“Are These Materials Designed for the NGSS?” Understanding the EdReports Review Process for High School
Goals for Today

1. EdReports overview and review process
2. How does this work in practice?
3. Overview of the HS Review Development Process
4. Q&A
EdReports is a non-profit organization that increases the capacity of teachers, administrators, and leaders to seek, identify, and demand the highest quality instructional materials. Drawing upon expert educators, our reviews of instructional materials and support of smart adoption processes equip teachers with excellent materials nationwide.
At EdReports, we...

- Prioritize high quality instructional materials as a lever for equity for students and an important support for teachers.
- Ensure that local context and instructional vision drive decision-making.
- Engage and prioritize diverse stakeholders, including educators, in instructional materials work.
- Center the needs of students who have been least well-served by our education system.
- Provide information about instructional materials and strong selection processes, not recommendations about what to select.
- Work alongside and in collaboration with our partners, and services are tailored to partners’ specific needs and contexts.
EdReports’ Theory of Action

- Identify Excellence
- Increase Demand for Excellence
- Improve Materials
- Better Outcomes for Students
Audience Poll

What is your level of familiarity with EdReports

1. My district has used it to adopt materials
2. I have referenced it for my own understanding
3. I’ve heard of it but never used it
4. Never heard of it
TURN AND TALK

What is the most important feature of high quality science instructional materials?
What you select and HOW you select matters.

Schools and districts have more options than ever from which to find high-quality materials that reflect their local priorities. The selection process is a critical lever for ensuring that quality materials are adopted and then used well in classrooms. Current adoption practices are simply not good enough.
What Can Districts and Schools Do?

**Define:** Ensure stakeholders have clear information about quality materials, communicate the imperative around materials, train leaders of the adoption work on the markers of quality.

**Lead:** Engage in a thoughtful, transparent adoption process, provide training for the selection team, identify local criteria to ensure materials meet district individual needs.

**Support:** Prioritize high-quality professional learning that supports the curriculum, plan for ongoing professional learning for teachers to ensure the materials are meeting the needs of ALL students, align initiatives to compliment the work.
The resources you’ll find on EdReports.org
The EdReports Review Process

1. Educator-led teams develop tools and evidence guides
2. Recruit & train reviewers
3. Educator-led teams conduct rigorous reviews
4. Engage with publishers
5. Release evidence-rich, independently reviewed reports to the field
Develop Tools and Evidence Guides

- Listening and Learning Tour
- Collect Resources to Inform Tool Development
- Anchor Educator Working Group
- Tool Development
- Tool Feedback and Revision
- Evidence Guide Creation
- Advisory Panel
Science Gateways

Gateway 1: Three-Dimensional Learning; Phenomena and Problems Drive Learning

Gateway 2: Presence of Elements of Three Dimensions; Scientific Accuracy; Coherence

Gateway 3: Usability

"Meets" or "Partially Meets" move to Gateway 2
"Meets" for Gateways 1 & 2, move to Gateway 3
Science Gateways

Criterion 1 - 3D Learning and Assessment
- Are the three dimensions present and integrated for students to use for sensemaking?
- Are formative and summative assessments three-dimensional?

Criterion 2 - P/p Drive Learning
- Are phenomena and problems driving learning in and across lessons?

“Meets” or “Partially Meets” move to Gateway 2
Science Gateways

Gateway 2, Coherence and Scope:
Presence of Elements of Three Dimensions; Scientific Accuracy; Coherence

- Do the materials include all elements of the performance expectations for the grade band, including NOS and ENG elements?
- Are the materials coherent from a student perspective from unit-unit?
- Do tasks related to phenomena and problems increase in sophistication throughout the program?
- Are materials scientifically accurate and appropriate for grade band?

“Meets” for Gateways 1 & 2, move to Gateway 3
Science Gateways

Gateway 3, Usability

Criterion 1 - Teacher Supports
Criterion 2 - Assessment
Criterion 3 - Student Supports
Criterion 4 - Intentional Design

Do the instructional materials support high quality instruction?
Tools and Evidence Guides

https://www.edreports.org/reports/review-tools
Evidence Guide

Gateway 1: Designed for NGSS

Criterion 1.2 Phenomena and Problems Drive Learning: Materials leverage science phenomena and engineering problems in the context of driving learning and student performance.

Indicator 1d Phenomena and/or problems are connected to grade-band Disciplinary Core Ideas

Scoring:

2 points
- Materials consistently connect phenomena and problems to grade-band appropriate DCIs or their elements.

1 point
- Few phenomena in the series are connected to grade-band DCIs or their elements.
- Few problems in the series are connected to grade-band DCIs or their elements.

0 points
- Phenomena are not present in the series.
- Problems are not present in the series.
- Phenomena are not connected to grade-band DCIs or their elements.
- Problems are not connected to grade-band DCIs or their elements.

About this indicator:
What is the purpose of this Indicator?
This Indicator:
- examine whether phenomena or problems within the series connect student sensemaking to the DCIs.

Research or Standards connection:
Read information for Gateway 1, Criterion 2.

Resources:
- Next Generation Science Standards (NGSS)
- Guides for NGSS Elements
- NGSS Appendix F: Disciplinary Core Idea Progressions

Indicator 1d Guiding Question:
Are the phenomena and/or problems connected to grade-level Disciplinary Core Ideas (DCIs)?

Evidence Collection

Review the units, chapters and lessons in both student and teacher materials across the series.
Review the course and series scope and sequence.
Review NGSS progression documents and standards as needed. Use the following document:
- Codes for NGSS Elements

Look for and record evidence to:
- Determine where phenomena and/or problems connect student sensemaking to one or more DCIs (Physical, Life, and Earth/Space Sciences).
- Record the specific examples throughout the series that connect phenomena and/or problems to DCIs.
- Record the specific examples throughout the series that use phenomena and/or problems to develop understanding of DCIs.

Cluster Meeting

During the cluster meeting:
Discuss and answer the following questions to support consensus scoring conversations:
- Do the materials engage all students in learning experiences about phenomena and/or problems that are not separated from the DCIs?
- Can the phenomena and/or problems in the series be explained through the application of targeted grade-appropriate DCIs?
- Does student engagement of phenomena and/or problems develop understanding or require application of the DCIs?
- Do the materials engage students in phenomena and/or problems across DCIs in all disciplines (earth/space, life, physical science) across the grade-band series?
Recruit and Train Reviewers

Reviewer Benefits

- More than 25 hours of online and in-person professional development with EdReports staff and other content reviewers
- A stipend per series reviewed
- Opportunities to grow as a leader and learn with national experts
- A supportive network of fellow educators

We interview candidates on a rolling basis.
Learn more: https://edreports.org/about/reviewers
Educator-led teams conduct reviews

1 team per grade band
Each reviewer spends 5-10 hours/week collecting evidence for 4-6 months.

5-member teams
- 1 facilitator/reviewer
- 3 reviewers
- 1 writer
Engage with Publishers

During Evidence Collection
- Publisher Orientation
- Reviewer Questions

After Evidence Collection
- Errors and Omissions Process
- Publisher’s Response
Release Reports

https://edreports.org/reports
The Anatomy of a Report

Gateway One
Designed for NGSS
Partially Meets Expectations

- Gateway One Details

The instructional materials reviewed for Grades 6-8 partially meet expectations for Gateway 1: Designed for NGSS. The materials partially meet expectations for three-dimensional learning and that phenomena and problems drive learning.

Gateway Summary

Criterion Summary

Indicator Evidence

CRITERION 1A - 1C
Materials are designed for three-dimensional learning and assessment.

- Criterion Rating Details

The instructional materials reviewed for Grades 6-8 partially meet expectations for Criterion 1a-1c: Three-Dimensional Learning. The materials include opportunities for students to learn and use three dimensions and consistently present opportunities for students to use SEPs for sense-making with DCIs, but do not consistently present opportunities for sense-making with the CCCs. There are some instances where students do not use either an SEP nor a CCC for sense-making with the other dimensions. The materials present three-dimensional learning objectives for the Explorations, but the formative tasks do not reveal student knowledge and use of three dimensions to support the targeted three-dimensional learning objectives. Further, the materials do not provide support or resources for teachers to interpret and use student responses to modify instruction. Additionally, the materials consistently provide three-dimensional learning objectives for learning sequences, but the summative tasks consistently do not completely measure student achievement of the targeted three-dimensional learning objectives.

INDICATOR ID
Phenomena and/or problems are connected to grade-band Disciplinary Core Ideas.

- Indicator Rating Details

The instructional materials reviewed for Grades 6-8 meet expectations that phenomena and/or problems are connected to grade-band disciplinary core ideas or their elements. Across the materials, each lesson begins in a consistent pattern with a Can You Explain It? prompt. The prompt presents a phenomenon (or occasionally, a problem) and the prompt is revisited during the +/- lesson sequence. Throughout lessons, prompts for students to collect evidence from each learning activity enable them to make specific connections related to the driving question. All lessons culminate in a Lesson Self Check. Students use elements of the disciplinary core ideas addressed in the learning activities to explain why or how the phenomenon or problem occurred.

Examples of Can You Explain It? lesson-level phenomena that connect to grade-band disciplinary core ideas present in the materials:

- In Module B: Cells & Heredity, Unit 2: Organisms as Systems, Lesson 4: Information Processing in Animals, the phenomenon of reaction to motion is presented in the lesson, driven by the central question, "Why is it so difficult to catch a fly?" Students learn how animals process information — specifically electromagnetic and mechanical receptors detect light and motion signals, which then travel along nerve cells to the brain sending a message for muscles to move (DCI-LS4.D:3).

- In Module C: Earth & Human Activities, Unit 1: Earth's Natural Hazards, Lesson 1: Natural Hazards, the phenomenon presented is a city that is suddenly buried. The lesson is driven by the question, "How was this city suddenly buried without warning?" Students investigate causes and evidence of various types of natural hazards (e.g., floods, hurricanes, tornadoes, volcanic eruptions) and use data to make predictions regarding their occurrence and impacts (DCI-ESS3.B:3). In revisiting the phenomenon, they use the picture of the ash-covered city to explain it was likely the result of a volcanic eruption.

- In Module D: Waves & Their Applications, Unit 2: Information Transfer, Lesson 3: Communication Technology, the phenomenon presented is differences in clarity of images from space. The lesson is driven by the question, "Why is the image sent from Mars clearer than the image sent from the moon?" Through the lesson, students learn how visual and auditory information can be encoded as wave signals. In their explanation to address the lesson's driving question, students incorporate the concept of the quality of signal transmissions is higher in a digital format relative to analog format (DCI-PS4.C:3) and has improved over the centuries as technology has advanced.
Audience Poll

When is your district next planning to adopt new science materials?

1. This year
2. In the next School Year (2022-2023)
3. In the next 3-5 years
4. 5+ years
5. Not sure
6 steps to selecting high-quality materials

1. Establish a Process
2. Develop Your Lens
3. Know and Winnow Your Choices
4. Investigate the Materials
5. Decide and Launch
6. Implement the Materials

The “Prepare” Phase
The “Study” Phase
The “Launch and Implement” Phase
TURN AND TALK

How might these resources from EdReports help you?

What questions do you have at this point?
HS Science Review: Landscape Scan
HS Science Landscape Scan (early 2021)

Pre-Learning
- Landscape scan: high school graduation requirements, course enrollment, and course descriptions
  - Also reviewed NSSME+, SIMBA, and other research to understand adoption and use of HS instructional materials

Pre-Thinking
- Lessons learned from previous tool builds
- Lessons applied from previous tool builds
- Existing tools provide foundation for expansion to HS
HS Science Landscape Scan

How are HS Science materials selected?

- Individual Teacher: 59%
- School: 30%
- District: 12%

Simba Information: K-12 Science Market and STEM Outlook Report, January 2018,
What are states' graduation requirements for science?

- **No Requirement**: 5.9%
- **Two Credits**: 19.6%
- **Three Credits**: 34 States (66.7%)
- **Three States + D.C.**: 3 States (7.8%)
- **Four Credits**: 10 States

The State of State Science Education Policy: [Achieve's 2018 Science Policy Survey](http://edreports.org)
# HS Landscape

## Enrollment Data Comparison:

<table>
<thead>
<tr>
<th>California</th>
<th>Texas</th>
<th>Florida</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Chemistry (310,942)</td>
<td>2. Chemistry (341,270)</td>
<td>2. Biology 1 Honors (85,541)</td>
</tr>
<tr>
<td>5. Earth Science (82,678)</td>
<td>(140,207)</td>
<td>5. Chemistry 1 (65,437)</td>
</tr>
<tr>
<td>8. Anatomy/Physiology (76,985)</td>
<td>7. Aquatic Science (26,689)</td>
<td>8. Anatomy/Physiology (34,988)</td>
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</tbody>
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HS Science Review: What We’ve Learned - Key Themes from LLT
What We’ve Learned

The Science Advisory Panel, Listening and Learning Tour, and Focus Groups with Educators resulted in alignment with our current practices for review and leads to an opportunity to use consistent indicators for K-12 review to support continuity in decision-making for school districts.

Largely, the HS Review Tools and Processes will be very similar to the K-8 reviews.
What We’ve Learned: 5 Key Themes

- There are five key themes in our learning that will lead to variation in tool design to accommodate High School
  - 5 Themes: Biology First, Coherence, Equity, Phenomena/Problems, and Claims-based Approach

- On the next 4 slides, you will see the key themes and the resulting considerations for the Anchor Educator Working Group in the creation of the HS Review Tool

- These themes also lead to opportunities to consider continual improvement for K-8 review
Key Theme 1: **Biology First**

**Review Biology first, Chemistry second, Physics third**

“Biology is the most typical entry level course.”

“Yes, that’s where the market is [Biology]. Not playing into an ideal market we would be bad design. It’s a market that’s driven by current practice/teacher training/college acceptances/admissions/etc. We have to play into the existing market.”

“Chemistry needs to come next. Field could benefit from ESS conversations but Chemistry is the need from districts.”
Key Themes 2&3: Coherence & Equity

Student-Facing Coherence - conceptual building of knowledge and skills in a lesson, unit, course

“Coherence - where we are today, where we came today, where are we headed”

“Needs to be coherent from students’ point of view”

Equitable learning opportunities for students with diverse backgrounds

“Looping in identity and interest is critical for HS as they prepare for College and Career Readiness. Materials should support a Teacher in making these connections”

“This should be addressed by Usability Indicators”
Key Theme 4: **Phenomena & Problems**

Role of **Phenomena & Problems** in Driving Instruction
- Consider relevance and “types” of phenomena

“Always, whether investigative, or anchoring for storyline for unit, that should always drive their learning”

“Majority of learning, not an afterthought, or sometimes, or optional”

“Non-negotiable”
Key Theme 5: **Claims-based**

**Claims-based approach**
- Developer/publisher claims NGSS and EdReports verifies
- Large agreement from LLT that this is the best path

"Would be helpful to show what isn’t present - at the PE size. It’s not critical that they don’t have them all. But as a consumer would be interesting so that I don’t find 2 sets of materials that cover the same PEs. Helps figure out what to do to address gaps and so that I don’t purchase 2 things that cover the same PEs"

"Claims-based approach is the only way to do it"
TURN AND TALK

What resonates with you about our direction for High School review?
Where are we?

- Planning for Anchor Educator Working Group (AEWG) Virtual Engagement and Tool Build
  - Early October: asynchronous orientation and initial input and pre-work for AEWG
  - Oct. 23-24: AEWG Tool Build Meeting (virtual)
  - Continuous feedback and iteration during tool build through interaction with participants from Listening and Learning Tour, other key partners, and the Science Advisory Panel
  - Goal: Tool Created by end of 2021
  - Goal: HS Review of 5 Biology programs begins Q2 2022
Science Advisory Panel Role and Engagement

The 8 member panel has:

- Supported the creation of the proposed direction that led to protocol development for the LLT
- Participated on the listening and learning tour
- Begun to support analysis of the listening and learning tour
- Committed to engage throughout the tool build to support the AEWG

+ Additional engagement with the individuals from the listening and learning tour
Resources Related to EdReports Reviews

3 ways to know if you’re using quality science criteria [Blog]
and [Animated Video]

5 Questions teachers are asking about NGSS-designed instructional materials [Blog]

6 Questions Districts Should Ask When Considering K-5 Science Materials [Blog]

Critical Features of Instructional Materials Designed for Today’s Science Standards [Resource]
Get Involved!

Edreports’ reviews of K-12 instructional materials aim to empower educators with the information they need for student success.

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Have a question?