

CURATE

Curriculum
Reviews by Teachers

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HELLO AND WELCOME

TO A CURATE REPORT!

The CURriculum RATings by TEachers (CURATE) project supports the Department's Curriculum Matters: IMplement MA initiative to strengthen curriculum in Massachusetts through educator access to high-quality instructional materials (HQIM) and curriculum-based professional learning (CBPL) to support skillful use. The initiative is rooted in the following theory of action:

- *If* LEAs and prep providers have the information and support they need to give in-service and pre-service teachers the tools to access, evaluate, adopt, and implement high-quality, standards-aligned, culturally responsive curricular materials
- *and if* sustainable and collaborative professional learning structures help in-service and pre-service teachers use those materials to orchestrate student learning experiences skillfully
- *then* teacher and student experiences, and ultimately student outcomes, will improve.

Through the CURATE project, the Department convenes Massachusetts teachers to review and rate evidence of alignment and quality of comprehensive core curricular materials. The CURATE report reflects the panel's deliberations and consensus ratings; it is provided as a resource to support local education agencies to make informed local decisions about curricula, as part of a robust, inclusive, and equity-centered curriculum review and selection process with input from diverse stakeholders, including families (see IMplement MA Guide: Phases 1 and 2).

High-quality instructional materials are aligned to the Massachusetts content, practice, and language development standards; are culturally responsive; and exhibit a coherent sequence of target skills, instructional practices, and understandings. They also are accessible to all students, including students with disabilities, students working above and below grade level, English learners, and students of other diverse identity markers. Ultimately, to actualize the Educational Vision for Massachusetts and cultivate deeper learning for students, HQIM should

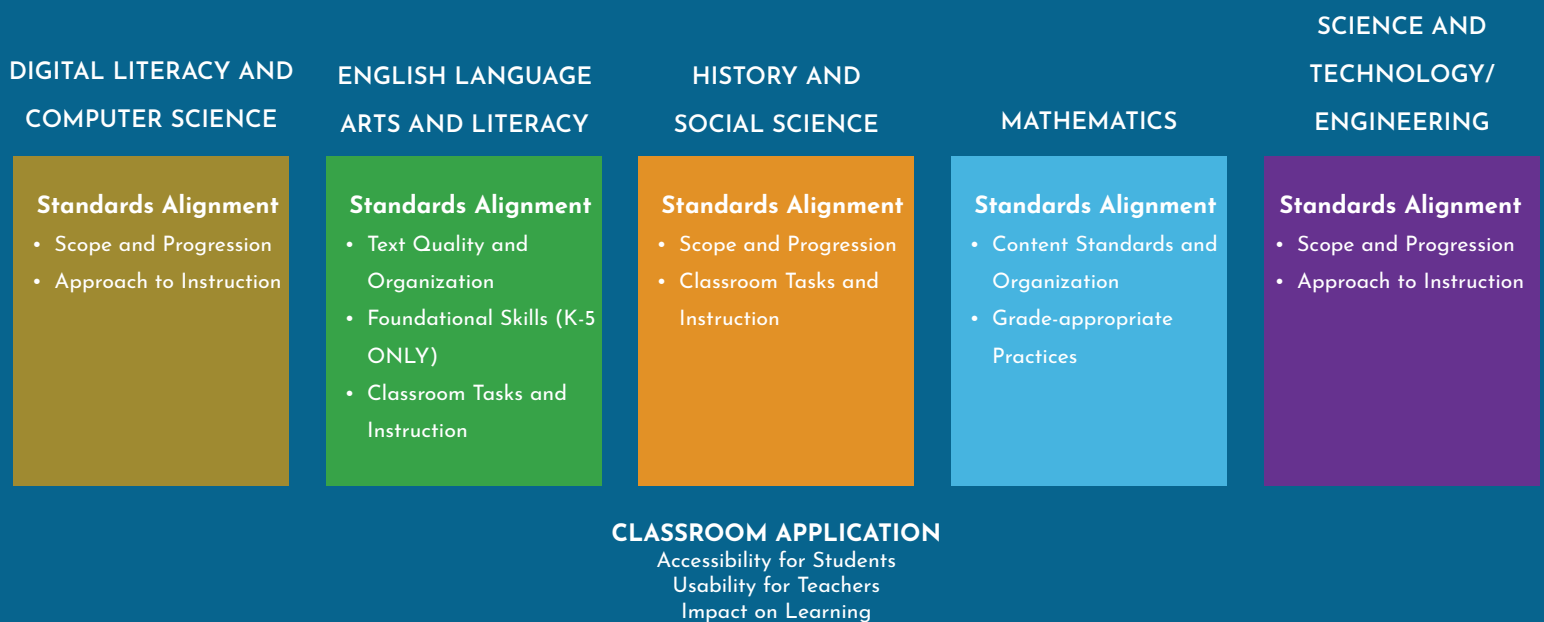
strongly support teachers in their everyday work to be inclusive and culturally and linguistically sustaining.

Although CURATE-reviewed curricular products may be found to meet DESE's definition of "high quality," it does not mean the curricular product is perfect (see "CURATE Ratings Key"). CURATE evaluates the instructional design and content of the materials but does not and is not intended to measure required curriculum-based professional learning and other supportive school/district systems and structures that impact implementation quality. The power within high-quality instructional materials is amplified by effective educators who are supported to develop the curriculum literacy to facilitate learning experiences that enable all learners to excel at grade level and beyond.

Local educational agencies should review CURATE reports and use the information therein to investigate the extent to which the specific product will well serve and strongly support students and teachers based on the local education agency's local assets, needs, and equity priorities.

CURATE REVIEWS AND REPORTS

Each CURATE panel uses a content-specific rubric for their review of evidence of alignment and quality, coherent with the [MA Curriculum Frameworks](#) and [Standards of Effective Teaching Practice](#). The content rubric guides each panel's review in two domains: Standards Alignment (specific to each content rubric) and Classroom Application (consistent across all content rubrics).



Standards Alignment: Materials eligible for a CURATE review have met a minimum threshold for alignment to national college and career-ready standards, which overlap with the Massachusetts standards, with a few MA differences in emphasis and priorities. These differences or priorities are captured in the relevant CURATE content rubric indicators (e.g., authentic application of grade-level language standards in ELA/Literacy, student academic discourse in mathematics, and affirming and valuing diverse identities, backgrounds, and perspectives in all content areas).

Panel Review Guiding Question: *What are the strengths and areas for growth in the materials when considering the extent to which they meet expectations for alignment to Massachusetts college- and career-ready content, practice, and English language development standards?*

Classroom Application: This domain pertains to how well the materials support diverse learners (e.g., students with disabilities, multilingual learners, students working above and below grade level, and students of other diverse identity markers) and the teachers (new and experienced) tasked with doing so (see MA Teaching Standards I and II). Schools/Districts in the process of investigating which available high-quality instructional materials (HQIM) would best serve and strongly support students and teachers based on their local equity priorities, assets, and needs should use the information in this domain as a starting place for identifying distinctions among standards-aligned products.

Panel Review Guiding Question: *What are the strengths and areas for growth in the materials when considering the extent to which they meet Massachusetts expectations for well serving and strongly supporting accessibility for diverse learners and usability for busy teachers?*

Culturally and Linguistically Sustaining Practice: What sets CURATE apart is that reviews have always been rooted in Massachusetts equity priorities (diversity in representation, accessibility, inclusion), particularly for students from historically underserved groups and communities, coherent with the Educational Vision. Embedded throughout each content rubric in both domains are indicators and guidance that inform educators' consideration for diverse learners served in schools/districts across Massachusetts. A summary of findings about the extent to which the reviewed product (through design, approach, texts, tasks, practices, guidance, and resources) support teachers in their everyday work to provide grade-appropriate instruction that is inclusive and culturally and linguistically sustaining will be included with reports published during SY24-25 and beyond.

Panel Review Guiding Question: *To what extent do the materials meet expectations for alignment to Massachusetts college and career-ready content standards AND support inclusive and culturally & linguistically sustaining practice?*

CURATE RATINGS KEY



MEETS EXPECTATIONS: Most or all evidence indicates high quality; little to none indicates low quality. Materials may not be perfect, but Massachusetts teachers and students would be **well served and strongly supported** by them.



PARTIALLY MEETS EXPECTATIONS: Some evidence indicates high quality, while some indicates low quality. Teachers in Massachusetts would **benefit from having these materials** but need to supplement or adapt them substantively to serve their students well.



DOES NOT MEET EXPECTATIONS: Little to no evidence indicates high quality; most or all evidence indicates low quality. Materials **would not substantively help** Massachusetts teachers and students meet the state's expectations for teaching and learning.



NOT APPLICABLE (N/A): Materials are *without* foundational skills and will need to be *paired with* a strong foundational skills resource to address all components of the core literacy block (see [Mass Literacy](#)). This rating is provided only to ELA/Literacy K-5 Foundational Skills, when applicable.



NOT RATED: Narrative information is provided.

FULL REPORT ISSUES AND SCIENCE, THIRD EDITION REVISED SEPUP/LAB-AIDS 2020 _____

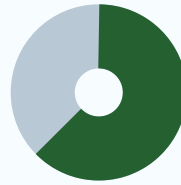
Issues and Science, Third Edition Revised (SEPUP/Lab-Aids, 2020) is a digital and print resource for Grades 6-8. Please see the [SEPUP/Lab-Aids website](#) and the publisher-provided information later in this report for product specifications. Grades reviewed: 6-8



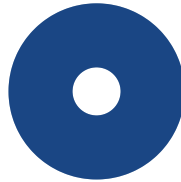
"I was impressed by the comprehensive teacher support materials, which include detailed instructions and background information that would benefit both new and experienced educators."

Massachusetts educator

STANDARDS ALIGNMENT

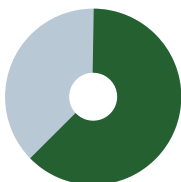
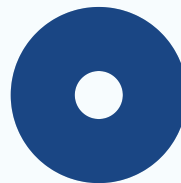


**SCOPE AND
PROGRESSION**

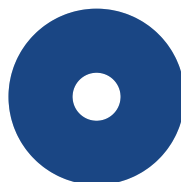


**APPROACH TO
INSTRUCTION**

CLASSROOM APPLICATION



**ACCESSIBILITY FOR
STUDENTS**



**USABILITY FOR
TEACHERS**



**IMPACT ON
LEARNING**

ALIGNMENT TO MASSACHUSETTS STANDARDS AND SUPPORTING INCLUSIVE AND CULTURALLY & LINGUISTICALLY SUSTAINING PRACTICE

<i>MA Priorities</i>	<i>The materials include/provide...</i>	<i>Teachers will need to augment materials with integrity to include/provide...</i>
MA-Specific STE Content Standards	• Alignment to most Grade 6-8 STE standards • Disciplinary Core Ideas (DCIs) and Science and Engineering Practices (SEPs) addressed at appropriate levels • Consistent opportunities for students to engage in literacy and math practices in the pursuit of science	• Massachusetts-specific STE standards 6.MS-PS-1-8 (MA), 7.MS-ETS3-1 (MA), 7.MS-ETS3-5 (MA), 8.MS-ETS2-4 (MA), 8.MS-ETS2-5(MA) as they are not explicitly or completely covered within core materials • Coherent progression of learning between units and across grade levels
Students with Disabilities (SWDs)	• Online versions of student books with read-aloud, page mask, text enlargement, dictionary, and translation features • Suggestions for increasing student access in the Strategies for Supporting Diverse Learners and Differentiated Instruction tabs • Access to Labsent videos for students to watch lab demonstrations • Embedded Literacy strategies to improve reading, listening, speaking, and writing skills	• Images or media to support academic vocabulary acquisition • Exemplars and/or assessment accommodations that support teachers in providing equitable assessment opportunities for diverse learners

MA Priorities	The materials include/provide...	Teachers will need to augment materials with integrity to include/provide...
English Learners (ELs)	• Strategies for increasing EL access in the Strategies for Supporting Diverse Learners tab • Student Sheets, scoring guides, rubrics, visual aids, assessments, student support resources, and student books available in English and Spanish • A Student Book in an online format with read-aloud, dictionary, and translation options for 45 languages • Embedded Literacy strategies to improve reading, listening, speaking, and writing skills	• Images or other media to support academic vocabulary acquisition • Translations of slides or print materials in languages other than English or Spanish • Explicit incorporation of home language or experiences into activities • Exemplars and assessment accommodations, including annotated exemplars of student work at different levels of English language development
Students Working Above or Below Grade Level	Working Above Grade Level • Options for enrichment in the Strategies for Supporting Diverse Learners and the Suggested Unit Enhancements tabs • Prompts for teachers to provide additional materials for students working above grade level to extend their scientific investigations • Suggested extension activities • Research activity suggestions for students working above grade level	Working Above Grade Level • Specific supports to extend learning for every lesson Working Below Grade Level • Exemplars and assessment accommodations that support teachers in providing equitable assessment opportunities for students • Strategies to identify and address misconceptions • Explicit strategies to adjust instruction based on assessment data

MA Priorities	The materials include/provide...	Teachers will need to augment materials with integrity to include/provide...
	Working Below Grade Level • Accommodations or modifications in the Strategies for Supporting Diverse Learners section • Student Sheets with pre-constructed data tables or graphic organizers • Embedded Literacy strategies to improve reading, listening, speaking, and writing skills • Suggested grouping strategies to support the diverse needs of students	
Diverse Representation & Perspectives	• Images and information about scientists and engineers that affirm and value diverse identities, backgrounds, and perspectives in multiple modules • Vignettes that draw on personal experiences of students in order to solicit student experiences	• Consistent use of questions and tasks that affirm and value diverse identities, backgrounds, and perspectives throughout all modules • Tailored Letters to parents and guardians containing unit-specific details and opportunities for families to share personal connections and diverse perspectives on content

STRENGTHS AND AREAS FOR GROWTH

STANDARDS ALIGNMENT

Scope and Progression



Materials build students' understanding of Disciplinary Core Ideas and allow students to engage in Science and Engineering Practices. Materials provide a suggested integrated scope and sequence that organizes the units into specific grade levels. Given the modular format of the curriculum, teachers will need to supplement materials to facilitate coherent progressions of learning across units and to connect learning within and across grade levels. Additionally, teachers will need to supplement materials to address every Massachusetts-specific standard.

Strengths

- Materials align to most grade-level standards. The materials are modular in design, allowing school districts flexibility to customize their scope and sequence. Units are categorized as Earth Science, Life Science, or Physical Science, and each category contains 5 to 6 units with 9 to 18 activities per unit. A suggested integrated scope and sequence is provided that organizes the units into grades and a sequence within each grade (EdReports, 2Aii). A specific Massachusetts suggested scope and sequence provides standards correlations that map how grade-specific Massachusetts standards are addressed in other grade-level units. For instance, the Massachusetts suggested scope and sequence indicates that the "Chemistry of Materials" unit addresses 6.MS-PS1-7(MA) in activities 2, 3, 4, and 7. Disciplinary Core Ideas (DCIs) and Science and Engineering Practices (SEPs) are addressed at appropriate levels. The NGSS Overview and NGSS Correlations tabs list the Science, Technology, and Engineering (STE) standards, DCIs, SEPs, and Crosscutting Concepts (CCC), as well as the Common Core ELA/Literacy and Mathematics standards for each activity. The "Reproduction" unit has 4 standards-based performance expectations and 14 named activities, each with multiple DCIs, SEPs, and CCCs listed. Slide three of each activity slide deck also presents this information and indicates whether students are working toward mastery of, or applying, the identified STE standards.

Areas for Growth

- Teachers will need to supplement materials to address the Massachusetts-specific STE standards 6.MS-PS-1-8(MA), 7.MS-ETS3-5(MA), 8.MS-ETS2-4 (MA), 8.MS-ETS2-5(MA) as they are not explicitly covered within core materials. The Lab-Aids Correlation to the Massachusetts Science and Technology/

Engineering Learning Standards for Grades 6-8 document shows that 7.MS-ETS3-1(MA) is only partially addressed in Activities 5 and 6 of the “Waves” unit in Grade 6.

- Materials do not consistently facilitate coherent progressions of learning within and across grade levels. Materials lack explicit support for teachers to bridge scientific content and build up student responsibility for tasks between units. In cases where teacher materials reference connections across units, they are typically found in the Teaching Steps section and identified by capitalizing the title of a previous unit. These references are often surface level, such as prompting students to recall a vocabulary word. The Unifying Themes for Recommended Sequences: Crosscutting Concepts document provides background on the three CCCs emphasized in each grade-level sequence, but these connections appear only in teacher materials and are not made explicit for students. The document also includes student-facing pages for projection or journals that describe how the CCC appears across units; however, these do not explicitly highlight connections between units. The modular design of each unit also prevents the student tasks from increasing in sophistication as students progress from the first unit in the grade through the last unit in that grade or from one grade to another (EdReports, 2Aii).

STANDARDS ALIGNMENT

Approach to Instruction



Strengths

- Materials use anchoring phenomena to build student understanding. The Quick Start guide provides teacher-facing resources such as the Phenomena Snapshot and the Phenomena, Driving Questions, and Storyline documents. Both documents include questions that are explored during the unit that relate to the phenomenon, as well as how students will use SEPs to expand their understanding of DCIs in specific activities throughout the unit. In some units, a science topic or concept drives learning across multiple activities, rather than a phenomenon or problem (EdReports, 11). The “Solar System and Beyond” unit, the anchoring phenomenon is introduced through a fictional vignette featuring a conversation between a boy and his mother about why scientists rely on technology to study objects in space. This narrative is accompanied by an image of the Hubble Space Telescope. In Activity 1, students are prompted to consider what scientists have already discovered about space through the use of technology. As the unit progresses, students engage with four additional phenomena centered on how and why celestial objects such as the Moon and Sun appear to change shape or position over time. Fifteen of the seventeen activities focus on these additional phenomena and effectively address the relevant Earth and Space science performance expectations.
- Materials purposefully and effectively integrate Science and Engineering Practices (SEP) with Disciplinary Core Ideas (DCIs). SEPs are used for specific, content-driven purposes. At every grade level, students engage in SEPs that directly connect to the DCIs. In the “Waves” unit, Activity 7, students use diagrams, models, and investigations to identify patterns that demonstrate the inverse relationship between frequency and wavelength and the direct relationship between amplitude and energy. Students then perform calculations and make conceptual connections to construct an explanation of the relationships they found as they analyze and interpret data. SEPs are used for investigating, sense-making, and critiquing. In the “Energy” unit, students complete a reading in Activity 5 and an investigation in Activity 6 about the law of conservation of energy. Both activities are labeled as sense-making activities in the Unit Overview. Students use what they learned in the reading and investigation to design and conduct their own investigations about energy transfer in Activities 8 and 9. Students then critique their experimental design to identify likely sources of measurement error and improve their future investigation design plans.

- Materials purposefully and effectively integrate literacy and math in service of science. The Common Core Standards for ELA/Literacy and Mathematics are listed in the NGSS Overview for all units. Reading and writing science-specific texts are used to interpret and explain science concepts. There are student book links for each activity in every unit that include fictional vignettes, scenarios that introduce scientific phenomena, and informational texts that provide science content knowledge before the start of activities. In the “Forces and Motion” unit, the student book for Activity 1 begins with a vignette involving a car accident, while Activity 3 begins with informational text about kinetic energy. The Sensemaking and Literacy guide, provided in the Quick Start section of each unit, provides guidance on which literacy strategies are used and where these strategies are embedded in the unit’s activities. In the “Weather and Climate” unit, the Sensemaking and Literacy section shows four opportunities to support reading comprehension: two using the DART (Directed Activities Related to Reading) strategy, one using an Anticipation Guide, and one using the Stop, Listen, Write strategy. In addition, the Sensemaking and Literacy section highlights strategies to support student writing, including the use of a Writing Frame, the Intra-Act strategy to facilitate group discussions, and eight opportunities for students to synthesize concepts and vocabulary—seven through a KWL (Know-Wonder-Learn) chart and one through a Word Sort. Key vocabulary terms are listed in student-facing slides and student books for each unit. Throughout the activities in the “Solar System and Beyond” unit, students engage with mathematical reasoning and mathematical models, apply proportional reasoning and the concept of ratios, and analyze and interpret graphical displays of data using statistical and probability skills.

Areas for Growth

- Teachers will need to supplement materials to connect concepts purposefully and explicitly for students. In the “Solar System and Beyond” unit, materials do not meaningfully connect activities back to the anchoring phenomenon introduced in Activity 1 and revisited in Activity 17. The five different phenomena involved are explicitly connected for the teacher in the teacher-facing resources but not clearly connected in student-facing materials.
- Student questions and experiences do not consistently drive learning. Although the student books include question prompts to draw out student ideas, the pre-printed Driving Question Board (DQB) cards and pre-populated DQB slides fail to elevate the experiences or questions students generate. The DQB in the “From Cells to Organisms” unit has four pre-populated questions, while the DQB in the “Geological Processes” unit has six pre-populated questions. The DQB cards in the Quick Start guide provide an overview of how teachers should elicit student questions and use students’ wonderings or connections to prior experiences to build student engagement in and ownership of learning. However, even when the materials elicit students’ prior experience in relation to a problem or phenomenon, the Teacher Steps do not always instruct teachers to revisit the identified prior knowledge to leverage this experience to purposefully connect students to the learning objectives (EdReports, 1H). In the “Body Systems” unit, the Teaching Steps section of Activity 4 references that students may remember similar concepts from the “From Cells to Organisms” unit but offers no guidance on how to draw on students’ previous experience in a meaningful way.

STRENGTHS AND AREAS FOR GROWTH

CLASSROOM APPLICATION

Accessibility for Students



Strengths

- Materials provide for varied means of accessing content, helping teachers meet the diverse needs of students with disabilities and those working above or below grade level. The Quick Start guide includes a Comprehensive Teacher Support section with a “Differentiated Instruction” tab, outlining strategies for three key student groups: Students with Learning Disabilities, English Language Learners, and Academically Gifted Students. For students working below grade level, materials provide optional Student Sheets with pre-constructed data tables, graphic organizers, or science skills worksheets. In the “Weather and Climate” unit, these supports are embedded within the activities. The Differentiated Instruction tab also offers general strategies applicable across units, such as reducing the number of analysis questions for students who need more support or encouraging advanced students to set their own goals for achieving a Level 4 “complete and correct” response. Each activity also includes a “Strategies for Supporting Diverse Learners” section in the Teacher’s Edition. In the “Earth’s Resources” unit, teachers are prompted to provide additional materials (e.g., glass, steel, graphite, quartz) for students working above grade level to extend their investigations for Activity 3. The Quick Start guide also features a “Suggested Unit Enhancements” tab with recommended books, apps, and videos to enrich instruction. Additionally, the Student Book is available online with accessibility features such as read-aloud, text enlargement, page masking, dictionary, and translation tools. “LABsent” videos and files allow absent students to view experiments, record data, and complete activities outside of class.
- Materials provide for varied means of demonstrating learning, helping teachers meet the diverse needs of students with disabilities and those working above or below grade level. The materials present varied, multimodal approaches to learning, including, but not limited to, hypothetical problem-solving scenarios, role play, hands-on experiments, guided reading, class discussions, and engineering design challenges (EdReports, 3O). In the “Chemistry of Materials” unit, students investigate polymers by experimenting with PVA and sodium borate, reading supporting texts, recording data, modeling molecular structures, examining environmental impacts through evidence gathering, and participating in a simulated community forum. The Differentiated Instruction tab provides general strategies for

adapting assessments across units. For students working above grade level, materials advise teachers to encourage students to consider multiple perspectives to construct well-rounded arguments, while students working below grade level might complete Analysis questions with a partner or respond using alternative formats. In the “Geological Processes” unit, materials provide options for students to complete Student Sheet 1.1 collaboratively or demonstrate understanding through drawings instead of written responses for Activity 1. In the “Biomedical Engineering” unit, materials suggest that students working above grade level research all opposing muscle groups in the human body to extend their learning.

- Materials elevate diverse backgrounds, perspectives, and identities to deepen learning. Although the slide decks do not contain many images of people, when images or information about people are presented, there is a balanced representation of various demographic and physical characteristics (EdReports, 3S). In the “Solar System and Beyond” unit, slide decks feature female scientists, children from diverse backgrounds, and the 2017 NASA Astronaut class. Similarly, in the “Weather and Climate” unit, images depict an Asian female hydrologist, an African-American male meteorologist, a White female meteorologist, and a diverse group of students conducting experiments. Materials provide factual, historical recognition of the contributions of scientific thinkers from a broad variety of cultures. The “Science as a Human Endeavor” section, accessible through the Student Book Link tab, highlights the contributions of scientists and engineers from varied backgrounds.

Areas for Growth

- While materials include some resources to support students at various levels of English proficiency in accessing grade-level content, engaging in cognitively demanding tasks, and developing academic language, the strategies presented are often general. Teachers will need to supplement materials to provide specific supports for English learners to meet or exceed grade-band standards (EdReports, 3Q). Activities do not consistently include strategies or accommodations tailored to different English proficiency levels. Key vocabulary is presented at the beginning and end of each slide deck, but materials lack visual supports; definitions are not consistently paired with images. While some lessons, such as Lesson 7 in the “Fields and Interactions” unit, recommend using photos, videos, or demonstrations to clarify vocabulary, these suggestions are inconsistent and rely on teachers to source their own materials. Student sheets, rubrics, visual aids, assessments, and books are not available in languages other than English and Spanish. Although tools, such as the online Students Book which includes read-aloud, dictionary, and translation features with translation available in 45 languages, enhance accessibility, teachers will need to supplement materials with additional practices to ensure students meet grade-level expectations.
- Materials do not consistently include questions and tasks that affirm and value diverse identities, backgrounds, and perspectives. While students are specifically asked during the introduction or conclusion of some activities to think about how their own experience relates to aspects of the science content, explicit guidance to elicit students’ cultural and social backgrounds is not present (EdReports,

3T). In the “Ecology” unit, Activity 3 begins with a question about whether students have visited or learned about a prairie, encouraging personal connections to the lesson. However, in Activity 1 of the same unit, materials do not connect the lesson to students’ experiences: rather than inviting students to share knowledge about Africa, lakes, or fishing in response to a scenario involving James, a young Kenyan boy, the teacher is directed to present background information and locate Lake Victoria on a map. Additionally, the “Letter to Parents and Guardians” is identical across units and does not include prompts that invite families to share relevant cultural or experiential connections. Teachers will need to supplement materials to recognize their own biases, include real-world data that reveals systemic inequities, and ensure lessons are inclusive and culturally responsive.

CLASSROOM APPLICATION

Usability for Teachers



Strengths

- Materials support teachers with suggested classroom routines and structures. Each unit includes a “Planning for First Time Users” tab under the “Quick Start” guide, which links to resources such as the digital Teacher Resources book. This book offers detailed guidance on routines and strategies for group work. The included “Classroom Management Tips” provide broader suggestions on procedures for starting lessons and distributing materials. Additional guidance is provided for teachers to develop a plan for using and grading student science notebooks. The TR-3 “Active Student Learning” tab explains the “4-2-1 Collaborative Learning Model” used across all units. In this model, groups of four students share materials during lab investigations, pairs of two engage in focused discussions and data analysis, and individuals record their understanding in science notebooks. This routine is also referenced in the “Teaching Steps” when used in a specific activity. In the “Energy” unit, Lesson 2 instructs teachers to introduce the 4-2-1 model and remind students to use the “Developing Communication Skills” strategy from Appendix E of their Student Books when agreeing or disagreeing in groups or pairs.
- Materials include both informal and formal assessments to measure student learning. The “Assessment Blueprint” in the Quick Start guide lists all formative and summative assessments by unit. Assessments target either one of nine SEPUP-defined science and engineering practices (SEPs) or a full NGSS performance expectation. Materials include nine scoring guides to assess student mastery of the SEPs, as well as an “Item Bank and Answer Key” with NGSS correlations for each multiple choice and short answer question. Materials also include an “Engaging in Argument” scoring guide and sample student responses to support teachers during the assessment process.
- Pacing is reasonable and flexible; the curriculum can be implemented effectively within a typical school year. Materials are realistic for one school year, with estimated total times for one grade band series ranging from 79 to 105 45-50 minute class periods (EdReports, 3H). The “Unit Overview” subsection of the “Quick Start” guide provides a detailed pacing guide with suggestions for lessons that can be omitted. The student-centered LABsent videos and the “Substitute Teacher Suggestions” provided under TR-10 Additional Unit Support in the Teacher Resource book are useful resources for addressing short-term teacher or student absences and ensure that make-up work fits within a pacing schedule. The suggested Massachusetts sequence is reasonably paced given the suggested omissions: The five recommended Grade 6 units will take between 101- 149 class periods; the six Grade 7 units will take

between 126 to 185 periods; and the six Grade 8 units will take between 131-169 class periods. Teachers will need to strategically plan which lessons to implement, omit, or shorten to ensure Massachusetts-specific standards are addressed, as some lessons that are suggested for omission in the interest of time may contain Massachusetts-specific language and standards.

- Materials include guidance and resources specifically designed to build teachers' content knowledge. Each unit provides background information for teachers, including a "Background Information" subsection within the "Activity Resources" section of many activities. While this information is not available for every activity, the resources provided sufficiently support teachers in developing their understanding of complex concepts and expected student practices, both within the current course and in broader scientific contexts (EdReports, 3B). In the "Reproduction" unit, the background information for Activity 1 offers detailed information about Marfan Syndrome—including its causes, symptoms, and treatments—exceeding the level of detail provided to students. It also covers other genetic conditions such as Sickle Cell Disease, Huntington's Disease, and Cystic Fibrosis. Additional resources are available on the SEPUP website, including videos about Marfan Syndrome and extension activities on life cycles. The life cycles extension includes teacher background information on the three types of mammals, stages of early human development, metamorphosis, and parts of a flowering plant. Addition, a "Glossary for All Units," found under "Additional Unit Supports" in each unit's Quick Start guide, defines key science vocabulary and indicates which unit(s) each term appears in.

Areas for Growth

- Some lessons and tasks advance student learning with clear purpose. Materials explicitly name skills that students will develop and continually use over time. In the "Ecology" unit, the Teaching Steps for Activity 1 instruct teachers to explain to students that this is their first opportunity to construct an argument but that it is a skill they will practice throughout the unit. In Activity 3, students revisit this skill when they make claims and construct explanations for the possible causes of patterns they observed in the data they collected. However, teachers will need to supplement materials to ensure lessons and tasks are interdependent. While some connections from unit to unit are present, connections are not consistent. In cases where teacher materials identify connections across units, they are usually located in the Teaching Steps portion and indicated with a capitalization of the previous unit's title. These examples are often very surface level, and usually consist of reminding students of a particular vocabulary word during a discussion. These connections are only present in the teacher materials and are not explicit for students in the student materials. Teacher materials also identify where CCCs connect throughout units but in some cases miss the opportunity to support teachers to make these connections explicit to students (EdReports, 2A).
- Teachers will need to supplement assessment materials to meet the needs of English learners and students with disabilities, address students' misconceptions, and adjust instruction based on assessment results. The "Land, Water, and Human Interactions" unit includes 20 multiple choice and 20 short answer

questions but does not offer suggested accommodations for diverse learners. While some informal assessments, such as analysis items or procedural steps, include follow-up suggestions, this guidance is inconsistent and often general, rather than tailored to specific student responses. Teachers will need to supplement materials to address misconceptions and adjust instruction based on assessment data.

- While materials include rubrics, exemplars, and other resources to help teachers set clear and high expectations for students, these tools are not tailored to individual units. Across all units, teachers can access an “Evaluating Group Interactions” rubric under the “Student Supports from the SEPUP Teacher Resources” tab. This resource is intended to help students reflect on their participation in group work. However, rubric lacks specific guidance for teachers on how to use students’ reflections to inform next steps in instruction. Each unit also includes a multiple choice and short answer “Item Bank and Answer Key” that aligns with NGSS standards. While these items are useful for measuring content knowledge, they primarily consist of one-dimensional questions focusing on demonstrating evidence of an increase in student content knowledge and do not fully assess all objectives associated with the unit-level performance expectations (EdReports, 1C). Materials include sample student responses for its short-answer questions but lack nonexamples, annotated student work at various levels of English language proficiency, or rubrics designed to assess the depth of student understanding and progress toward grade-level mastery.
- Teachers will need to supplement materials to recognize their own pedagogical biases, develop their sociocultural consciousness by contextualizing historical frames and providing various cultural developments for similar concepts, and customize lessons to be inclusive and responsive to the diverse identities of students, inclusive of linguistic, racial, ethnic, and gender diversity.

CLASSROOM APPLICATION



WHAT THE PUBLISHER SAYS

We asked publishers for information on diverse representation in their materials, professional learning for MA educators, and product specifications. See what SEPUP/Lab-Aids had to say about *Issues and Science, Third Edition Revised 6-8* (2020).

DIVERSE REPRESENTATION

Describe how you ensure that students of diverse races, ethnicities, nationalities, socioeconomic classes, family experiences, linguistic backgrounds, abilities, cultures, religions, genders, gender identities, sexual orientations, and other social identity markers see themselves fully reflected, respected, and valued in your curriculum. Describe also how your curriculum challenges existing narratives about historically marginalized and historically centered or normed cultures, including challenges rooted in systemic oppression.

SEPUP's mission is to foster student agency and engagement in science by developing and supporting issue-oriented science curriculum that is accessible and hands-on, and positions teachers for successful classroom implementation. SEPUP's approach is founded on the idea that "true equity will only come if we create learning environments that connect in deep ways to the life experiences of all students" ⁽¹⁾. *Issues and Science* was thoughtfully and intentionally designed with a framework for equitable learning, and implements a variety of inclusion strategies to engage diverse student populations, including:

- Motivating students with relevant and engaging issue-oriented science so students can make a personal connection to what they are learning
- Making frequent connections to everyday, real-life examples to allow science understanding to grow out of students' lived experiences
- Giving students opportunities to use multiple learning modalities
- Embedding a variety of instructional supports (e.g. storytelling, sharing oral traditions)
- Highlighting and acknowledging specific contributions of people from diverse cultures

For example, the *Waves* unit highlights an example of a student with complete deafness and offers an opportunity for students to explore more about deaf culture. The *Ecology* unit incorporates students' investigating native and non-native species in their local neighborhood. The culminating activity of the *Evolution* unit provides students' the freedom to select any modality and style for sharing their synthesized understanding of the overarching unit concepts.

Reflecting on equity and inclusion during design and development

The SEPUP development team engages in ongoing practices for internal reflection and review for diversity,

equity, and inclusion within our materials. The team drew on published frameworks and tools that attend to equity and inclusion ⁽²⁻⁴⁾ to develop specific criteria for development. Selected examples of these criteria include:

Is the selected unit issue:

- Explicitly framed in a way that different perspectives are valued?
- Up-to-date and centered on the most current science as it relates to different communities?

Are the instructional materials:

- Using inclusive language and explicit representation of diverse populations throughout?
- Avoiding perpetuating stereotypes or other implicit biases?

Do the supports for teachers:

- Address racist, sexist, ableist, or otherwise marginalizing aspects of this science topic?
- Suggest ways that students with physical disabilities can be safely included in hands-on activities?

Additionally, all SEPUP materials including *Issues and Science* units are extensively tested with students in a wide range of classroom settings across the United States. Student work, teacher feedback, and other data from these field tests significantly contribute to further revisions of the instructional materials to ensure they are as inclusive and equitable as possible.

Science as a Human Endeavor

Participation by a wide variety of people in science and engineering leads to greater and swifter progress toward understanding how the natural world works and to solving important societal problems. To foster students' understanding of this idea, each unit includes *Science as a Human Endeavor* online materials for students to learn more about the interests and accomplishments of diverse scientists and engineers, and how people with varied backgrounds contribute to the advancement of science and technology.

Sources

¹Nasir, N. S., Rosebery, A. S., Warren B., & Lee, C. D. (2014). Learning as a Cultural Process: Achieving Equity Through Diversity. In R. K. Sawyer (Ed.), *The Cambridge Handbook of the Learning Sciences* (pp. 686-706). Cambridge University Press.

²Gay, Geneva. (2000). *Culturally responsive teaching: theory, research, and practice*. New York: Teachers College Press

³Paris, D. (2012). Culturally sustaining pedagogy: A needed change in stance, terminology, and practice. *Educational Researcher*, 41(3), 93-97

⁴Meyer, A., Rose, D.H., & Gordon, D. (2014). *Universal design for learning: Theory and Practice*. Wakefield, MA: CAST Professional Publishing

PROFESSIONAL LEARNING

Describe any professional learning opportunities (materials or experiences, publisher-provided or otherwise) available for Massachusetts educators that are designed to support skillful implementation of your curriculum. If there are professional learning opportunities available specifically to support skillful use of the materials with English learners, students with disabilities, students working above or below grade level, and/or students of other diverse identity markers, please include this information.

Lab-Aids' Professional Learning (PL) is like our programs: engaging, hands-on, and personally relevant. From getting-started days to full year implementation and district-level train-the-trainer programs, we are here to support our schools now and in the future. It's how all Professional Learning should be.

We firmly believe that Implementation Training should only be led by those who have actually taught the program themselves. This means that your PL instructor is not only an expert on the content, they're also an expert in teaching it. Additionally, each trainer goes through extensive work with the Lab-Aids Institute to be sure they're practiced, effective, and organized. The result is invaluable Implementation Training - we recognize that it's a big deal to leave your class for a day and we want to ensure it's time well spent.

The intention of our Implementation Training is to familiarize teachers with their new materials, but also to spend time on the why behind the incorporated pedagogical approaches - why is this an effective way to teach science? We suggest 3-4 full day trainings in Year 1 of implementation. PL will focus on working through the program to best prepare teachers for their upcoming units, while also covering important questions and topics. This Implementation plan can be adjusted based on your district's needs and will begin with a planning meeting to discuss your district's needs with the Lab-Aids Implementation team.

Topics for Implementation Training include course design, Massachusetts Science and Technology Engineering Framework support, support for literacy, inquiry, and differentiated instruction, classroom management, assessment, and use of technology.

Implementation Training is critical to helping prepare teachers to successfully teach the program. While it gets teachers started, we view ourselves as partners along the journey and are committed to providing

assistance. Our built-in support system allows teachers access to ongoing PL to meet their needs. The following are a few examples of the On-Demand Support offered to districts.

Resource Video Library: These short videos walk the teacher through sample lessons, explain how to teach the activity, set up the lab, and/or assess the learning.

Notebook and Literacy in the Classroom - Coffee Chats: These informal coffee chats show experts in the field discussing the value of utilizing notebooks to promote literacy in the science classroom. Several topics are covered, while also featuring student use in the classroom.

Professional Learning Implementation Community (PLIC): The PLIC offers a monthly huddle led by experienced Lab-Aids consultants. Each huddle spotlights a 15-minute topic relevant to the implementation process followed by a 45-minute open forum for teachers to ask questions, find solutions, or seek curricular assistance.

Additional virtual or in-person workshops are also available once you have completed your implementation training on topics including Driving Question Boards, assessment, using science notebooks to promote literacy, using summary tables to drive phenomena, and more. Some districts, especially large ones, look to build local capacity to help train new teachers in the program. Once teachers have experienced the implementation, Lab-Aids offers *Train the Trainer* sessions to help these district leaders learn how to plan, guide, and carryout local Professional Learning within their own district.

PRODUCT SPECIFICATIONS

Describe what a school or district needs to implement your curriculum successfully, including instructional hours and technological infrastructure. Provide basic information about what products are associated with the curriculum (e.g., what texts a typical purchase includes and/or what tools and resources are openly available online).

More than just a textbook or a digital platform, Issues and Science is a complete program. In a typical school year, students spend over *170 instructional days doing something hands-on*. Units are student-driven; consistently fostering student questions and making sure that students feel that their questions are leading the learning experience. All units have embedded opportunities for students to demonstrate their understandings and abilities in a variety of ways. Lab-Aids' curriculum specialists and implementation team will support all of your needs before and after purchase.

Student Resources

The *Issues and Science* Student Books guide embedded investigations and provide related readings. They use a variety of approaches to make science accessible to all students. The student book can be ordered in print and accessed online through our student portal. Each unit has its own hardcover student book.

Equipment Packages

Our equipment is not an add-on as an afterthought to the curriculum - it is a fully integrated part of it. All *Issues and Science* equipment packages are designed with teachers, students and environmental considerations in mind. Equipment drawers come with optional rolling carts for easy storage. Equipment supports up to five classes of 32 students (160 total) - before consumables need to be replaced. Molded tray liners keep everything in place and easy to locate. A digital flip book of every equipment materials package can be viewed at <https://anyflip.com/acxm/sdog/>. Additional information about equipment is available at <https://www.lab-aids.com/ngss-equipment-packages>.

Teacher Resources

Teacher materials are available as printed 3-ring binders for ease of use and customization. These include both the *Teacher Edition* (daily lessons and unit planning) and the Teacher Resources (overall program support and long-term planning). The *Issues and Science* Teacher Edition walks through each activity in the

Student Book and shows the development of concepts within the storyline of the unit. The Teacher Edition and Teacher Resources can also be accessed online through our unique teacher portal.

Digital Portal

The online Portal for *Issues and Science* is available for both Students and Teachers and includes interactive text, LABsent sheets and videos for absent students, and the ability to receive and submit homework. Access to the Teacher Edition and Teacher Resources also includes editable PowerPoints, literacy tools, visual aids, training videos, and an integrated online assessment system. For more information about the online portal, please visit <https://www.lab-aids.com/integrated-technology>.

Science Lab Notebooks

Notebooks not only model the way scientists work but help to develop and reinforce students' science learning and literacy skills. The Lab-Aids Science Lab Notebook has 160 three-hole punched pages which allow students to store it in their binders. It has a two-column design and plenty of room for notes, reflections, and more. *Graph Anywhere* allows data tables and graphs to be added easily using the unique line guides. These notebooks are an optional purchase for districts (they may also use notebooks of their choice or digital versions) but the use of a notebook is embedded throughout the program and covered during professional learning. For more information, please visit <https://www.lab-aids.com/literacy>

RESPONSE TO REPORT

Issues and Science, Third Edition Revised, is a comprehensive middle school science program designed to engage students in three-dimensional learning to make sense of scientific phenomena anchored in real-world issues of relevance to their everyday lives. We are proud to receive recognition from the state of Massachusetts and would like to further highlight a few key strengths of our program.

- Our issue-oriented approach to teaching science is a unique and proven approach that fosters deeper learning and a greater appreciation for science. Socioscientific issues are at the heart of every unit and drive the learning throughout each unit, giving relevance and coherence to the storyline and the phenomena that students make sense of. Research shows that using issues for framing science improves student achievement and boosts student engagement. Read more about the research evidence for our issue-oriented approach [here](#).
- *Issues and Science* includes a research-based assessment system developed in partnership with leading assessment researchers at the University of California Berkeley's Graduate School of Education. Authentic assessment tasks are embedded throughout the curriculum and include both formative assessments and three-dimensional summative assessments of NGSS Performance Expectations. The assessment system provides rubrics, called scoring guides, that can be used to evaluate student responses to these tasks. These primary assessment tools provide ample opportunities for teachers and students to track their learning progression and mastery of the Performance Expectations throughout the program. As an additional resource for teachers, optional supplemental item banks are also included for each unit.



Looking for more information?

Read the full [approved gateway review](#) or find a [Massachusetts district using this product](#).

Learn about the [CURATE process](#) and explore [Frequently Asked Questions](#).