maryland measures science learning.

This alignment is operationalized through the framework's Grade-Level and Standards Aligned category and its Sensemaking and Coherence domains. Inquisitive is fully aligned to Maryland's Next Generation Science Standards; see the [Inquisitive Maryland NGSS Crosswalk](#) for full lesson-by-lesson documentation, with evidence identified as Strong Evidence against the indicators of the MSDE Science HQIM Rubric.

Result: Students demonstrate consistent, observable three-dimensional learning aligned to Maryland's performance expectations.

The screenshot displays the Inquisitive interface for a lesson titled "How do bees help plants?". The main image shows a close-up of a bee on a yellow flower. Below the main image are three smaller thumbnail images related to the lesson. To the right of the main image is a list of standards and a lesson vocabulary section.

Standards

- NGSS Performance Expectations
- 2-LS2-2
- Science and Engineering Practices (SEPs)
- Developing and Using Models
- Disciplinary Core Ideas (DCIs)
- Developing Possible Solutions
- Interdependent Relationships in Ecosystems
- Crosscutting Concepts (CCCs)
- Structure and Function

Lesson Vocabulary

- pollinate

2. Research–Based and/or Externally Validated

Inquisitive is currently under review by the Office of Teaching and Learning of the Maryland State Department of Education (MSDE), which aims to support local decision-makers by providing ongoing reviews that help identify high-quality instructional materials (HQIM) from participating vendors.

Hawaii's Department of Education Office of Curriculum and Instructional Design (OCID) recommended Inquisitive without reservations as a high-quality comprehensive program, per the American Institutes for Research's (AIR) review of submitted materials, and Inquisitive is aligned with Hawaii's Next Generation Science Standards (NGSS). Inquisitive is also a state-approved comprehensive science curriculum with the Idaho State Department of Education, aligned with Idaho's NGSS-informed, three-dimensional Science Content Standards.

This cross-state track record is especially relevant to Maryland, because Maryland's science standards are themselves the Next Generation Science Standards: Inquisitive has already proven its alignment to the exact standards architecture Maryland has adopted.

Inquisitive is a multi-award-winning science and STEM resource, recognized for excellence in educational innovation, high-quality content, hands-on learning, and meaningful classroom impact. Its awards span STEAM learning, primary education technology, science innovation, and effective teaching and learning: a reflection of Inquisitive's commitment to creating engaging, educator-friendly resources that help students develop deep understanding and curiosity.

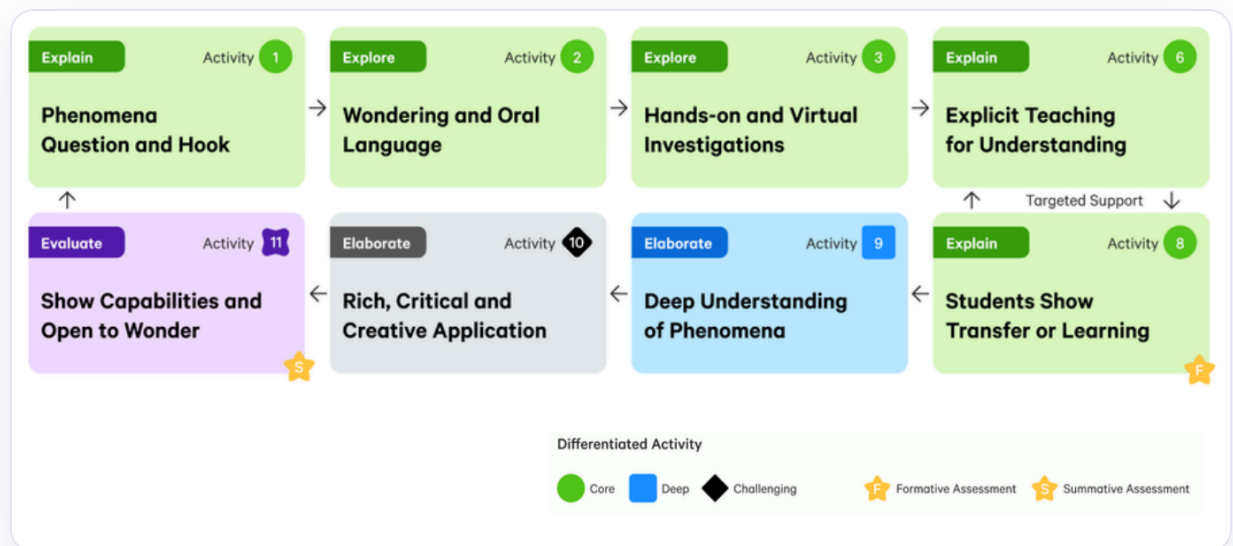
Inquisitive PreK–5 Science is evergreen: continuously improved through teacher feedback, new research, and evolving classroom needs, so schools always teach the current version rather than a single frozen edition that stands still for years. Maryland evaluates high-quality instructional materials through its own review process, in which Maryland educators score materials against the MSDE Science HQIM Frameworks and their companion rubrics. This whitepaper's crosswalk documentation provides the evidence of alignment that review requires.

Inquisitive meets and exceeds research-based criteria by embedding high-impact instructional strategies from Rodger W. Bybee, John Hattie, and Robert J. Marzano into lesson design. Inquisitive lessons are structured around the 5E model, developed by Rodger W. Bybee, guiding students through a coherent, inquiry-driven process that builds deep understanding of scientific concepts.

Teachers consistently articulate clear learning intentions and success criteria (Hattie), facilitate structured peer discussion, and provide timely, actionable feedback. Hattie's meta-analyses identify clear learning intentions and feedback among the highest-yield instructional moves, with effect sizes well above the 0.40 hinge point associated with a year's academic growth.

Students engage in scaffolded learning experiences supported by worked examples, visual models, and structured representations of thinking (Marzano). Classrooms show evidence of students reflecting on their thinking, investigating, collecting evidence, revising ideas, and engaging in metacognitive processes as part of ongoing learning. These practices reflect the framework's Instructional Design category, where students actively construct and refine understanding.

Result: Instruction reflects validated, high-impact practices that accelerate student understanding and support deeper learning.



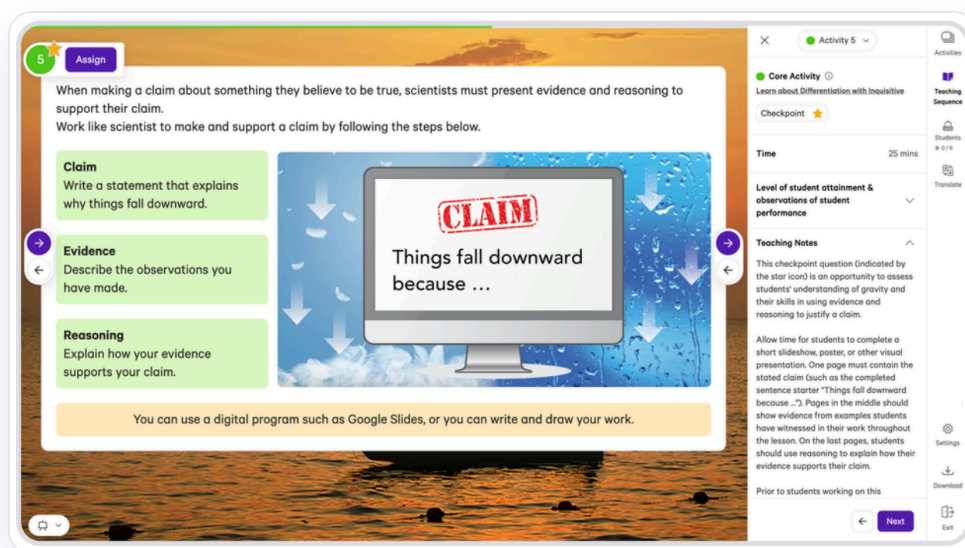
3. Comprehensive: Engaging Texts, Tasks, and Assessments

Inquisitive meets and exceeds expectations for comprehensiveness by providing a complete, integrated system of instruction that includes multimedia resources, hands-on investigations, structured tasks, and embedded assessments. Students interact with videos, images, eBooks, and real-world data as part of their investigations.

Assessment is embedded throughout and designed to elicit observable evidence of three-dimensional learning, including discussions, written explanations, models, and projects. This mirrors the framework's Assessment Coherence expectation, ensuring alignment between instruction and assessment.

Teacher-facing materials reduce preparation and build confidence, with background science, anticipated student responses, common misconceptions, and facilitation guidance embedded in every lesson, reflecting the framework's Educator Supports category. Every lesson includes a three-dimensional formative assessment task (indicated with the Gold Star), supported by a multi-dimensional grading rubric and recommendations for support.

Result: Instruction, engagement, and assessment are fully integrated, providing a coherent and comprehensive learning experience.

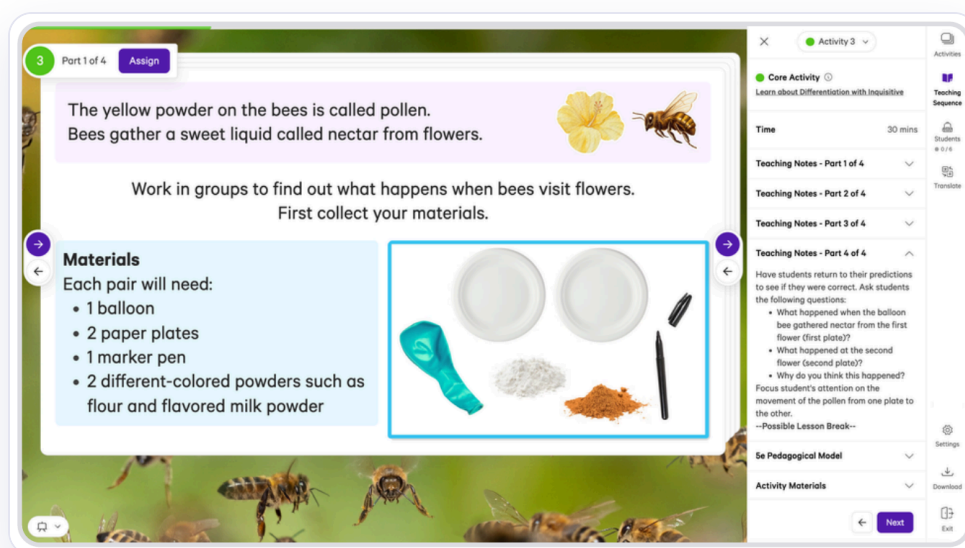


4. Fostering Vibrant Student Learning Experiences

Inquisitive meets and exceeds expectations for vibrant learning by positioning students as active participants in inquiry. Each unit begins with a compelling phenomenon that sparks curiosity and drives sustained investigation.

Classrooms show evidence of students asking questions, testing ideas, engaging in hands-on investigations, and applying their learning to real-world problems. This aligns directly with the framework's Instructional Design category and its Student Agency domain, ensuring that learning is active, relevant, and intellectually engaging.

Result: Students are consistently engaged in meaningful, inquiry-driven learning that promotes curiosity, persistence, and deep understanding.



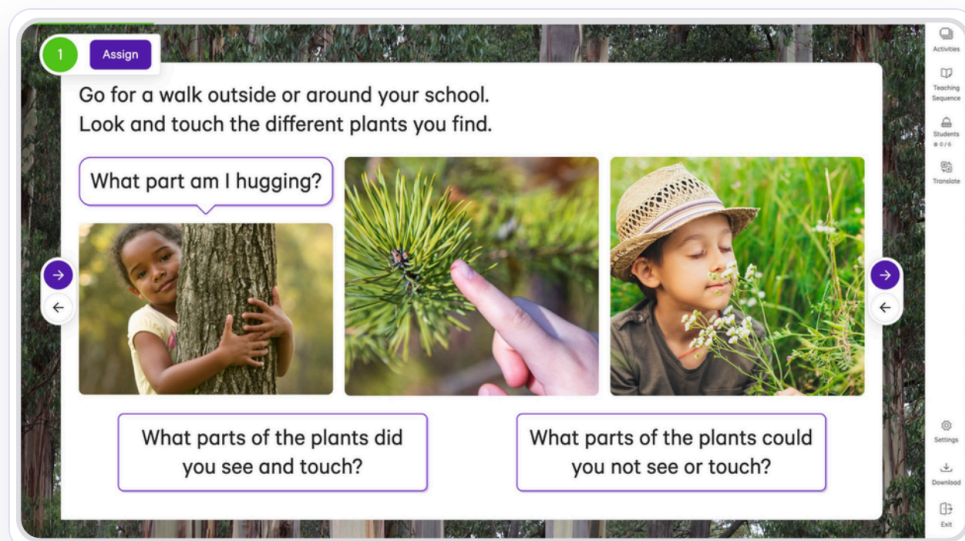
5. Culturally Relevant and Free from Bias

Inquisitive meets and exceeds expectations for cultural relevance by intentionally connecting learning to students' identities, communities, and lived experiences. Phenomena are selected to reflect both local and global contexts, including phenomena drawn from Maryland's own geography and environment, such as the Chesapeake Bay watershed, coastal and Piedmont ecosystems, and agricultural cycles, ensuring relevance while expanding perspectives.

Students encounter diverse scientists, viewpoints, and real-world applications, avoiding single narratives and promoting inclusive representation. This matters in Maryland, where roughly a third of students are Black and a third White, more than one in five are Latinx, and more than one in ten are multilingual learners.

This aligns with the framework's Designed to Affirm Students category and its Culturally Responsive-Sustaining Instruction domain, which calls for students' cultural and linguistic backgrounds to be treated as assets and sources of validation in the learning experience.

Result: Students see themselves reflected in science and engage in learning that is both relevant and inclusive.



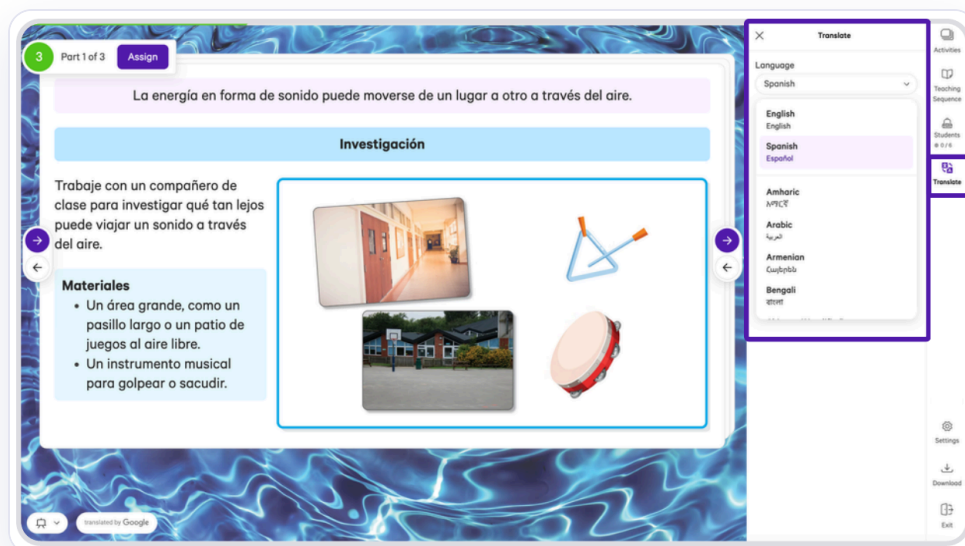
6. Accessible for All Students

Inquisitive meets and exceeds expectations for accessibility by ensuring all students can engage with rigorous, grade-level science. Materials are available in 50+ languages across all grades PreK-5 and include features such as text-to-speech, closed captions, and flexible digital and print formats, designed to WCAG 2.1 AA and Section 508 accessibility standards.

Teachers consistently use built-in scaffolds, including differentiated prompts and supports, to provide multiple entry points without lowering cognitive demand. Students demonstrate understanding through a variety of modalities, including verbal, visual, written, and digital responses.

This reflects the framework's Language Affirming Instruction domain and its Supports and Scaffolds expectations under Monitoring Progress and Supporting Students, ensuring that multilingual learners and students with diverse learning needs develop scientific sensemaking and language simultaneously.

Result: All students access and succeed in rigorous science learning, regardless of background or starting point.



Conclusion

Inquisitive PreK-5 Science meets and exceeds the four categories of the MSDE Science HQIM Identification Framework by operationalizing them through phenomenon-driven, three-dimensional learning.

- Students are affirmed through culturally responsive-sustaining and language affirming instruction
- Learning is grade-level, standards aligned, and coherent across units
- Instruction is intentionally designed to foster student agency, with embedded assessment and support
- Educators are equipped with knowledge, principled adaptation guidance, and usable tools
- Research-based practices are embedded in daily instruction
- Accessibility ensures all students engage in rigorous science

Classrooms using Inquisitive show clear, observable evidence of students actively making sense of phenomena, applying scientific practices, and engaging deeply in learning. At a moment when only about one in four Maryland fifth graders reaches proficiency in science, and as the Blueprint for Maryland's Future calls for a world-class education for every student, Inquisitive offers a curriculum already built on the Next Generation Science Standards Maryland has adopted.

Final Result: Inquisitive delivers a coherent, equitable, and research-based science program that not only aligns with MSDE expectations, but consistently brings those expectations to life in classroom practice.

Contact

 202 449 7200

 support.us@inquisitive.com

 inquisitive.com

References

- Hattie, J. (2009). *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*. London & New York: Routledge. ISBN 978-0-415-47618-8.
- Marzano, R. J. (2007). *The Art and Science of Teaching: A Comprehensive Framework for Effective Instruction*. Alexandria, VA: ASCD.
- Bybee, R. W., Taylor, J. A., Gardner, A., Van Scotter, P., Powell, J. C., Westbrook, A., & Landes, N. (2006). *The BSCS 5E Instructional Model: Origins, Effectiveness, and Applications*. Colorado Springs, CO: BSCS.
- Bybee, R. W., & Landes, N. M. (1990). *The 5E Instructional Model*.
- NGSS Lead States. (2013). *Next Generation Science Standards: For States, By States*. Washington, DC: The National Academies Press.
- Maryland State Department of Education. (2025). *Science High-Quality Instructional Materials Identification Framework*. Adapted with permission from Student Achievement Partners. Baltimore, MD: MSDE.
- Maryland State Department of Education. *Science High-Quality Instructional Materials Rubric*. marylandpublicschools.org
- Maryland State Department of Education. *Maryland Integrated Science Assessment (MISA)*. marylandpublicschools.org
- Maryland State Department of Education. (2025). *Maryland Comprehensive Assessment Program (MCAP) 2024–2025 Results*. marylandpublicschools.org
- Maryland General Assembly. (2021). *Blueprint for Maryland's Future*.
- Maryland State Department of Education. *Maryland Environmental Literacy Standards Framework*. marylandpublicschools.org
- Student Achievement Partners. *Essential x Equitable Instructional Practice Framework*.
- Victorian Department of Education and Training. (2019). *High Impact Teaching Strategies*. education.vic.gov.au