Criteria for Instructional Materials Review

Category 4: 2014 Science Standards (NGSS) – Grades 9-12

Alignment to the 2014 Science Standards (NGSS)

The instructional materials align with the conceptual shifts of the NGSS:

Criterion 1: Focus

Materials focus on in-depth learning of the NGSS disciplinary core ideas while engaging students in the scientific and engineering practices and connecting to crosscutting concepts in the context of authentic and content-appropriate science, and facilitate students developing a deeper understanding and application of scientific knowledge and the ability to think and reason scientifically while investigating complex ideas and solving problems.

1a. In each 9-12 grade level, both student and educator materials, when used as designed, provide opportunities to develop and use specific elements of the practice(s) to make sense of phenomena and to design solutions to problems.

- Biology TE, p. 14 Data Analysis Lab
- Biology TE, p. 35 Analyze an Argument
- Chemistry TE, P. 422 (PBL – Touching the Future is online)
- Physics SE, p. 741 (Essential Question)

1b. In each 9-12 grade level, both student and educator materials, when used as designed, provide opportunities to develop and use specific elements of the crosscutting concept(s) to make sense of phenomena and to design solutions to problems.

- Biology TE, p. 41 Flow of Energy in an Ecosystem
- Biology TE, p. 42 MiniLab
- Biology TE, p. 891 (Virtual Lab is online)
- Chemistry TE, P. 598 (Identify Misconceptions)
- Physics TE, p. 520 (Launch Lab is online)

1c. In each 9-12 grade level, both student and educator materials, when used as designed, provide opportunities to develop and use specific elements of the disciplinary core idea(s) to make sense of phenomena and to design solutions to problems.

- Biology TE, p. 51 (BioLab)
- Biology TE, p. 533 (BioLab)
- Biology TE, p. 50 (Biology and Society)
- Chemistry TE, p. 309
- Physics TE, p. 732&733 (Real World Physics and Physics Lab is online)

The McGraw-Hill School Education High School science programs were correlated to meet each Next Generation Science Standard (NGSS) performance expectation. The Alignment Guide is available in the online resources for the program. Within all high school products there are opportunities to experience the 3 dimensions in an integrated fashion. As the DCIs are introduced, students have the opportunity to explore the content through various means including performance tasks, applying practices (S&E Practices), inquiry opportunities, Webquests, Case Studies, etc., and the crosscutting concepts are embedded will be experienced throughout. These activities are incorporated into the teacher planning resources through the online portal www.connected.mcgraw-hill.com

Life Science:

Glencoe Biology provides an inquiry strand with a wealth of laboratory options throughout the program. The inquiry-based options offer scientific practice, encouraging problem-solving strategies and developmental critical thinking and process skills. The program’s strong inquiry strand gets students actively involved in the learning process by allowing them to manipulate variables and develop and test appropriate procedures. The Student Edition offers coherent lab options within each chapter, which allows students to develop strong inquiry skills. Students will develop a progression of knowledge and skills that allow them to think like a scientist to become successful with the chapter-end BioLab. The unique “Investigation and Experimentation” section provides students basics instruction and review of safe laboratory guidelines and procedures that they will use throughout the course.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: https://www.dropbox.com/s/3vrijvammqxwg4i/Biology%20Alignment%20Guide.pdf?dl=0
Earth Science:
*Earth Science: Geology, the Environment and the Universe* use inquiry-based learning opportunities where students participate in science discourse in and outside the classroom environment. Multiple lab opportunities such as Demo Labs, Launch Lab, Mini Labs, Data Analysis Labs, GeoLabs and virtual labs provides students with opportunities to collaborate and communicate findings. Specials features in the *Earth Science: Geology, the Environment and the Universe* such as Earth Science & Technology/Society & Expeditions provide students the opportunity to discuss and write in science. Other supporting resources found in the Earth Science textbook to support classroom discourse includes: Visualizing Activities, Projects, Academic Vocabulary, Word Origin, Science Usage v. Common Usage and Environmental Connections.

Found throughout *MHE Earth Science: Geology: The Environment and the Universe* textbook there are too many Crosscutting Concepts to address individually in the rubric. All crosscutting concepts found in the *Earth Science: Geology, the Environment and the Universe* textbook are aligned to NGSS see attached link.
https://www.dropbox.com/s/geh4axrywv5n29y/ES%20Alignment%20Guide.pdf?dl=0

Chemistry:
*Glencoe Chemistry: Matter and Change* includes a wide variety of materials to enrich instruction. There are numerous opportunities for students and teachers to gain a deeper understanding of the concepts through the end-of-chapter, real-world Chemistry features, the What’s Chemistry Got To Do With It? videos, Enrichment activities in the eStudent Edition, and additional Enrichment strategies and activities found in the Teacher Edition.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. Specific examples include. An Alignment Guide can be found in the following link:
https://www.dropbox.com/s/gs9npo5ck22tvwj/Chemistry%20Alignment%20Guide.pdf?dl=0

Physics:
*Glencoe Physics: Principles and Problems* offers a variety of instructional program features that exhibits connections to students’ lives and the world around them. Each chapter is introduced by engaging real-world application photos and Physics TV. Physics 4 You at the beginning of each lesson provide examples of how the physics objectives relate to real-life situations. The program’s narrative provides relevant analogies to help clarify the core idea of the lesson. Connections to the real world are illustrated within each chapter with high interest, student-centered features that focus on “How it Works”, “Frontiers in Physics,” “A Closer Look,” “Physics That’s Entertainment,” or “On the Job”. These embedded features create opportunities for students to discuss contemporary, unique, and new developments in physics. Each feature provides “Going Further” enrichment and extension activities that enhance students’ knowledge and skills on the physics topic.

Throughout the program students apply the Claim-Evidence-Reason Model to the Applying Practices opportunities. The Applying Practices worksheets allows students to collaborate discussing the reasons behind the scenarios or problems presented while providing evidence to support their finding and explanation of why the claim was supported from the data obtained.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link:
https://www.dropbox.com/s/ce3gmubvcusp9kb/Physics%20Alignment%20Guide.pdf?dl=0
The instructional materials align with the conceptual shifts of the NGSS:

**Criterion 2: RIGOR**

Materials support and guide in-depth instruction in the three intertwined NGSS dimensions*, support the integration of conceptual understanding linked to explanations and empirical investigations that allow students to evaluate knowledge claims and develop procedural skills while engaging in authentic and content-appropriate scientific inquiry and engineering design learning experiences, and provide opportunities for students to engage in practice, discourse, and reflection in multiple interconnected and social contexts.

2a. Materials support the development of students’ conceptual understanding of the natural world through experiential investigations by providing three-dimensional opportunities to fully engage and interpret scientific explanations.

- Biology TE, p. 514 (Launch Lab – Detail are online)
- Biology TE, p. 728 (MiniLab)
- Biology TE, p. 593 (BioLab)
- Chemistry TE, P. 381 (Applying Practices – Conservation of Mass is online)
- Physics TE, p. 301 (PBL Earth Power is online)

2b. Materials support the development of students’ conceptual understanding of the designed world through authentic engineering practices to define and solve problems by providing three-dimensional opportunities to fully engage and apply scientific knowledge.

- Biology TE, p. 1010
- Biology TE, p. 381
- Biology TE, p. 81 (Applying Practices)
- Chemistry TE, P. xii (Engineering Practices Handbook is online)
- Physics SE, p. xviii (Front Matter)

2c. Materials include authentic and content-appropriate practices for student-generated claims with scientific evidence to make sense of phenomena and engineering design through evaluating and developing procedural skills.

- Biology TE, p. 98 (Data Analysis Lab)
- Biology TE, p. 106 (WebQuest is Online)
- Biology TE, p. 916 (Applying Practices is online)
- Chemistry TE, p.505 (Chemistry and Careers Webquest is online)
- Physics TE, p. 302 (PBL – Earth Power is online)

2d. Materials are designed so that educators and students spend sufficient time engaging in the science and engineering practices to better understand the nature and development of scientific knowledge in multiple interconnected and social contexts through student-generated discourse.

- Biology TE, p. 472 Discussion Group
- Biology TE, p. 173 (Share Your Data – BioLab)
- Biology TE, p. 182 (Activity – Make a Comparison)
- Chemistry TE, p. 36T (Individual or Group Project)
- Physics TE, p. 80 (Article and Going Further)

**Life Science:**

Students participate in grade-level appropriate science discourse and scientific writing using academic vocabulary in several settings. Vocabulary margin features—Academic Vocabulary, Word Origin, and Science Usage v. Common Usage—also support scientific writing and discourse. The combination of Applying Practices activities (Evaluating Impacts of Environmental Change on Populations), PBL projects (Microbeads, Mega-problem), WebQuests (Careers in Biology: Wildlife Biologist), and inquiry activities (A Pond in a Jar), provides students with multiple opportunities to experience relevant phenomena in both representation format and in firsthand experience. Within the lessons Data Analysis Labs and DBQs present results from research presented in scientific literature to bring scientists doing science to the classroom. These activities engage students in phenomena from various disciplines and involve them in three dimension learning. Students utilize science and engineering practices to make choices, design investigations, make models, analyze data and draw conclusion as they move toward a solution in real-life relevant scenarios. These opportunities allow students to make connections to the world they live in as they develop crucial problem-solving and critical thinking skills.

**Earth Science:**

Throughout the program students apply the Claim-Evidence-Reason Model to the Applying Practices opportunities. The
Applying Practices worksheets allows students to collaborate discussing the reasons behind the scenarios or problems presented while providing evidence to support their finding and explanation of why the claim was supported from the data obtained.

_Earth Science: Geology, the Environment and the Universe_ provides an inquiry strand with a wealth of laboratory options throughout the program. The inquiry-based options offer scientific practice, encouraging problem-solving strategies and developmental critical thinking and process skills. The program’s strong inquiry strand gets students actively involved in the learning process by allowing them to manipulate variables and develop and test appropriate procedures. The Student Edition offers coherent lab options within each chapter, which allows students to develop strong inquiry skills. Students will develop a progression of knowledge and skills that allow them to think like a scientist to become successful with the chapter-end GeoLab.

The Teacher Wraparound Edition offers demonstration strategies that assist with clarifying topics within the lesson. The program provides two lab manuals online. Inquiry instruction can be diversified with a suite of inquiry options that can reach students where they are, while challenging others to excel.

**Chemistry:**
There are many opportunities in _Glencoe Chemistry: Matter and Change_ to engage in questioning, conjecture, explanation and justification. These include, but are not limited to the following examples:

Class discussions initiated from activities and teacher demonstrations, during lab reports, Applying Practices activities (online in ConnectED), and PBLs (online in ConnectED), in chapter review critical thinking responses and Writing in Chemistry questions, Chemistry Journal, and WebQuests (online in ConnectED), Academic Vocabulary, Science Usage v. Common Usage.

To fulfill the characteristics of standards supporting curricula, _Glencoe Chemistry: Matter and Change_ was developed using six specific, research-based instructional strategies. These strategies support inquiry-based instruction by providing ideas for and examples of how scientific inquiry can be conducted and by providing information to support student inquiry. The six strategies are as follows:

1. Using prior knowledge to learn new information and correct misconceptions
2. Practicing important tasks
3. Using high-quality visuals to communicate, organize, and reinforce science learning
4. Motivating all students to achieve
5. Developing reading comprehension strategies and mathematical skills
6. Learning by using study strategies

**Physics:**
The activities and strategies employed in _Glencoe Physics: Principles and Problems_ are primarily designed to augment student understanding of the concepts with a secondary objective of providing engagement. As a result all are founded in the context of the program and have a clear teaching objective. The strategies are varied so as to provide new experiences and learning strategies for students.

_Glencoe Physics: Principles and Problems_ begins each lesson with listing the objectives and key vocabulary that will be introduced in the narrative presentation. Key terms are boldface and clearly defined with context of the lesson. Important equations are highlighted and expressed algebraically and written out to aid understanding. The Study Guide reviews key terms and equations presented with the chapter list page references for students to review if necessary. The Chapter Assessment provides a “Concept Mapping” graphic organizer that requires students to understand key physics terms and their scientific relationship.

_Glencoe Physics: Principles and Problems_ offer multiple opportunities for students to think critically and be creative with scientific investigations. The program’s assessment strand provides higher-order “Critical Thinking” questions in each Section Review and Chapter Assessment. The program’s inquiry strand requires students to think critically and analyze data associated with the hands-on labs found in the Student Edition and laboratory manuals.
The instructional materials align with the conceptual shifts of the NGSS:

**Criterion 3 & 4: COHERENCE**

Learning experiences form a coherent learning progression in which each K-5 student builds competencies in the performance expectations through actively engaging in science and engineering practices and applying crosscutting concepts to continually build on and revise their knowledge and skills in disciplinary core ideas. Student opportunities are directly connected to the grade-level performance expectations to develop and use specific grade-appropriate elements of three-dimensional learning that are integrated to develop and support students’ sense-making of phenomena and design solutions to problems.

3a. Materials provide strong integration of science and engineering practices, disciplinary core ideas, and crosscutting concepts within each and across grade levels.
- Biology TE, p. 144-145
- Biology TE, p. 146A&B
- Biology TE, p. xviii-xix (Real World STEM)
- Chemistry TE, P. 284 A&B
- Earth Science TE, p. xvi-xxvii

3b&c. Materials within each unit and course provide coherent learning experiences that help students develop proficiency on a targeted set of three-dimensional performance expectations by intentionally linking prior knowledge and skills as a basis of engagement.
- Biology TE, p. 266-267 (5 minute launch and video is online)
- Biology TE, p. (268A Materials and Planning)
- Biology TE, p. 268 (Launch Lab)
- Biology TE, p. 273 (Visual Literacy and Animation is online)
- Biology TE, p. 281 (MiniLab and Virtual Lab is online)

3d. Materials within each unit and course focus on the application of authentic and content-appropriate knowledge, skills, and reasoning.
- Biology TE, p. 286
- Biology TE, p. 287
- Biology TE, p. 300 (MiniLab)
- Biology TE, P. 309 (Applying Practices, Investigating Genetic Variation is Online)
- Biology TE, p. 303 Data Analysis Lab

**Life Science:**

Crosscutting Concepts are themes that appear throughout all branches of science and engineering. These are not directly correlated but are found implicitly in the other correlations listed on the page. The cross-cutting concepts are found within the applying practices, the performance tasks, the WebQuests and many of the inquiry exercises. Patterns, models, energy flow and the other crosscutting concepts are experienced throughout.

The engineering performance expectations are always presented in the context of the DCI they relate to. The engineering designed loop is used in many of the activities but are not isolated from context. A number of the labs also contain engineering practices as students design their labs.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: [https://www.dropbox.com/s/3vriyvqmmqxwg4i/Biology%20Alignment%20Guide.pdf?dl=0](https://www.dropbox.com/s/3vriyvqmmqxwg4i/Biology%20Alignment%20Guide.pdf?dl=0)

Vertical alignment of science concepts is inherent in the NGSS, allowing students a progression in understanding of key concepts. Student activities and questions throughout *Glencoe Biology* provide opportunities for identifying gaps in prior knowledge and building on it in all three areas. The 5-Minute Unit Launch (TE p. 144) is a short pre-teaching activity, such as K-W-L, teachers can use as a warm-up and gauge of prior knowledge. The Chapter Diagnostic Test also probes prior learning and plan lessons. The Launch Lab at the beginning of each chapter provides structured inquiry into the content of the chapter and allows students to apply what they have already learned. LearnSmart with SmartBook is an online, interactive version of the textbook with adaptive, continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on.
Earth Science:
The engineering performance expectations are always presented in the context of the DCI they relate to. The engineering designed loop is used in many of the activities but are not isolated from context. A number of the geo-labs also contain engineering practices.

Earth Science: Geology, the Environment and the Universe use inquiry-based learning opportunities where students participate in science discourse in and outside the classroom environment. Multiple lab opportunities such as Demo Labs, Launch Lab, Mini Labs, Data Analysis Labs, GeoLabs and virtual labs provides students with opportunities to collaborate and communicate findings. Specials features in the Earth Science: Geology, the Environment and the Universe such as Earth Science & Technology/Society & Expeditions provide students the opportunity to discuss and write in science. Other supporting resources found in the Earth Science textbook to support classroom discourse includes: Visualizing Activities, Projects, Academic Vocabulary, Word Origin, Science Usage v. Common Usage and Environmental Connections.

Found throughout MHE Earth Science: Geology: The Environment and the Universe textbook there are too many Crosscutting Concepts to address individually in the rubric. All crosscutting concepts found in the Earth Science: Geology, the Environment and the Universe textbook are aligned to NGSS see attached link. https://www.dropbox.com/s/geh4axryv5n29y/ES%20Alignment%20Guide.pdf?dl=0

Chemistry:
The activities and strategies employed in Glencoe Chemistry: Matter and Change are primarily designed to augment student understanding of the concepts with a secondary objective of providing engagement. As a result all are founded in the context of the program and have a clear teaching objective. The strategies are varied so as to provide new experiences and learning strategies for students.

Glencoe Chemistry: Matter and Change is a real-world curriculum that makes chemistry relevant to students. Every lesson is created to answer Essential Questions that lead toward understanding of the Big Idea. Student begin the lesson with a “Chem 4 You” feature that connects to what they already know (text to self), the world around them (text to world), or something they’ve already investigated (text to text). Images, animations and videos enhance the exploration with authentic examples and applications. Data Analysis Labs provide students with opportunities to interact with actual data from published research so they can see the real-world applications of the concepts. There are also end-of-chapter features that explore issues such as How It Works, Everyday Chemistry, Chemistry & Health and Chemistry & Careers.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: https://www.dropbox.com/s/gs9npo5ck2tzwj/Chemistry%20Alignment%20Guide.pdf?dl=0

Physics:
Glencoe Physics: Principles and Problems is arranged to present concepts in their most logical orders—form the concrete to the more abstract. The importance of measurement in physics has been introduced first in order to emphasize mathematics used in math class and how it connects and applies to physics. The concepts of momentum and energy are presented in close sequence to stress the conservation laws. The understanding of electricity and magnetism provides the explanation and discussion before quantum theory and nuclear physics.

Glencoe Physics: Principles and Problems chapter resources contain a variety of student worksheets designed to reteach, reinforce, and enrich the learning experience within each chapter. The program also provides Teaching Transparences that visually enhance, review, and reinforce key physics concepts. Glencoe Physics: Principles and Problems offers technology resources that support instruction for a broad range of learners. The online teacher edition and resources in ConnectED allow teachers to customize selected worksheet masters to address unique student needs.

The Plan and Present software in ConnectED provides an editable, interactive presentation to support classroom instruction for all students.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: https://www.dropbox.com/s/ce3gmubvcusp9kb/Physics%20Alignment%20Guide.pdf?dl=0
4. Materials are directly connected to the appropriate grade-level performance expectations to develop and use specific science and engineering practices, disciplinary core ideas, and crosscutting concepts that are integrated to develop and support students’ sense-making of phenomena and design solutions to problems.

Biology TE, p. 308 (Virtual Lab is Online)
Biology TE, p. 316 (In the Field)
Biology TE, p. 317 (Bio Lab)
Chemistry TE, p. 143 (Applying Practices – Is Light a Wave or a Particle is online)
Physics TE, p. 102 Physics Lab – Force in an Elevator is online)

**Life Science:**
The Scientific and Engineering Practices Handbook provides the basis for understanding the practices and contains examples of how the S&E practices can be integrated into the classroom. The applying practices activities and the PBL’s were meant to involve students in using the S&E practices to solve problems. They help students integrate those problems as well. All of these activities are open where students make choices and design solutions. The geo-labs within the text also contain a number of design your own labs. The Applying Practices and Project-Based Learning activities are found at point of use within the Plan and Present Tab of the online teacher resources.

Students participate in grade-level appropriate science discourse and scientific writing using academic vocabulary in several settings. These include class discussions initiated from activities and teacher demonstrations, during lab reports, Applying Practices activities (online in ConnectED), Webquests, and PBLs (online in ConnectED), in chapter review critical thinking responses, Document-Based Questions, Short Answer, Extended Response, and Essay Questions, Debate in Biology, and in Writing in Biology. Vocabulary margin features—Academic Vocabulary, Word Origin, and Science Usage v. Common Usage—also support scientific writing and discourse.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: [https://www.dropbox.com/s/3vriyvmmqxxw4i/Biology%20Alignment%20Guide.pdf?dl=0](https://www.dropbox.com/s/3vriyvmmqxxw4i/Biology%20Alignment%20Guide.pdf?dl=0)

The ConnectED digital platform for *Glencoe Biology* brings a new level of engagement, communication, and effectiveness to the classroom. A one-stop shop where students and teachers can access the student eBook, digital resources, videos, worksheets, presentations, assessment tools, and planning and messaging tools.

Through the inquiry activities found in *Glencoe Biology*, students are asked to define the problem, form a hypothesis, and design investigations to test their ideas. Many involve peer review and allow students to extend the investigation with further refinements.

The textbook has special features in each chapter (Cutting-Edge Biology, Biology & Society, In the Field) that describe how science and technologies impact people’s life. Students are provided with opportunities to research, evaluate, and write about the topics. Some encourage class debates.

The Applying Practices activities, PBL projects, Webquests, and other phenomenon-based activities have students present their explanations and arguments in a larger setting and in a variety of media to expand the three-dimensional learning.

*Glencoe Biology* offers a Teacher Edition print and online full of research-based strategies to support and differentiate instruction (TE pp. 222-233,) including Develop Concepts, Reading Strategy, Skill Practice, Writing Support, Differentiated Instruction, Critical Thinking, Demonstration, Content Background, Clarify Misconceptions, and Formative Assessments. The Teacher Edition teaching strategies and activities have been coded for ability-level appropriateness. A competency level is given for each activity using the following code: AL activities for students working above grade level; OL on grade level; BL below grade level; EL activities for English learners.

The Teacher Edition Chapter Organizer planning pages appear at the beginning of each chapter (TE pp. 216A-216B.) These pages detail all Essential Questions, lab materials, suggested pacing, ancillaries, and online resources for the chapter. The planning pages also show the leveling key which describes the differentiated instruction used in the chapter.

Reading Essentials, for struggling readers in both English and Spanish, provides the content at an accommodated level. Science Notebook guides students in making meaningful connections with the text through Cornell note-taking. Graphic organizers called Foldables are also available, as well as interactive dissections, Vocabulary eFlashcards and eGames in English and Spanish, minigames, and videos and animations. All of these resources can be used with EL students who need alternative strategies for reading and comprehending the text.

**Earth Science:**
The Scientific and Engineering Practices Handbook provides the basis for understanding the practices and contains examples of how the S&E practices can be integrated into the classroom. The applying practices activities and the PBL’s...
were meant to involve students in using the S&E practices to solve problems. They help students integrate those problems as well. All of these activities are open where students make choices and design solutions. The geo-labs within the text also contain a number of design your own labs. The Applying Practices and Project-Based Learning activities are found at point of use within the Plan and Present Tab of the online teacher resources.

In the Teacher Wraparound Edition, strategies have been laid out to help with organization. The following teaching strategies are found in each chapter section: Focus, Teach, and Assess. An activity to reteach and an assessment skill are provided to help with understanding. A competency level is given for each activity using the following codes: AL= activities for students working above grade level, OL= on grade level, BL= below grade level, and EL= activities for English Learners. Assessments are found at the end of each section along with the chapter assessment.

The lab manual online gives detailed labs with the answers given in the back. The Unit/Chapter (Fast File) Resources online provide review and mastery for key earth science concepts. The ConnectED Plan and Present software allows teachers to plan lessons with a customizable calendar and the ability to edit student worksheets to meet learners’ needs. The eAssessment Suite in ConnectED allows teachers to prepare lesson assessments by selecting questions based on difficulty level. The ConnectED platform includes teacher materials such as Plan and Present software that allows the teacher to build customized lesson plans and edit student worksheets to address learner needs as well as use the prepared interactive presentations or edit them to fit the students’ needs.

Found throughout Earth Science: Geology, the Environment and the Universe textbook there are too many Crosscutting Concepts to address individually in the rubric. All crosscutting concepts found in the Earth Science: Geology, the Environment and the Universe textbook are aligned to NGSS see attached link.

https://www.dropbox.com/s/geh4axrywv5n29y/ES%20Alignment%20Guide.pdf?dl=0

Chemistry:
The Science and Engineering Practices Handbook is used to introduce the practices to students and support their scientific investigations and engineering projects.

A reference book, the Science and Engineering Practices Handbook provides students with background information, definitions, examples, and Quick Practice activities to stimulate learning through practice.

The Science and Engineering Practices Handbook is an easy-to-use reference for all eight practices.
1. Asking questions (for science) and defining problems (for engineering).
2. Developing and using models.
3. Planning and carrying out investigations.
4. Analyzing and interpreting data.
5. Using mathematics and computational thinking.
6. Constructing explanations (for science) and designing solutions (for engineering).
7. Engaging in argument from evidence.
8. Obtaining, evaluating, and communicating information.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. Specific examples include. An Alignment Guide can be found in the following link:
https://www.dropbox.com/s/gs9npo5ck22tvwij/Chemistry%20Alignment%20Guide.pdf?dl=0

Physics:

The engineering performance expectations are always presented in the context of the DCI they relate to. The engineering designed loop is used in many of the activities but are not isolated from context. A number of the geo-labs also contain engineering practices.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: https://www.dropbox.com/s/ce3gmubvcusp9kb/Physics%20Alignment%20Guide.pdf?dl=0
**Criterion 6 & 7: COHERENCE**

The interdependence and the influence of science, engineering and technology on society and the natural world along with the understanding of the nature of science are interconnected to the content being addressed.

**6a.** Materials integrate the **interdependence** of science, engineering, and technology as significant elements in learning experiences.

- Biology TE, p. 528 (Data Analysis Lab)
- Biology TE, p. 953 (BioLab – Forensics)
- Biology TE, p. 1067 (Internet Lab)
- Chemistry TE, P. 775 (How it Works)
- Physics SE, p. 150 (Physics TV is online)

**6b.** Materials demonstrate the **influence** of engineering, technology, and science on society and the natural world as significant elements in learning experiences.

- Biology TE, p. 1011 (Internet Lab)
- Biology TE, p. 81 (Applying Practices – Microbeads is online)
- Biology TE, p. 350
- Chemistry TE, P. 733
- Physics TE, p. 142

**Life Science:**

*Glencoe Biology* incorporates features to help students develop the skills essential for success in a first year-biology course. The biology program places a strong emphasis on student comprehension through visual literacy. The conceptual presentation is organized around Themes, Big Ideas, and the Main Ideas in biology. Real-World Reading Links in each section draw the student’s attention into the narrative with relevant analogies that help clarify topics, making them more understandable. Relevant applications throughout the textbook are highlighted with instructional photos, illustrations, tables, and high interest, student-centered special features. Inquiry-based learning is a strong strand throughout the textbook. The program offers multiple lab manuals online that have a strong diverse inquiry approach.

The Real-world sections in *Glencoe Biology* include a wealth of reading that allows teachers to infuse into their class ethical discussions on issues that science and technology bring to society. All of the special features that connect students’ lives and the world around provide writing extensions. These Student Edition elements create opportunities for students to discuss science and ethical issues. The Section and Chapter Assessment includes specific writing questions to create scenarios for students to express their understanding in relationship to the lessons’ key idea.

The Teacher Edition also has more Real-World Connections in the margins along with Writing Support activities that bring out ethical issues. Writing rubrics are provided on ConnectED. The web site provides WebQuests with safe, reliable websites for students to research current ethical issues in science.

The book is organized around Themes, Big Ideas, and Main Ideas of biology. Themes are overarching concepts based on the NGSS crosscutting concepts used throughout the entire book that help students tie what they learn together. They help students see the connections among major ideas and concepts. The Big Idea summarizes the chapter content in an overarching statement and helps students focus on topics within the Themes. The Big Idea is broken down into Main Ideas, which describe the focus of each lesson. This instructional strategy is further supported by the many instructional materials that make up this complete biology curriculum. All of the activities and projects—Applying Practices, PBLs, Webquests, and lab—contain detailed teacher plans, giving the teachers the freedom to give a high level of support or a minimal level of support. The teacher then can differentiate and move students along the inquiry spectrum from structured and guided to fully independent.

**Earth Science:**

The engineering performance expectations are always presented in the context of the DCI they relate to. The engineering designed loop is used in many of the activities but are not isolated from context. A number of the geo-labs also contain engineering practices.

*Earth Science: Geology, the Environment, and the Universe* provides a strong assessment strand. The program provides leveled questions that give students opportunities to respond at various levels of problem-solving and understanding. “Think Critically” questions are found at the end of each chapter section and in the Chapter Assessment. Document-Based Questions (DBQ) provides questions based on real-world data. GeoLabs include opportunities for students to extend and
apply the knowledge and skills to a related Earth science topic.

*Earth Science: Geology, the Environment, and the Universe* provides Project-Based Learning Activities (PBLs) which challenges the way students solve and analyze complex real-world problems. Project-Based Learning Activities integrate traditional science content with engineering practices using the engineering design loop.

**Chemistry:**
The Science and Engineering Practices Handbook is used to introduce the practices to students and support their scientific investigations and engineering projects.

A reference book, the Science and Engineering Practices Handbook provides students with background information, definitions, examples, and Quick Practice activities to stimulate learning through practice.

The Science and Engineering Practices Handbook is an easy-to-use reference for all eight practices.
1. Asking questions (for science) and defining problems (for engineering).
2. Developing and using models.
3. Planning and carrying out investigations.
4. Analyzing and interpreting data.
5. Using mathematics and computational thinking.
6. Constructing explanations (for science) and designing solutions (for engineering).
7. Engaging in argument from evidence.
8. Obtaining, evaluating, and communicating information.

**Physics:**
Each standard is supported by content and performance. Depending on the scientific or engineering practice(s) cited in the standard, the students will apply those practices through labs, activities, PBLs, or assessment. (Activity: Model Energy Transformations (online in ConnectED)) Supporting background on the practices can be found in the *Science and Engineering Practices Handbook* in the Program Resources in ConnectED.

Technology is used as an informational resource, as a means to obtain data and observations, and as a means to communicate.

*Glencoe Physics: Principles and Problems* offers a variety of instructional program features that exhibits connections to students’ lives and the world around them. Each chapter is introduced by engaging real-world application photos and Physics TV. Physics 4 You at the beginning of each lesson provide examples of how the physics objectives relate to real-life situations. The program’s narrative provides relevant analogies to help clarify the core idea of the lesson. Connections to the real world are illustrated within each chapter with high interest, student-centered features that focus on “How it Works”, “Frontiers in Physics,” “A Closer Look,” “Physics That’s Entertainment,” or “On the Job”. These embedded features create opportunities for students to discuss contemporary, unique, and new developments in physics. Each feature provides “Going Further” enrichment and extension activities that enhance students’ knowledge and skills on the physics topic.
7. Materials integrate understandings about the nature of science as significant elements in learning experiences.

Biology TE, p. 2-23
Biology TE, p. 1002 (MiniLab)
Biology TE, p. 137 (Field Investigation)
Chemistry TE, P. 550 ChemLab
Physics TE, p. 4-9

**Life Science:**

*Glencoe Biology* provides an inquiry strand with a wealth of laboratory options throughout the program. The inquiry-based options offer scientific practice, encouraging problem-solving strategies and developmental critical thinking and process skills. The program’s strong inquiry strand gets students actively involved in the learning process by allowing them to manipulate variables and develop and test appropriate procedures. The Student Edition offers coherent lab options within each chapter, which allows students to develop strong inquiry skills. Students will develop a progression of knowledge and skills that allow them to think like a scientist to become successful with the chapter-end BioLab. The unique “Investigation and Experimentation” section provides students basics instruction and review of safe laboratory guidelines and procedures that they will use throughout the course.

The Teacher Wraparound Edition offers demonstration strategies that assist with clarifying topics within the lesson. The *Glencoe Biology* program offers six different lab manuals online. Inquiry instruction can be diversified with a suite of inquiry options that can reach students where they are, while challenging others to excel.

Virtual Labs are available on ConnectED. These labs allow students to manipulate variables, collect and analyze data, and draw conclusions in a unique interactive inquiry format that is ideal for exploration, reinforcement, and extension of key concepts. Video Labs are used to help students gain confidence with laboratory process skills by first seeing them being done by students before they attempt the procedure in the laboratory.

Students are provided numerous supports for their engagement in labs, activities, and projects. The Science and Engineering Practices Handbook available online in ConnectED introduces the practices and well as scientific methods and the engineering design process. Additional background on the nature of science, hypotheses, scientific theories, and scientific laws can be found in chapter 1 of the Student Edition. In the back of the Student Edition, the Investigation and Experimentation appendix and the Skillbuilder Handbook, which includes Problem-Solving Skills and Math Skills, serve as further reinforcement and help build independence. The labs, activities, and projects in *Glencoe Biology* lie along a spectrum from traditional hands-on teacher-controlled to fully student-controlled, making students increasingly responsible for their investigations and solutions.

**Earth Science:**

*Earth Science: Geology, the Environment, and the Universe* offers Earth Science 4 You at the beginning of each section, providing students with an everyday relevant analogy that helps to clarify the key idea of the lesson. The program provides hands-on activities that relate Earth science to students’ everyday lives. The unit openers and career features encourage students to go beyond the classroom to investigate the Earth science behind the products and processes that are a part of their world. With these aspects of the program, students gain a greater appreciation for the applications of Earth science that make their world a better place. The “Expedition” features let students investigate a day in the life of people working in the field of Earth science. They also learn what is required of them if they are to prepare to join the scientists they read about. “What’s Earth Science Got to Do With it?” video series offers fast paced videos that connect concepts to contemporary examples found in the students’ world.

**Chemistry:**

*Glencoe Chemistry: Matter and Change* is a real-world curriculum that makes chemistry relevant to students. Every lesson is created to answer Essential Questions that lead toward understanding of the Big Idea. Student begin the lesson with a “Chem 4 You” feature that connects to what they already know (text to self), the world around them (text to world), or something they’ve already investigated (text to text). Images, animations and videos enhance the exploration with authentic examples and applications. Data Analysis Labs provide students with opportunities to interact with actual data from published research so they can see the real-world applications of the concepts. There are also end-of-chapter features that explore issues such as How It Works, Everyday Chemistry, Chemistry & Health and Chemistry & Careers.

**Physics:**

*Glencoe Physics: Principles and Problems* provide laboratory experiences and projects that relate physics to the real world.
The special student feature that is incorporated in each chapter provides real-world physics connections. What’s Physics Got to Do With it? creates visual examples of how physics relates to students’ everyday world.
The instructional materials align with the conceptual shifts of the NGSS:

**Criterion 5, 8 & 9: COHERENCE**

Instructional sequence provides multiple approaches to achieve proficiency of the performance expectations and a logical progression of diverse instructional strategies for student learning.

5. Materials provide learning opportunities that include instructional strategies to facilitate three-dimensional learning.
   Biology TE, p. 131 (PBL – Cleaning Up an Oil Spill is online)
   Biology TE, p. 47 (Applying Practices – Modeling the Carbon Cycle is Online)
   Biology TE, p. 146 (Foldable)
   Biology TE, p. 623 (Field Investigation)
   Biology TE, p. 50

Digital high school science solutions, solving real problems for the real world:
   Project-Based Learning Activities (PBLs)
   Science and Engineering Practices Handbook
   Applying Practices Worksheets

New Applying Practices activities and Project-Based Learning activities, each written to a specific NGSS performance expectation, appear at point of use. These editable worksheets can be filled in online or downloaded. Your students will be engaged and successful, integrating the three dimensions—disciplinary core ideas, science and engineering practices, and cross-cutting concepts!

LearnSmart dynamically adjusts the learning content to match the student’s progress, based on the student’s demonstrated skill and level of confidence in his or her knowledge. Because no two students experience the application in the same way, the sequence of practice questions is presented to each student uniquely.
8. Instructional sequence consistently provides multiple opportunities and adequate time for student learning.
Biology TE, p. 146A&B
Biology TE, p. 146 (Launch Lab)
Biology TE, p. 150&151 (Skill Practice, BrainPop, Writing Support)
Chemistry TE, p. 575 (Quick Demo)
Physics TE, p. 157 (Example and Practice Problems)

**Life Science:**
Through the inquiry activities found in *Glencoe Biology*, students are asked to define the problem, form a hypothesis, and design an experiment to test their idea. Once they have their data, they are asked to modify the experiment’s design to remove uncertainties so they achieve clearer results. The textbook has special features (Cutting-Edge Biology, Biology & Society, In the Field) that describe how new technologies impact people’s life. Students are provided with opportunities to evaluate and write about the impact of human endeavors on their world.

The *Glencoe Biology* program provides a variety of laboratory manuals that further students’ opportunities to engage in inquiry experiments that supports understanding of major biology concepts. The Virtual Labs provide interactive manipulations of variables that support engineering design principles. The Video Lab online helps students with reviewing selected lab procedures. The web site offers students access to the virtual labs and WebQuest activities.

The Real-world sections in *Glencoe Biology* include a wealth of reading that allows teachers to infuse into their class ethical discussions on issues that science and technology bring to society. All of the special features that connect students’ lives and the world around provide writing extensions. These Student Edition elements create opportunities for students to discuss science and ethical issues. The Section and Chapter Assessment includes specific writing questions to create scenarios for students to express their understanding in relationship to the lessons’ key idea.

The structure of the unit and/or lessons within *Glencoe Biology* targets a gradual release model of the conceptual framework of the science. Students’ knowledge and understanding build while moving from lesson to lesson. They are then able to apply practices and concepts to rigorous situations. The ability to meet the performance expectations lies in the deep exposure to the DCIs, while using the practices and the Crosscutting Concepts. The crosscutting concepts, such as patterns, cause and effect, structure and function, and matter and energy, are found throughout the Applying Practices, the PBLs, the WebQuests, and the inquiry activities.

The science and engineering practices are detailed in the Science and Engineering Practices Handbook. But the practices are integral to the performance expectations that are always presented in the context of the DCIs they relate to. They are not done in isolation from context. A number of the labs also involve engineering practices as students design their investigations and perform analyses.

**Earth Science:**
*Earth Science: Geology, the Environment, and the Universe* provides a strong assessment strand. The program provides leveled questions that give students opportunities to respond at various levels of problem-solving and understanding. “Think Critically” questions are found at the end of each chapter section and in the Chapter Assessment. Document-Based Questions (DBQ) provide questions based on real-world data. GeoLabs include opportunities for students to extend and apply the knowledge and skills to a related earth science topic.

Student activities and questions throughout *Earth Science: Geology, the Environment, and the Universe* provide opportunities for ongoing assessment and remediation. The Launch Lab is an entry-level assessment (diagnostic) that assesses students’ prior knowledge at the beginning of a chapter. In the Teacher Wraparound Edition, the “Identity Misconception” feature provides diagnostic assessment. Formative assessment strategies are provided in the margins of the Teacher Wraparound Edition. This Teacher Wraparound Edition provides an “Assess” checkpoint, which provides an evaluation of key section concepts and an activity to re-teach students who are struggling to meet the learning objective.

**Chemistry:**
*Glencoe Chemistry: Matter and Change* includes a wide variety of materials to enrich instruction. There are numerous opportunities for students to gain a deeper understanding of the concepts through the end-of-chapter real-world Chemistry features, the What’s Chemistry Got To Do With It? videos, Enrichment activities in the eStudent Edition, and additional Enrichment strategies and activities found in the Teacher Edition.

*Glencoe Chemistry: Matter and Change* provides many opportunities for students to obtaining, evaluating and communicating information. They include, but are not limited to:
Applying Practices Worksheets: These experiences support the Science and Engineering practices while also allowing students to obtain, evaluate and communicate information in writing.

Additional opportunities include, but are not limited to: Launch Labs, Problem Solving Labs, Mini Labs, Chem Labs and Data Analysis Labs.

There are many opportunities in *Glencoe Chemistry: Matter and Change* to engage in questioning, conjecture, explanation and justification. These include, but are not limited to:
Class discussions initiated from activities and teacher demonstrations, during lab reports, Applying Practices activities (online in ConnectED), and Project-Based Learning (online in ConnectED), in chapter review critical thinking responses and Writing in Chemistry questions, Chemistry Journal, and WebQuests (online in ConnectED), Academic Vocabulary, Science Usage v. Common Usage.

Data Analysis Labs provide students with opportunities to interact with actual data from published research so they can see the real-world applications of the concepts. There are also end-of-chapter features that explore issues such as How It Works, Everyday Chemistry, Chemistry & Health and Chemistry & Careers.

**Physics:**
*Glencoe Physics: Principles and Problems* offers a variety of instructional program features that exhibits connections to students’ lives and the world around them. Each chapter is introduced by engaging real-world application photos and Physics TV. Physics 4 You at the beginning of each lesson provide examples of how the physics objectives relate to real-life situations. The program’s narrative provides relevant analogies to help clarify the core idea of the lesson. Connections to the real world are illustrated within each chapter with high interest, student-centered features that focus on “How it Works”, “Frontiers in Physics,” “A Closer Look,” “Physics That’s Entertainment,” or “On the Job”. These embedded features create opportunities for students to discuss contemporary, unique, and new developments in physics. Each feature provides “Going Further” enrichment and extension activities that enhance students’ knowledge and skills on the physics topic.

*Glencoe Physics: Principles and Problems* provide students with options to think critically, extend understanding, and application with many of the high interest special features. The “Practice Problems” associated with each math-based concept provide immediate practice and remediation and practice of essential math skills. The “Additional Problems” online offer extension opportunities to think critically and apply mathematical skills.

Students have many opportunities to engage in argument from evidence within the *Glencoe Physics: Principles and Problems* narrative. End of chapter assessments support the building of this skill. Additional examples may be found online within the ConnectED platform.

These include, but are not limited to: Challenge Problems, Pre-AP Critical Thinking, PBLs, Applying Practices, and Interactive Learning Opportunities.

Obtaining, evaluating and communicating information are a part of the *Glencoe Physics: Principles and Problems* extensive and flexible inquiry based Physics suite. Launch Labs, Mini Labs, Physics Labs, Reinforcement, Enrichment and Challenge opportunities all support this very important skill. Look for the labs to be referenced within the book narrative. The accompanying activities can be found online, through the McGraw Hill ConnectED platform.

Additional opportunities include, but are not limited to: Challenge Problems, Pre-AP Critical Thinking, PBLs, Applying Practices, and Interactive Learning Opportunities.
9a. Materials use diverse instructional strategies that provide clear purposes for learning experiences (e.g., elicit preconceptions, teach new knowledge, build skills and abilities, and connects to prior knowledge).

Biology TE, p. 417 (Foldable and Directed Reading)
Biology TE, p. 418 (KWL)
Biology TE, p. 420 (Data Analysis Lab and Demonstration)
Biology TE, p. 421 (Visualization)
Biology TE, p. 420 (Applying Practices – Can You Beat Natural Selection with Camouflage is online)

9b. Materials use instructional strategies in a logical progression that provides clear purposes for learning experiences (e.g., elicit preconceptions, teach new knowledge, build skills and abilities, and connect to prior knowledge).

Physics TE, p. 53 (Chapter overview, Introduce the Big Idea, About the Photo, Physics TV – elicit preconceptions)
Physics TE, p. 54 (Identify Misconceptions)
Physics TE, p. 55 (Concept Development)
Physics TE, p. 56 (Quick Demo)
Physics TE, p. 56 (Assess)

Life Science:
The number and quality of the opportunities for the student to think critically, creatively, and reflectively in scientific investigations are almost overwhelming in *Glencoe Biology* program. The number of scientific investigations in the ancillary laboratory manuals in addition to the number of labs in the textbook far exceeds the number of days in the school calendar. The teacher has the opportunity to choose the best ones to fit the local circumstances and needs of the students. The "Data Analysis Labs" and "Document-Based Questions" (DBQ) cites the actual research source from which the questions are based. This information allows students to opportunity to delve deeper into the research and extend their learning experience.

The inquiry activities found in *Glencoe Biology*, students are asked to define the problem, form a hypothesis, and design an experiment to test their idea. Once they have their data, they are asked to modify the experiment’s design to remove uncertainties so they achieve clearer results. The textbook has special features (Cutting-Edge Biology, Biology & Society, In the Field) that describe how new technologies impact people’s life. Students are provided with opportunities to evaluate and write about the impact of human endeavors on their world.

The *Glencoe Biology* program provides a variety of laboratory manuals that further students’ opportunities to engage in inquiry experiments that supports understanding of major biology concepts. The Virtual Labs provide interactive manipulations of variables that support engineering design principles. The Video Lab online helps students with reviewing selected lab procedures. The web site offers students access to the virtual labs and WebQuest activities.

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the student edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the “Chapter Test” assessment is provided in three levels to support differentiated instruction. The program’s web site provides students additional formative and summative self-assessment practice. Students can email online assessment results to teachers and parents.

Earth Science:
*Earth Science: Geology, the Environment, and the Universe* provides the students with relevant information that builds on their personal experiences. The high interest special features in each chapter make a connection with some aspect of students’ everyday life and society at large. The unit openers depict a career focus that relates to various applications of Earth science. The “Expedition” features offer interesting and relevant connections that allow students to extend and enrich knowledge and skills regarding an earth science concept.

The program provides two lab manuals online. Inquiry instruction can be diversified with a suite of inquiry options that can reach students where they are, while challenging others to excel.

The online ConnectED platform is a simpler solution for students and teachers to explore, be engaged and supplied with all their resources tied to the textbook. This platform allows learning and teaching to happen anytime and anywhere with the supporting resources they need.
Earth Science: Geology, the Environment, and the Universe clearly highlights new and review vocabulary at the beginning of each section of instruction in the student edition. All key terms are boldfaced, highlighted and defined in context within the paragraph that it is used. The textbook integrates student-friendly margin features that provide vocabulary support to clues, root words, prefixes and suffixes; in order to help the student. Foldables™ are three-dimensional graphic organizers that provide review and reinforcement of vocabulary related to the big idea of the chapter. The chapter-end Study Guide reviews all of the important key scientific vocabulary by section that is also related to the chapter’s big idea.

The Science Notebook is a student resource tool that provides unique vocabulary and writing support for key earth science concepts. The Plan and Present software in ConnectED provides the teacher with an interactive, editable presentation that has visual and auditory reinforcement as new vocabulary is being taught. The eBook on ConnectED provides audio that aids the acquisition of key scientific vocabulary related to earth science. The Media Library offers audio downloadable readings for each chapter. ConnectED offers “Vocabulary eFlashcards” and “Vocabulary eGames” in English and Spanish for review and practice of important terms used in Earth science.

Chemistry:
To fulfill the characteristics of standards supporting curricula, Glencoe Chemistry: Matter and Change was developed using six specific, research-based instructional strategies. These strategies support inquiry-based instruction by providing ideas for and examples of how scientific inquiry can be conducted and by providing information to support student inquiry. The six strategies are as follows:

1. Using prior knowledge to learn new information and correct misconceptions
2. Practicing important tasks
3. Using high-quality visuals to communicate, organize, and reinforce science learning
4. Motivating all students to achieve
5. Developing reading comprehension strategies and mathematical skills
6. Learning by using study strategies

A variety of assessment instruments enable teachers to inform their instruction. With preassessment opportunities in the form of Launch Labs and Foldables strategies teachers can assess where students are at the beginning of a lesson. Reading Checks and Section Assessments provide feedback on student progress towards the Essential Questions. Using that information, teachers can determine any necessary reteaching and remediation.

Physics:
Glencoe Physics: Principles and Problems is arranged to present concepts in their most logical orders—from the concrete to the more abstract. The importance of measurement in physics has been introduced first in order to emphasize mathematics used in math class and how it connects and applies to physics. The concepts of momentum and energy are presented in close sequence to stress the conservation laws. The understanding of electricity and magnetism provides the explanation and discussion before quantum theory and nuclear physics.

Glencoe Physics: Principles and Problems Teacher Essentials provides guidance and strategies to deliver effective and efficient instruction to a broad range of learners. Each teaching strategy labeled with an ability level icon help teachers accommodate learners. BL activities are recommended for students working below grade level or students struggling with a concept. OL activities should be within range of the majority of learners. AL activities are designed to challenge above-average students. The TE provides additional teaching strategies to extend instruction by offering optional activities to Differentiated Instruction, Help Struggling Students, and Challenge learners.

The activities and strategies employed in Glencoe Physics: Principles and Problems are primarily designed to augment student understanding of the concepts with a secondary objective of providing engagement. As a result all are founded in the context of the program and have a clear teaching objective. The strategies are varied so as to provide new experiences and learning strategies for students.
The instructional materials align with the conceptual shifts of the NGSS:

**Criterion 3 & 10: COHERENCE**

Materials support and guide in-depth instruction in the three intertwined NGSS dimensions, with clear connections to the Common Core State Standards (CCSS) in Mathematics and English Language Arts & Literacy and the Oregon English Language Proficiency Standards.

3e. Materials **across and throughout grades 9-12** build coherent learning progressions by integrating science and engineering practices, disciplinary core ideas, and crosscutting concepts.

- Biology TE, p. 121 (Applying Practices – Biodiversity in Leaf Litter is online)
- Earth Science TE, p. 691 (PBL = Environmental Consulting is online)
- Earth Science TE, p. 699
- Chemistry TE, p. 422 (PBL Touching the Future is online)
- Physics TE, p. 302 (PBL Earth Power is online)

3f. Where appropriate, materials **across and throughout grades 9-12** provide multiple disciplinary core ideas and crosscutting concepts that are used together to explain phenomena.

- Biology TE, p. 216 (Launch Lab)
- Biology TE, p. 164 (Data Analysis Lab)
- Biology TE, p. 843
- Earth Science TE, p. 125
- Physics TE, p. 176 (Launch Lab)

3g. Where appropriate, materials **across and throughout grades 9-12** include science and engineering practices that are integrated with other content area practices.

- Biology TE, p. 1039
- Biology TE, p. 81 (PBL Microbeads is online)
- Earth Science TE, p. 260 (Webquest is online)
- Earth Science TE, P. 172 (MiniLab)
- Earth Science TE, p. 543 (Data Analysis Lab)

10a. Materials provide relevant grade-appropriate connection(s) to the Common Core State Standards (CCSS) in Mathematics.

**Correlations have been completed to the CCSS Standards in Mathematics**

10b. Materials provide relevant grade-appropriate connection(s) to the Common Core State Standards (CCSS) in English Language Arts & Literacy.

**Correlations have been completed to the CCSS Standards in English Language Arts and Literacy**

10c. Materials provide relevant grade-appropriate connection(s) to the Oregon English Language Proficiency Standards. Correlations are being completed to the Oregon English Language Proficiency Standards

**Life Science:**

Content is delivered via McGraw-Hill’s ConnectEd site. The site provides access to eBooks, audio, personal tutors, animations, self-check quizzes, and more. Various tools allow the teacher to create and customize lesson plans, edit worksheets, and use preloaded presentations or create their own to enrich student understanding. Programs are interactive and student-centered curricula. Materials integrate academic subjects including language arts, math, science, and social studies, where appropriate. Programs support teacher-facilitated learning through guided instruction methodology.

The combination of Applying Practices activities (Evaluating Impacts of Environmental Change on Populations), PBL projects (Microbeads, Mega-problem), WebQuests (Careers in Biology: Wildlife Biologist), and inquiry activities (A Pond in a Jar), provides students with multiple opportunities to experience relevant phenomena in both representation format and in firsthand experience. Within the lessons Data Analysis Labs and DBQs present results from research presented in scientific literature to bring scientists doing science to the classroom. These activities engage students in phenomenon from various disciplines and involve them in three dimension learning. Students utilize science and engineering practices to make choices, design investigations, make models, analyze data and draw conclusion as they move toward a solution in real-life relevant scenarios. These opportunities allow students to make connections to the world they live in as they develop crucial problem-solving and critical thinking skills.

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Vertical alignment of science concepts is inherent in the NGSS, allowing students a progression in understanding of key concepts. Student activities and questions throughout *Glencoe Biology* provide opportunities for identifying gaps in prior knowledge and building on it in all three areas. The 5-Minute Unit Launch (TE p. 144) is a short pre-teaching activity, such as K-W-L, teachers can use as a warm-up and gauge of prior knowledge. The Chapter Diagnostic Test also probes prior learning and plan lessons. The Launch Lab at the beginning of each chapter provides structured inquiry into the content of the chapter and allows students to apply what they have already learned.

LearnSmart with SmartBook is an online, interactive version of the textbook with adaptive, continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on.

Continuous formative assessments in the Student and Teacher Editions allow students to track progress toward deeper understanding and adjust instruction.

The teacher portion of each Applying Practices activity and PBL project includes correlation to the CCSS Math and ELA & Literacy standards. CCSS Math and ELA & Literacy standards are also woven throughout the lessons as Math in Biology and Writing in Biology questions (SE pp. 247, 258, 263.) Laboratory analyses and reports, research activities, and student-developed presentations also employ the CCSS Math and ELA & Literacy standards.

**Earth Science:**
*Earth Science: Geology, the Environment and the Universe* integrates the skills found in the Language Arts and Literacy Skills. Students have ample opportunity to write, to collaborate and to share their thoughts through presentations. Many of the embedded programs in the lesson plans online and available to the students through the resource tab online have the students do just that. The Webquests in every chapter and the Applying Practices Activities have students read, do research, write their answers in prose format and then present their findings in a variety of presentation types. The embedded science articles at the end of each chapter have students read relevant, non-fiction information about real work events that apply to the sections the student is studying.

**Chemistry:**
*Glencoe Chemistry: Matter and Change* addresses all of the Common Core Literacy Standards in Reading and Writing. These standards speak to the core science skills reinforced throughout the program. Students are continually encouraged to analyze, critique, and communicate. For example, our Science Notebook provides consistent opportunities to cite specific textual evidence to support analysis, determine central ideas, provide summaries, and analyze the relationships among concepts etc. The Launch Labs, MiniLabs and ChemLabs throughout the program require students to follow multistep procedures, take measurements, and more. In numerous activities throughout the program, students translate information into a tables and graphs and also interpret graphs and tables.

**Physics:**
*Glencoe Physics: Principles and Problems* integrates the skills found in the Language Arts and Literacy Skills. Students have ample opportunity to write, to collaborate and to share their thoughts through presentations. Many of the embedded programs in the lesson plans online and available to the students through the resource tab online have the students do just that. The Webquests in every chapter and the Applying Practices Activities have students read, do research, write their answers in prose format and then present their findings in a variety of presentation types. The embedded science articles at the end of each chapter have students read relevant, non-fiction information about real work events that apply to the sections the student is studying.
Instructional Supports
The instructional materials support instruction and learning for all students:

Student Engagement
11. Engages students in authentic and meaningful learning experiences that reflect real-world science and engineering practices in the NGSS performance expectations and are grounded in students’ experiences to provide a context for making sense of phenomena and/or designing solutions to problems.

The context of learning experiences, including relevant phenomena, questions, or problems, engages students in three-dimensional learning.
- Biology TE, p. 90 (Launch Lab is online)
- Biology TE, p. 92 (Essential Questions)
- Biology TE, p. 96 (Virtual Lab – Population Biology is online)
- Chemistry TE, P. 503
- Physics SE, p. 724 (Problems 62-67)

Provides relevant firsthand experiences or models that allow students to make sense of the physical and natural world.
- Biology TE, p. 331 (MiniLab)
- Biology TE, p. 351
- Biology TE, p. 254 (Virtual Lab – Cell Reproduction is online)
- Biology TE, P. 202 (Activity – Student Diffusion)
- Physics TE, p. 138 (Physics Lab – Sliding Down a Slope is Online)

Engages students in multiple practices that are integrated into relevant disciplinary core ideas and crosscutting concepts to support making sense of phenomena and/or designing solutions to problems through inquiry and engineering design experiences.
- Biology TE, p. 98 (Data Analysis Lab)
- Biology TE, p. 871 (BioLab)
- Biology TE, p. 208 (Webquest is online)
- Chemistry TE, P. 607 (Applying Practices – Food for Thought is online)
- Physics SE, p. 662-663 (Virtual Investigation is online)

Provides opportunities for students to connect their explanation of a phenomenon and/or their design solution to a problem to their own experience.
- Biology TE, p. 23
- Biology TE, p. 120 (MiniLab)
- Biology TE, p. 146 (Launch Lab)
- Chemistry TE, P. 83 (Video - What’s Chemistry Got to do with It is online)
- Physics SE, p. 80

Provides relevant applications for students to relate science to life, home, school, and various careers, and to apply their knowledge and skills as scientifically literate citizens.
- Biology TE, p. 637 (Careers)
- Biology TE, p. 680 (Debate in Biology)
- Biology TE, p. 680 (Webquest is online)
- Chemistry TE, P. 483 (Careers in Chemistry – Webquest is online)
- Physics SE, p. 713 (Applying Practices – Human Health and Radiation Frequency is online)

Life Science:
The combination of applying practices, WebQuests, and inquiry activities provide students with multiple opportunities to experience relevant phenomena in both representation format and in firsthand experience. The problems are connected to their world. They have to make choices, analyze data and draw conclusions as they move toward a solution.

Each of the Project-Based Learning activities, inquiry activities, WebQuests, and applying practices activities not only have students designing solutions, but also are set in a real life relevant scenario and as students to make connections to the world they live in. These activities are found in the plan and present tab and the resources tab within the online teacher center.

Student activities and questions throughout *Glencoe Biology* provide opportunities for ongoing assessment and
remediation. The Launch Lab is an entry-level guided inquiry activity that applies students’ prior knowledge at the beginning of a chapter. In the Teacher Edition, the Clarify a Misconception feature provides diagnostic assessment and remediation strategies. Formative assessment strategies are provided in the margins of the Teacher Edition. This Teacher Edition provides Assessment checks—an evaluation of key section concepts and an activity to re-teach students who are struggling to meet the learning objective. Students produce tangible outcomes for Applying Practices activities, PBL projects, and student inquiry activities. The performance tasks, applying practices, and lab activities help students demonstrate their three dimensional learning by constructing explanations based on the application of the cross cutting concepts and the science and engineering practices focused on phenomenon targeting on the learning outcomes and the DCIs. A summative evaluation is provided by the Chapter Assessment at the end of each chapter.

Earth Science:
Each chapter and lesson begins with essential questions that focus student learning. Each lesson includes the beginning Earth Science 4 You. In addition, Project-Based Learning Activities, Science and Engineering Practices Handbook and the Applying Practices Worksheets provides students engagement in the three dimensions of disciplinary core ideas, science and engineering practices, and cross cutting concepts. The inquiry activities and labs are focused on phenomenon questions. The inclusion of real world relevance motivates students to explore the impact of Earth science on the world.

The combination of applying practices, STEMquests, WebQuests, and inquiry activities provide students with multiple opportunities to experience relevant phenomena in both representation format and firsthand experience. The problems are connected to their world. They have to make choices, analyze data and draw conclusions as they move toward a solution.

Earth Science: Geology, the Environment, and the Universe offers Earth Science 4 You at the beginning of each section, providing students with an everyday relevant analogy that helps to clarify the key idea of the lesson. The program provides hands-on activities that relate Earth science to students’ everyday lives. The unit openers and career features encourage students to go beyond the classroom to investigate the Earth science behind the products and processes that are a part of their world. The “Expedition” features let students investigate a day in the life of people working in the field of Earth science. They also learn what is required of them if they are to prepare to join the scientists they read about. “What’s Earth Science Got to Do With it?” video series offers fast paced videos that connect concepts to contemporary examples found in the students’ world.

Earth Science: Geology, the Environment, and the Universe provides a strong assessment strand. The program provides leveled questions that give students opportunities to respond at various levels of problem-solving and understanding. “Think Critically” questions are found at the end of each chapter section and in the Chapter Assessment. Document-Based Questions (DBQ) provide questions based on real-world data. GeoLabs include opportunities for students to extend and apply the knowledge and skills to a related Earth science topic.

Chemistry:
Glencoe Chemistry: Matter and Change is organized that that promotes student understanding. There are 3 levels to its hierarchical structure:
- Level 2: The Big Idea: Each chapter has a Big Idea which summarizes the content in an overarching statement.
- Level 3: The Main Idea: Each section of the chapter has a Main Idea that describes the focus of the section.

Differentiated Instruction: Leveled activities and options for differentiated instruction help meet the needs of all students, including English Learners.

Physics:
Glencoe Physics: Principles and Problems supports the development of sound science inquiry skills throughout the program. Make predictions, design and conduct experiments, and collect data to formulate conclusions—PhysicsLab-On Target; PhysicsLab-Pendulum Vibrations; PhysicsLab-Creating an Electromagnet; Use data to compare, contrast, and calculate — All Physics Labs give students experience in data collection and analysis as part of the inquiry process.

The Scientific and Engineering Practices Handbook provides the basis for understanding the practices and contains examples of how the S&E practices can be integrated into the classroom. Each chapter and lesson begins with essential questions that focus student learning.
The instructional materials support instruction and learning for all students:

**Student Engagement**
12. Facilitates deeper understanding of the practices, disciplinary core ideas, and crosscutting concepts by building upon prior knowledge and identifying and correcting misconceptions.

Biology TE, p. 359 (Introduce the Chapter)
Biology TE, p. 360&361 (Develop Concepts)
Earth Science TE, p. 164 (Identify Misconceptions)
Earth Science TE, p. 179 (Identify Misconceptions)
Physics TE, p. 70 (Tie to Prior Knowledge)

**Life Science:**
McGraw-Hill Education’s *Glencoe Biology* provides Applying Practices activities and Project-Based Learning (PBL) projects, which appear at point of use, that is, correlated to the pertinent DCI and biology content. Each activity and project is written to a specific NGSS performance expectation using the science and engineering practices. These editable worksheets can be filled in online or downloaded. Students will be engaged and successful, integrating the three dimensions—disciplinary core ideas, science and engineering practices, and crosscutting concepts. LaunchLabs, MiniLabs, BioLabs, Data Analysis Labs, and DBQs, as well as guided and full inquiry activities and virtual labs online, further support the science content using science and engineering practices. All the projects and activities are supported by the Science and Engineering Practices Handbook online.

Students apply the DCIs within the context of application of the science and engineering practices activities in conjunction with the crosscutting concepts to conceptualize and then develop a solution to the performance expectation they are facing.

*Glencoe Biology* is built on the backwards mapping principle and ensures understanding with lessons that stem from Essential Questions, Big Ideas, and Main Ideas, which lead students to identify and connect topics and develop a deeper understanding of practices, disciplinary core ideas, and crosscutting concepts.

Student activities and questions throughout *Glencoe Biology* provide opportunities for ongoing assessment and remediation. The Launch Lab is an entry-level assessment (diagnostic) that assesses students’ prior knowledge at the beginning of a chapter. In the Teacher Wraparound Edition, the “Clarify a Misconception” feature provides diagnostic assessment. Formative assessment strategies are provided in the margins of the Teacher Wraparound Edition. This Teacher Wraparound Edition provides an “Assessment” check which provides an evaluation of key section concepts and an activity to re-teach students who are struggling to meet the learning objective.

“Reading Checks” are formative assessment questions integrated within the lesson for students to self-assess their reading comprehension before going onto the next lesson. The “Section Assessment” in the Student Edition provides students with summary statements and scaffold questions that tie to the learning objectives for that section. A summative evaluation is provided by the “Chapter Assessment” at the end of each chapter. It includes Vocabulary Review, Understand Key Concepts and Constructed Response which assess comprehension of the vocabulary and key concepts in each section. Think Critically, Writing in Biology, Extended Response and Essay Questions sections require students to demonstrate higher-order thinking and use their writing skills. Skill Review questions connect students to real-world applications as they evaluate real data from current research. Students analyze graphs, charts, and other displays of data. Cumulative Review questions assess student retention of material from earlier chapters. Standardized Test Practice aids students in mastering skills to be successful on local, state, and/or national tests. If students have problems with a standardized test question, a prescriptive guide is available to direct students to review specific lessons for remediation.

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the student edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the “Chapter Test” assessment is provided in three levels to support differentiated instruction. The program’s web site provides students additional formative and summative self-assessment practice. Students can email online assessment results to teachers and parents.

LearnSmart with SmartBook is an interactive and adaptive version of the book with continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on. LearnSmart includes 3 stages: Preview (before), Assess (during), Review (after/mastery). Grade-appropriate evidence of the crosscutting concepts is found in the program materials.
Earth Science:
*Earth Science: Geology, the Environment, and the Universe* incorporates features to help students develop the skills essential for success in a first year-biology course. The program places a strong emphasis on student comprehension through visual literacy. The conceptual presentation is organized around Themes, Big Ideas, and the Main Ideas. Earth Science 4 You in each section draw the student’s attention into the narrative with relevant analogies that help clarify topics, making them more understandable. Relevant applications throughout the textbook are highlighted with instructional photos, illustrations, tables and high interest, student-centered special features. Inquiry-based learning is a strong strand throughout the textbook. Each chapter of the Student Edition offers a Launch Lab, MiniLab, Data Analysis Lab, and GeoLab. The program offers two lab manuals online that have a strong diverse inquiry approach.

*Earth Science: Geology, the Environment, and the Universe* technology and online assets are correlated throughout the program to support and extend the lessons for both the student and the teacher. These strategies, along with the content and the instructional materials, ensure that students have the skills necessary to achieve the Science Core and Content Standards.

Found throughout *Earth Science: Geology, the Environment and the Universe* textbook there are too many Crosscutting Concepts to address individually in the rubric. All crosscutting concepts found in the *Earth Science: Geology, the Environment and the Universe* textbook are aligned to NGSS see attached link.

https://www.dropbox.com/s/geh4axryw5n29y/ES%20Alignment%20Guide.pdf?dl=0

Chemistry:
To fulfill the characteristics of standards supporting curricula, *Glencoe Chemistry: Matter and Change* was developed using six specific, research-based instructional strategies. These strategies support inquiry-based instruction by providing ideas for and examples of how scientific inquiry can be conducted and by providing information to support student inquiry. The six strategies are as follows:

1. Using prior knowledge to learn new information and correct misconceptions
2. Practicing important tasks
3. Using high-quality visuals to communicate, organize, and reinforce science learning
4. Motivating all students to achieve
5. Developing reading comprehension strategies and mathematical skills
6. Learning by using study strategies

Physics:
*Glencoe Physics: Principles and Problems* begins each lesson with listing the objectives and key vocabulary that will be introduced in the narrative presentation. Key terms are boldface and clearly defined with context of the lesson. Important equations are highlighted and expressed algebraically and written out to aid understanding. The Study Guide reviews key terms and equations presented with the chapter list page references for students to review if necessary. The Chapter Assessment provides a “Concept Mapping” graphic organizer that requires students to understand key physics terms and their scientific relationship.

*Glencoe Physics: Principles and Problems* is arranged to present concepts in their most logical orders—form the concrete to the more abstract. The importance of measurement in physics has been introduced first in order to emphasize mathematics used in math class and how it connects and applies to physics. The concepts of momentum and energy are presented in close sequence to stress the conservation laws. The understanding of electricity and magnetism provides the explanation and discussion before quantum theory and nuclear physics.

*Glencoe Physics: Principles and Problems* provide students with options to think critically, extend understanding, and application with many of the high interest special features. The “Practice Problems” associated with each math-based concept provide immediate practice and remediation and practice of essential math skills. The “Additional Problems” online offer extension opportunities to think critically and apply mathematical skills.

The LearnSmart program allows students and teachers to constantly assess understanding of a given topic and automatically modify the content of the books to match the student’s learning needs. LearnSmart generates data for the student and teacher so that lessons and if necessary intervention can be precisely crafted for each student.
The instructional materials support instruction and learning for all students:

**Student Engagement**

13. Through scientific discourse in oral, visual, and/or written form, materials provide frequent opportunities for students to express, clarify, justify, interpret, represent their ideas, and respond to peer and teacher feedback.

- Biology TE, p. 62 (Applying Practices – Local Ecosystem Dynamics in online)
- Biology TE, p. 50 (Debate in Biology)
- Earth Science TE, p. 552 (Writing in Earth Science)
- Earth Science TE, p. 210 (MiniLab)
- Physics SE, p. 43 (Physics Challenge)

**Life Science:**

The new ConnectED digital platform for high school science brings a new level of engagement and effectiveness to your classroom. A one-stop shop where you can access the student eBook, digital resources, videos, worksheets, presentations, assessment tools, and planning and messaging tools.

Through the inquiry activities found in *Glencoe Biology*, students are asked to define the problem, form a hypothesis, and design an experiment to test their idea. Once they have their data, they are asked to modify the experiment’s design to remove uncertainties so they achieve clearer results. The textbook has special features (Cutting-Edge Biology, Biology & Society, In the Field) that describe how new technologies impact people’s life. Students are provided with opportunities to evaluate and write about the impact of human endeavors on their world.

The *Glencoe Biology* program provides a variety of laboratory manuals that further students’ opportunities to engage in inquiry experiments that supports understanding of major biology concepts. The Virtual Lab series provides interactive manipulations of variables that support engineering design principles. The Video Lab online helps students with reviewing selected lab procedures. The web site offers students access to the virtual labs and WebQuest activities.

The *Glencoe Biology* provides the students with relevant information that builds on their personal experiences. The high interest special features in each chapter make a connection with some aspect of students’ everyday life and society at large. The unit openers depict a career focus that relates to various applications of biology. The Teacher Wraparound Edition offers service learning activities that engage students in meaningful community service in relation to biology and the real world. The Forensics Lab Manual online connects the technical and legal fields to biology. “What’s Biology Got to Do With it?” offers fast pace captivating videos that relate biology to the real world.

LearnSmart with SmartBook is an online, interactive version of the textbook with adaptive, continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on.

**Earth Science:**

*Earth Science: Geology, the Environment, and the Universe* encourage students to think critically and build analysis and problem solving skills.

- Every Lab in the Student Edition gives students the opportunity to analyze, conclude and apply. There is also a strategy for Communicating Your Data.
- Design Your Own Labs, GeoLabs, Model and Invent Labs allow students creativity in solving the problem.
- In the Leveled Resources book, there are leveled versions of the labs. The B version of each lab has a Challenge and Extension section that is an opportunity to go further.
- The Teacher Wraparound Edition often includes alternative Inquiry labs that provide teachers with strategies for Inquiry and extension.

*Earth Science: Geology, the Environment and the Universe* uses inquiry-based learning opportunities where students participate in science discourse in and outside the classroom environment. Multiple lab opportunities such as Demo Labs, Launch Lab, Mini Labs, Data Analysis Labs, GeoLabs and virtual labs provides students with opportunities to collaborate and communicate findings. Specials features in the *Earth Science: Geology, the Environment and the Universe* such as Earth Science & Technology/Society & Expeditions provide students the opportunity to discuss and write in science. Other supporting resources found in the *Earth Science: Geology, the Environment and the Universe* textbook to support classroom discourse includes: Visualizing Activities, Projects, Academic Vocabulary, Word Origin, Science Usage v. Common Usage and Environmental Connections.

Foldables™ created by Dinah Zike provides research-based methods to organizing information for effective study and
retention of content. The textbook encourages all learners to utilize the “Concepts-in-Motion” animations associated with selected images, tables, and timelines as an alternative format to acquired information. There are online electronic lessons in “Interactive Tutor” that provide enhanced audio/visual concept presentations.

Chemistry:
Glencoe Chemistry: Matter and Change supports the development of sound science inquiry skills throughout the program.

Make predictions, design and conduct experiments, and collect data to formulate conclusions—
Use data to compare, contrast, and calculate— All ChemLabs give students experience in data collection and analysis as part of the inquiry process.
Select and use appropriate instruments—ChemLab p.230; ChemLab p.390
Construct models to describe concepts and principles—MiniLab p.873; Problem-Solving Lab p.842; ChemLab p.272
Use precise scientific language in oral and written communication—All ChemLabs include communication such as sharing data, graphing data, and writing as part of the inquiry process.

To fulfill the characteristics of standards supporting curricula, Glencoe Chemistry: Matter and Change was developed using six specific, research-based instructional strategies. These strategies support inquiry-based instruction by providing ideas for and examples of how scientific inquiry can be conducted and by providing information to support student inquiry. The six strategies are as follows:
1. Using prior knowledge to learn new information and correct misconceptions
2. Practicing important tasks
3. Using high-quality visuals to communicate, organize, and reinforce science learning
4. Motivating all students to achieve
5. Developing reading comprehension strategies and mathematical skills
6. Learning by using study strategies

Physics:
Questions for Science and defining problems can be found thought the Glencoe Physics: Principles and Problems suite of laboratory opportunities. Additional examples include.
Applying Practices Worksheets: Many of these worksheets ask students to create, design, modify, and interpret models.
PBL: These Project-Based Learning opportunities often ask students to use the Engineering Design Loop/Model to design models that will solve problems.
Many of the Webquests and Virtual Investigations also ask students to evaluate and interpret models.

Glencoe Physics: Principles and Problems contain laboratory options which provide activities that facilitate students to define problems and construct specific criteria for a solution. Each in-text lab provides “Going Further” and “Real-World Physics” scenarios. These inquiry extensions assist students to create and test viable hypotheses. Calculator-based strategies and Virtual Investigation simulations offer technology options to collect and analyze data. Internet Lab offers a unique option to share data with other classrooms.

Glencoe Physics: Principles and Problems offers a variety of instructional program features that exhibits connections to students’ lives and the world around them. Each chapter is introduced by engaging real-world application photos and Physics TV. Physics 4 You at the beginning of each lesson provide examples of how the physics objectives relate to real-life situations. The program’s narrative provides relevant analogies to help clarify the core idea of the lesson. Connections to the real world are illustrated within each chapter with high interest, student-centered features that focus on “How it Works”, “Frontiers in Physics,” “A Closer Look,” “Physics That’s Entertainment,” or “On the Job”. These embedded features create opportunities for students to discuss contemporary, unique, and new developments in physics. Each feature provides “Going Further” enrichment and extension activities that enhance students’ knowledge and skills on the physics topic.

Glencoe Physics: Principles and Problems chapter resources contain a variety of student worksheets designed to reteach, reinforce, and enrich the learning experience within each chapter. The program also provides Teaching Transparences that visually enhance, review, and reinforce key physics concepts.
Glencoe Physics: Principles and Problems offers technology resources that support instruction for a broad range of learners. The online teacher edition and resources in ConnectED allow teachers to customize selected worksheet masters to address unique student needs.
The instructional materials support instruction and learning for all students:

**Differentiated Instruction**

14. Provides guidance for teachers to support differentiated and culturally responsive (i.e., purposefully represents diverse cultures, linguistic backgrounds, learning styles, and interests) instruction in the classroom so that every student’s needs are addressed by including:

Suggestions for how to promote equitable instruction by making connections to culture, home, neighborhood, and community, as appropriate.

- Biology TE, p. 513 (Service Learning)
- Biology TE, p. 520 (Writing Support)
- Earth Science TE, p. 177 (In the Field)
- Earth Science TE, p. 179 (Earth Science Journal)
- Physics TE, p. 78 (Content Background)

Appropriate scaffolding, interventions, and supports, including integrated and appropriate reading, writing, listening, and speaking alternatives (e.g., translations, picture support, graphic organizers) that neither sacrifice science content nor avoid language development for English language learners, special needs, or below grade level readers.

- Biology TE, p. 390B (Teaching Strategies and then throughout)
- Biology TE, p. 390 (Foldable)
- Earth Science TE, p. 176-177 (EL, AL, BL Differentiated Strategies)
- Earth Science TE, p. 180 Differentiated Instruction
- Physics TE, p. 75 (EL, AL, OL Differentiated Strategies)

- Digital and print resources that provide various levels of readability (e.g., based on the CCSS three part model for measuring text complexity).
- The Reading Essential for Biology provides both Digital and Print access with 2 to 3 grade levels below the regular text. Other programs have a variety of support resources for reading the text and the Science Notebook supplement integrates a variety of supports for accessing complex text.
- Modifications and extensions for all students, including those performing above their grade level, to develop deeper understanding of the practices, disciplinary core ideas, and crosscutting concepts.

- Biology TE, p. 324B (Fast File Resources)
- Biology TE, p. 326&327 (Modification / Differentiation Strategies)
- Biology TE, p. 14T&15T,
- Biology TE, p. 24T&25T
- Biology TE, p. 1708&171 (Writing Support)

Technology and digital media to support, extend, and enhance learning experiences.

The online Portal (ConnectEd) and Online eBook have multiple types of resources including LearnSmart and PBLs to support, extend, and enhance learning experiences.

Materials in multiple language formats.

The text and major support pieces come in English and Spanish for Biology. Other programs have some support materials in Spanish and there is a multi-lingual glossary in 13 languages with Key vocabulary.

**Life Science:**

*Glencoe Biology* offers a Teacher Edition print and online full of research-based strategies to support and differentiate instruction (TE pp. 222-233,) including Develop Concepts, Reading Strategy, Skill Practice, Writing Support, Differentiated Instruction, Critical Thinking, Demonstration, Content Background, Clarify Misconceptions, and Formative Assessments. The Teacher Edition teaching strategies and activities have been coded for ability-level appropriateness. A competency level is given for each activity using the following code: AL activities for students working above grade level; OL on grade level; BL below grade level; EL activities for English learners.

The Teacher Edition Chapter Organizer planning pages appear at the beginning of each chapter (TE pp. 216A-216B.) These pages detail all Essential Questions, lab materials, suggested pacing, ancillaries, and online resources for the chapter. The planning pages also show the leveling key which describes the differentiated instruction used in the chapter.

Reading Essentials, for struggling readers in both English and Spanish, provides the content at an accommodated level. Science Notebook guides students in making meaningful connections with the text through Cornell note-taking. Graphic organizers called Foldables are also available, as well as interactive dissections, Vocabulary eFlashcards and eGames in English and Spanish, minigames, and videos and animations. All of these resources can be used with EL students who need alternative strategies for reading and comprehending the text.

The Glossary/Glossario in the Student Edition, as well as the Multilingual Science Glossary online, provides vocabulary support for EL students. In addition, vocabulary margin features—Word Origins, Academic Vocabulary, and Science Usage v. Common Usage—support all readers. The Real-World Reading Link that introduces each lesson relates the upcoming text and science content to the student, the student’s world, or previous knowledge. Each Chapter Assessment includes
Rich visuals with caption questions, Reading Checks and Section Assessments provide formative assessment and student metacognition integrated within the lesson and Constructed Response which assess comprehension of the vocabulary and key concepts in each section. Think Critically, Writing in Biology, Extended Response and Essay Questions sections require students to demonstrate higher-order thinking and use their writing skills. Skill Review questions connect students to real-world applications as they evaluate real data from research. Students analyze graphs, charts, and other displays of data. Cumulative Review questions assess student retention of material from earlier chapters. Standardized Test Practice aids students in mastering skills to be successful on local, state, and/or national tests. If students have problems with a standardized text question, a prescriptive guide is available to direct students to review specific lessons for remediation.

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the eStudent Edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the Chapter Test assessment is provided in three levels to support differentiated instruction. The program’s ConnectED site provides students additional formative and summative online self-assessment practice.

**Earth Science:**
The Teacher Wraparound Edition provides teachers with strategies to help students of all ability levels. Strategies and activities have been coded for ability-level appropriateness (BL= Below-Level, OL=On Level, AL=Above Level). Enrichment suggestions are found in each chapter so students can continue to be challenged and develop more complex thinking skills. Concept Development is also provided so all learners can reach their potential. To make sure Earth science is relevant, there are various opportunities to connect across the curriculum and an apply Earth science to the student’s world. In the Student editions, the idea of the graphic organizers, Foldables™, helps students to improve retention. The Student Edition offers vocabulary throughout the textbook. The website also provides extra vocabulary support with the use of electronic flashcards and Study-to-Go review of key terms. The exclusive Science Notebook supports learners with vocabulary and writing support. The Unit (Fast File) resource booklets contain a Study Guide which helps students having difficulties with the chapter’s Big Idea.

**Student Edition:** Foldable™; Vocabulary Support
Teacher’s Wraparound Edition: Across the Curriculum; Apply Earth Science; Differentiated Instruction
Ancillary: Science Notebook
ConnectEd: Vocabulary eFlashcards and eGames (English & Spanish); LearnSmart with SmartBook Adaptive Learning System

**Chemistry:**
Differentiated instruction for below level, above level, and English Language Learners is included in the Teacher Edition. BL, AL, and EL labels identify activities.
Examples include: Below Level: Intermolecular Forces lesson, Lesson Pages section - Differentiated Instruction; Above Level: Liquids lesson, Lesson Pages section - Differentiated Instruction; English Language Learners: Intermolecular Forces lesson, Lesson Pages section - Differentiated Instruction


**Glencoe Chemistry: Matter and Change** provides for reteaching and reinforcing the content in multiple ways. The Personal Tutors allow students to watch a master teacher present critical concepts and work through problems. Teachers also have access to a variety of reinforcement resources that will help struggling students understand concepts such as Study Guides and Science Notebook.

**Glencoe Chemistry: Matter and Change** is a high school chemistry course, written at a tenth grade reading level. There is a balanced cultural representation throughout the program and it celebrates the scientific contributions of diverse cultures.

**Physics:**
Differentiated instruction for below level, above level, and English Language Learners is included in the Teacher Essentials. BL, AL, and ELL labels identify activities. Examples include: Struggling learners – Check for Understanding; Advanced learners; Physics Challenge Activity; English Language learners – Reinforcement

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the student edition. ConnectED’s Plan and Present software includes formative and summative assessment. The
Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the “Chapter Test” assessment is provided in three levels to support differentiated instruction. The program's web site provides students additional formative and summative self-assessment practice.

The *Glencoe Physics: Principles and Problems* Teacher Essentials provides a wealth of teaching strategies that support each major physics concept. The emphasis of each three-step teaching cycle gives the teacher options to “Introduce, Teach, and Assess” students’ comprehension. Differentiated instructional activities present various teaching strategies designed to help students of diverse abilities. Projects, mini-labs, and demonstration examples support to key physics concepts. The Teacher Essentials provides guidance and strategies to deliver effective and efficient instruction to a broad range of learners. Each teaching strategy labeled with an ability level icon help teachers accommodate learners. BL activities are recommended for students working below grade level or students struggling with a concept. OL activities should be within range of the majority of learners. AL activities are designed to challenge above-average students. The TE provides additional teaching strategies to extend instruction by offering optional activities to Differentiated Instruction, Help Struggling Students, and Challenge learners.

*Glencoe Physics: Principles and Problems* chapter resources contain a variety of student worksheets designed to reteach, reinforce, and enrich the learning experience within each chapter. *Glencoe Physics: Principles and Problems* offers technology resources on ConnectED that support instruction for a broad range of learners. The online teacher edition and resources in ConnectED allow teachers to customize selected worksheet masters to address unique student needs. The Plan and Present software in ConnectED provides an editable, interactive presentation to support classroom instruction for all students.
The instructional materials support instruction and learning for all students:

**Differentiated Instruction**

15. Provides research-based strategies to develop students’ academic language that are connected to the performance expectations (e.g., code-switching and interactive notebooks).

- Biology TE, p. 180B (Science Notebook is online)
- Biology TE, p. 163 (Academic Vocabulary)
- Earth Science TE, p. 84 (Foldable)
- Earth Science TE, p. 86 (New and Review Vocabulary)
- Earth Science TE, p. 104&105 (Digital Vocabulary Support is online, Vocabulary Review)

**Life Science:**

Foldables™ created by Dinah Zike provides research-based methods to organizing information for effective study and retention of content. The textbook encourages all learners to utilize the “Concepts-in-Motion” animations associated with selected images, tables, and timelines as an alternative format to acquire information. There are online electronic lessons in Personal Tutor that provide enhanced audio/video lessons. The ConnectED platform contains an eStudent Edition with an audio reading of the text and many interactive learning tools such as Cyber Science.

The “Data Analysis Labs” and “Document-Based Questions” (DBQ) cites the actual research source from which the questions are based. This information allows students to opportunity to delve deeper into the research and extend their learning experience. Skill Review questions connect students to real-world applications as they evaluate real data from current research. Students analyze graphs, charts, and other displays of data.

Students participate in grade-level appropriate science discourse and scientific writing using academic vocabulary in several settings. These include class discussions initiated from activities and teacher demonstrations, during lab reports, Applying Practices activities (online in ConnectED), WebQuests, and PBLs (online in ConnectED), in chapter review critical thinking responses, Document-Based Questions, Short Answer, Extended Response, and Essay Questions, Debate in Biology, and in Writing in Biology. Vocabulary margin features—Academic Vocabulary, Word Origin, and Science Usage v. Common Usage—also support scientific writing and discourse.

*Glencoe Biology* has been created by broad range of professionals (teacher’s advisory board, reviewers, content consultants, reading specialist, safety consultants, lab testers, test consultants and reading consultants) that have developed safe age/level appropriate instruction for all learners. The Teacher Wraparound Edition provides teachers with instructional strategies designed to accommodate students of all ability levels, including English Language learners. Teaching strategies and activities have been coded for ability-level appropriateness. Differentiated Instruction strategies help meet the needs of all students.

All of the activities and projects—Applying Practices, PBLs, Webquests, and lab—contain detailed teacher plans, giving the teachers the freedom to give a high level of support or a minimal level of support. The teacher then can differentiate and move students along the inquiry spectrum from structured and guided to fully independent.

**Earth Science:**

Foldables™ created by Dinah Zike provides research-based methods to organizing information for effective study and retention of content. The textbook encourages all learners to utilize the “Concepts-in-Motion” animations associated with selected images, tables, and timelines as an alternative format to acquired information. There are online electronic lessons in “Interactive Tutor” that provide enhanced audio/visual concept presentations. Document-Based Questions (DBQ) connect students to real-world applications as they evaluate authentic data from current research.

**Chemistry:**

*Glencoe Chemistry: Matter and Change* is written by a team that includes authors with over 100 years experience, collectively, teaching at the high school level. As a result, it was created so that the sequence of biological concepts is ordered in a logical and pedagogically sound manner. Students build on previous knowledge and skills to gain understanding of more complex processes and concepts. Lessons built around Big Ideas and Main Ideas include real-world connections, and alternative teaching strategies are provided so that chemistry is accessible to all students.

In addition, the teaching strategies presented in the Teacher Edition support the overarching principles of *A Framework for K-12 Science Education* and the NSTA Position Statement on Inquiry Learning and Laboratory Activities by providing opportunities for science inquiry, scientific discussion and debate, formative and summative assessment of student understanding, and connection to other areas of learning.
In the Teacher Edition, teaching strategies are supported by research that enhances teacher effectiveness. Lesson Resources include materials suitable for 5E methodology.

Physics:
The *Glencoe Physics: Principles and Problems* program is based on the latest research in science education and has been used effectively in classrooms across the country. *Glencoe Physics: Principles and Problems* was written by a team that includes authors with more than 100 years’ experience, collectively, teaching at the high school level. As a result, it was created so that the sequence of physics concepts is ordered in a logical and pedagogically sound manner. Students build on previous knowledge and skills to gain understanding of more complex processes and concepts. Lessons built around Big Ideas and Main Ideas include real-world connections, and alternative teaching strategies are provided so that Physics is accessible to all students.
The instructional materials support instruction and learning for all students:

**Differentiated Instruction**

16. Provides guidance for teachers throughout the unit for how learning experiences build on each other to support students in developing deeper understanding of the practices, disciplinary core ideas, and crosscutting concepts.

- Physics TE, p. 75 (Introduce)
- Physics TE, p. 75 (Teach)
- Physics TE, p. 75 (Use the Physics Lab)
- Physics TE, p. 76 (Concept Development)
- Physics SE, p. 76 (Assess)

The high school science series is built on the backwards design principle and ensures understanding with lessons that stem from Essential Questions. Suggested responses for the Essential Questions are provided for the teacher, to guide him/her in leading students to a deeper understanding of practices, disciplinary core ideas, and crosscutting concepts.

The plan and present tab on ConnectEd contains suggestions on supporting all levels of students.

**Life Science:**

The book is organized around Themes, Big Ideas, and Main Ideas of Biology. Themes are overarching concepts (Change, Diversity, Energy, Homeostasis, Science Inquiry) used throughout the entire book that help students tie what they learn together. They help students see the connections among major ideas and concepts. The Big Idea summarizes the chapter content in an overarching statement and helps students focus on topics within the Themes. The Big Idea is broken down into Main Ideas, which describe the focus of each section. This instructional strategy is further supported by the many instructional materials that make up this complete biology curriculum. *Glencoe Biology* is an inquiry based program that is filled with meaningful laboratory-based activities. The Student Edition provides Launch Labs, Mini Labs, Data Analysis Labs, and BioLabs. The program offers six different laboratory manuals.

Through the inquiry activities found in *Glencoe Biology*, students are asked to define the problem, form a hypothesis, and design an experiment to test their idea. Once they have their data, they are asked to modify the experiment’s design to remove uncertainties so they achieve clearer results. The textbook has special features (Cutting-Edge Biology, Biology & Society, In the Field) that describe how new technologies impact people’s life. Students are provided with opportunities to evaluate and write about the impact of human endeavors on their world.

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the student edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the “Chapter Test” assessment is provided in three levels to support differentiated instruction. The program’s web site provides students additional formative and summative self-assessment practice. Students can email online assessment results to teachers and parents.

The Student Edition offers coherent lab options within each chapter, which allows students to develop strong inquiry skills. Students will develop a progression of knowledge and skills that allow them to think like a scientist to become successful with the chapter-end BioLab.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: [https://www.dropbox.com/s/3vriyvqmmqwxgw4i/Biology%20Alignment%20Guide.pdf?dl=0](https://www.dropbox.com/s/3vriyvqmmqwxgw4i/Biology%20Alignment%20Guide.pdf?dl=0)

**Earth Science:**

*Earth Science: Geology, the Environment, and the Universe* incorporates features to help students develop the skills essential for success in a first year course. The program places a strong emphasis on student comprehension through visual literacy. The conceptual presentation is organized around Themes, Big Ideas, and the Main Ideas. Earth Science 4 You in each section draw the student’s attention into the narrative with relevant analogies that help clarify topics, making them more understandable. Relevant applications throughout the textbook are highlighted with instructional photos, illustrations, tables and high interest, student-centered special features. Inquiry-based learning is a strong strand throughout the textbook. Each chapter of the Student Edition offers a Launch Lab, MiniLab, Data Analysis Lab, and GeoLab. The program offers two lab manuals online that have a strong diverse inquiry approach.

*Earth Science: Geology, the Environment, and the Universe* technology and online assets are correlated throughout the program to support and extend the lessons for both the student and the teacher. These strategies, along with the content and the instructional materials, ensure that students have the skills necessary to achieve the Science Core and Content
Standards.

*Earth Science: Geology, the Environment and the Universe* provides an inquiry strand with a wealth of laboratory options throughout the program. The inquiry-based options offer scientific practice, encouraging problem-solving strategies and developmental critical thinking and process skills. The program’s strong inquiry strand gets students actively involved in the learning process by allowing them to manipulate variables and develop and test appropriate procedures. The Student Edition offers coherent lab options within each chapter, which allows students to develop strong inquiry skills. Students will develop a progression of knowledge and skills that allow them to think like a scientist to become successful with the chapter-end GeoLab.

Found throughout *Earth Science: Geology, the Environment and the Universe* textbook there are too many Crosscutting Concepts to address individually in the rubric. All crosscutting concepts found in the *Earth Science: Geology, the Environment and the Universe* textbook are aligned to NGSS see attached link.
https://www.dropbox.com/s/geh4axrywv5n29y/ES%20Alignment%20Guide.pdf?dl=0

*Chemistry: Glencoe Chemistry: Matter and Change* is a real-world curriculum that makes chemistry relevant to students. Every lesson is created to answer Essential Questions that lead toward understanding of the Big Idea. Student begin the lesson with a “Chem 4 You” feature that connects to what they already know (text to self), the world around them (text to world), or something they’ve already investigated (text to text). Images, animations and videos enhance the exploration with authentic examples and applications. Data Analysis Labs provide students with opportunities to interact with actual data from published research so they can see the real-world applications of the concepts. There are also end-of-chapter features that explore issues such as How It Works, Everyday Chemistry, Chemistry & Health and Chemistry & Careers.

*Glencoe Chemistry: Matter and Change* includes a wide variety of materials to enrich instruction. There are numerous opportunities for students to gain a deeper understanding of the concepts through the end-of-chapter real-world Chemistry features, the What’s Chemistry Got To Do With It? videos, Enrichment activities in the eStudent Edition, and additional Enrichment strategies and activities found in the Teacher Edition.

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. Specific examples include. An Alignment Guide can be found in the following link: https://www.dropbox.com/s/gs9npo5ck22tvwj/Chemistry%20Alignment%20Guide.pdf?dl=0

*Physics:*

Programs support teacher-facilitated learning through guided instruction methodology. In addition, the teaching strategies presented in the Teacher Edition support the overarching principles of the National Science Education Standards and the NSTA Position Statement on Inquiry Learning and Laboratory Activities by providing opportunities for science inquiry, scientific discussion and debate, formative and summative assessment of student understanding, and connection to other areas of learning.

In the Teacher Edition, Research Citations highlight teaching strategies supported by research that enhance teacher effectiveness. Lesson Resources include materials suitable for 5E methodology.

Digital high school science solutions, solving real problems for the real world:
- Project-Based Learning Activities (PBLs)
- Science and Engineering Practices Handbook
- Applying Practices Worksheets

New Applying Practices activities and Project-Based Learning activities, each written to a specific NGSS performance expectation, appear at point of use. These editable worksheets can be filled in online or downloaded. Your students will be engaged and successful, integrating the three dimensions—disciplinary core ideas, science and engineering practices, and cross-cutting concepts!
Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: https://www.dropbox.com/s/ce3gmubvcusp9kb/Physics%20Alignment%20Guide.pdf?dl=0
The instructional materials support instruction and learning for all students:

**Differentiated Instruction**

17. Provides supports to help students engage in the practices as needed and gradually adjusts supports over time so that students are increasingly responsible for making sense of phenomena and/or designing solutions to problems.

- *Biology TE*, p. 381
- *Biology TE*, p. 131 (*PBL - Cleaning up an Oil Spill is online*)
- *Earth Science TE*, p. 742 (*PBL - Locking Up Carbon with teacher support is online*)
- *Earth Science TE*, p. 269 (*Webquest is online*)
- *Physics SE*, p. 395 (*Virtual Investigation is online*)

**Life Science:**

All of the activities, Applying Practices, Webquests, Inquiry Activities, contain detailed teacher plans giving the teachers the freedom to give a high level of support or a minimal level of support. The teacher then controls the amount of support and can help students become more independent and can then draw their own conclusions and learn to cite evidence and make strong arguments to support the solutions to their problems.

Through the inquiry activities found in *Glencoe Biology*, students are asked to define the problem, form a hypothesis, and design an experiment to test their idea. Once they have their data, they are asked to modify the experiment’s design to remove uncertainties so they achieve clearer results. The textbook has special features (*Cutting-Edge Biology, Biology & Society, In the Field*) that describe how new technologies impact people's life. Students are provided with opportunities to evaluate and write about the impact of human endeavors on their world.

The *Glencoe Biology* program provides a variety of laboratory manuals that further students’ opportunities to engage in inquiry experiments that supports understanding of major biology concepts. The Virtual Lab online provides interactive manipulations of variables that support engineering design principles. The Video Lab online helps students with reviewing selected lab procedures. The web site offers students access to the virtual labs and WebQuest activities.

**Earth Science:**

*Earth Science: Geology, the Environment, and the Universe* provides the students with relevant information that builds on their personal experiences. The high interest special features in each chapter make a connection with some aspect of students’ everyday life and society at large. The unit openers depict a career focus that relates to various applications of earth science. The “Expedition” features offer interesting and relevant connections that allow students to extend and enrich knowledge and skills regarding an Earth science concept.

All of the activities, Applying Practices, Webquests, STEMquests, Inquiry Activities, contain detailed teacher plans giving the teachers the freedom to give a high level of support or a minimal level of support. The teacher then controls the amount of support and can help students become more independent and can then draw their own conclusions and learn to cite evidence and make strong arguments to support the solutions to their problems.

The Laboratory Manual that is found in the ancillaries has an analysis section for each lab. It also allows students to make conclusions and applications for the information that they just learned. The laboratory manual has numerous choices for teachers to pick the best one for the needs of his or her students.

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the student edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets in ConnectED include formative assessment for each section of the text. Plus, the “Chapter Test” assessment is provided in three levels to support differentiated instruction. The program’s web site provides students additional formative and summative self-assessment practice. Students can email online assessment results to teachers and parents.

LearnSmart with SmartBook is an interactive and adaptive version of the book with continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on. LearnSmart includes 3 stages: Preview (before), Assess (during), Review (after/mastery).

**Chemistry:**

There are many opportunities in *Glencoe Chemistry: Matter and Change* to engage in questioning, conjecture, explanation and justification.
The activities and strategies employed in *Glencoe Chemistry: Matter and Change* are primarily designed to augment student understanding of the concepts with a secondary objective of providing engagement. As a result all are founded in the context of the program and have a clear teaching objective. The strategies are varied so as to provide new experiences and learning strategies for students.

*Glencoe Chemistry: Matter and Change* is a real-world curriculum that makes chemistry relevant to students. Every lesson is created to answer Essential Questions that lead toward understanding of the Big Idea. Student begin the lesson with a “Chem 4 You” feature that connects to what they already know (text to self), the world around them (text to world), or something they’ve already investigated (text to text). Images, animations and videos enhance the exploration with authentic examples and applications. Data Analysis Labs provide students with opportunities to interact with actual data from published research so they can see the real-world applications of the concepts. There are also end-of-chapter features that explore issues such as How It Works, Everyday Chemistry, Chemistry & Health and Chemistry & Careers.

The new ConnectED digital platform for high school science brings a new level of engagement and effectiveness to your classroom. A one-stop shop where you can access the student eBook, digital resources, videos, worksheets, presentations, assessment tools, and planning and messaging tools.

To fulfill the characteristics of standards supporting curricula, *Glencoe Chemistry: Matter and Change* was developed using six specific, research-based instructional strategies. These strategies support inquiry-based instruction by providing ideas for and examples of how scientific inquiry can be conducted and by providing information to support student inquiry. The six strategies are as follows:

1. Using prior knowledge to learn new information and correct misconceptions
2. Practicing important tasks
3. Using high-quality visuals to communicate, organize, and reinforce science learning
4. Motivating all students to achieve
5. Developing reading comprehension strategies and mathematical skills
6. Learning by using study strategies

**Physics:**

*Glencoe Physics: Principles and Problems* programs follow a balanced approach to science instruction, blending investigation, computation, application, and problem-solving skills to provide appropriate breadth to teach science concepts.

Content is delivered via McGraw-Hill’s ConnectEd site. The site provides access to eBooks, audio, personal tutors, animations, self-check quizzes, and more. Various tools allow the teacher to create and customize lesson plans, edit worksheets, and use preloaded presentations or create their own to enrich student understanding. Programs are interactive and student-centered curricula. Programs support teacher-facilitated learning through guided instruction methodology.

The sequence of physics concepts is ordered in a logical and pedagogically sound manner. Students build on previous knowledge and skills to gain understanding of more complex processes and concepts. Lessons built around Big Ideas and Main Ideas include real-world connections, and alternative teaching strategies are provided so that Physics is accessible to all students.

**Problem-Solving Support**

- Step-by-step instructions and problem-solving hints make Example Problems approachable
- Online Personal Tutor and additional Practice Problems reinforce learning
- Exercises and access to online resources reinforce student understanding
- Vocabulary features with definitions and samples of both science and common usage help ELL

McGraw-Hill Education LearnSmart® is an adaptive learning system designed to help students learn faster, study more efficiently, and retain more knowledge for greater success. Through a series of adaptive questions, LearnSmart® continually measures and monitors each student’s progress. LearnSmart® identifies students who:

- May have missed the basics – then helps them practice those basics before moving on.
- Must study longer to master new concepts – then provides them the time and exposure they need.
- Are uncertain of which concepts they need to study – then presents those concepts with which they struggle.
The instructional materials support instruction and learning for all students:

**Instructional Materials**

18. Digital and print materials are consistently formatted, visually focused, and uncluttered for efficient use.

- **Biology SE**, p. 182-183
- **Earth Science SE**, p. 164&165
- **Chemistry SE**, p. 240-241
- **Physics SE**, p. 208-209

**Life Science:**

**Digital:**
The ConnectED digital platform for *Glencoe Biology* brings a new level of engagement, communication, and effectiveness to the classroom. A one-stop shop where students and teachers can access the student eBook, digital resources, videos, worksheets, presentations, assessment tools, and planning and messaging tools.

Through the inquiry activities found in *Glencoe Biology*, students are asked to define the problem, form a hypothesis, and design investigations to test their ideas. Many involve peer review and allow students to extend the investigation with further refinements.

The textbook has special features in each chapter (Cutting-Edge Biology, Biology & Society, In the Field) that describe how science and technologies impact people’s life. Students are provided with opportunities to research, evaluate, and write about the topics. Some encourage class debates.

The Applying Practices activities, PBL projects, Webquests, and other phenomenon-based activities have students present their explanations and arguments in a larger setting and in a variety of media to expand the three-dimensional learning

**Print:**
*Glencoe Biology* is visually appealing and interesting to students. Visuals are used to help students dissect the text and build literacy skills in both informational text and fiction.

**Earth Science:**

**Digital:**
The ConnectED platform allows students and teachers to have easy access to all resource needs in one place. The Teacher Lesson Center on ConnectED provides ease of use of creating personalized lessons with easy-to-use editing, attach resources for easy lesson planning, eAssessment suite supports teachers with diagnostic to summative evaluations.

The Student Learning Center on ConnectED provides students with access to their e-book, aligned lesson resources and supporting materials to help make content connections. On ConnectED students and teachers can also find helpful videos guiding them through the parts of the online platform.

**Print:**
*Earth Science: Geology, the Environment, and the Universe* clearly highlights new and review vocabulary at the beginning of each section of instruction in the student edition. All key terms are boldfaced, highlighted and defined in context within the paragraph that it is used. The textbook integrates student-friendly margin features that provide vocabulary support to clues, root words, prefixes and suffixes; in order to help the student. Foldables™ are three-dimensional graphic organizers that provide review and reinforcement of vocabulary related to the big idea of the chapter. The chapter-end Study Guide reviews all of the important key scientific vocabulary by section that is also related to the chapter’s big idea.

The design is highlighted with visual learning aids, supporting ancillaries, and integrated technology. The program provides a wide range of print and technology resources that addresses multiple learning styles.

**Chemistry:**

**Digital:**
The ConnectED platform houses all instruction, ancillary materials, and technology found online. The interface for the eStudent Editions and the eTeacher Editions was built to be intuitive and easy to use. They were both tested with teachers and students to create useful and user-friendly learning and teaching environments.

**Print:**
*Glencoe Chemistry: Matter and Change* contains myriad interactive features, ranging from the Concepts in Motion animations, interactive tables, and Virtual Investigations. These items can be viewed in the eStudent Edition in the Resources tab for each lesson.
Glencoe Chemistry: Matter and Change is visually appealing and interesting to students. Visuals are used to help students dissect the text and build literacy skills in both informational text and fiction. Visual Literacy is used as an instructional design feature. Pictures, diagrams, charts, graphs and illustrations are used as learning tools.

Physics:

Digital:
The ConnectED platform allows students and teachers to have easy access to all resource needs in one place. The Teacher Lesson Center on ConnectED provides ease of use of creating personalized lessons with easy-to-use editing, attach resources for easy lesson planning, eAssessment suite supports teachers with diagnostic to summative evaluations.

The Student Learning Center on ConnectED provides students with access to their e-book, aligned lesson resources and supporting materials to help make content connections.

On ConnectED students and teachers can also find helpful videos guiding them through the parts of the online platform.

The “Help” button located on the ConnectED platform provides short instructional videos on how to navigate the platform and access the resources with ease of use with our digital technology.

Print:
New design elements and updated content enhance relevance
Visually stimulating photography, diagrams, and examples engage students
Real-world connections and activities help students see practical applications
Full-page feature articles at the end of each chapter focus on one of five high-interest areas:
  o Physics That’s Entertainment
  o A Closer Look
  o On The Job
  o Frontiers in Physics
  o How It Works
The instructional materials support instruction and learning for all students:

**Instructional Materials**

19. Provide virtual labs, simulations, and video-based learning experiences.

*Biology TE, p. 148 (BrainPop Video is online)*

*Earth Science TE, p. 478 & 479 (Concepts in Motion and Video)*

*Physics SE, p. 184 (Virtual Investigation is online)*

*Physics SE, p. 176 (Physics TV is online)*

**Life Science:**

Virtual Labs are available on ConnectED. These labs allow students to manipulate variables, collect and analyze data, and draw conclusions in a unique interactive inquiry format that is ideal for exploration, reinforcement, and extension of key concepts. Video Labs are used to help students gain confidence with laboratory process skills by first seeing them being done by students before they attempt the procedure in the laboratory. The program also includes an extensive Safety and Techniques video. Lab Manager online assists teachers in electronically selecting the right lab by sorting labs by key word, duration, or national standard.

McGraw-Hill Education’s *Glencoe Biology* provides Applying Practices activities and Project-Based Learning (PBL) projects, which appear at point of use, that is correlated to the pertinent DCI and biology content. Each activity and project is written to a specific NGSS performance expectation using the science and engineering practices. These editable worksheets can be filled in online or downloaded. Students will be engaged and successful, integrating the three dimensions—disciplinary core ideas, science and engineering practices, and crosscutting concepts. LaunchLabs, MiniLabs, BioLabs, Data Analysis Labs, and DBQs, as well as guided and full inquiry activities and virtual labs online, further support the science content using science and engineering practices. All the projects and activities are supported by the Science and Engineering Practices Handbook online.

*Earth Science:*

*Earth Science: Geology, the Environment and the Universe* use inquiry-based learning opportunities where students participate in science discourse in and outside the classroom environment. Multiple lab opportunities such as Demo Labs, Launch Lab, Mini Labs, Data Analysis Labs, GeoLabs and virtual labs provides students with opportunities to collaborate and communicate findings. Specials features in the *Earth Science: Geology, the Environment and the Universe* such as Earth Science & Technology/Society & Expeditions provide students the opportunity to discuss and write in science. Other supporting resources found in the Earth Science textbook to support classroom discourse includes: Visualizing Activities, Projects, Academic Vocabulary, Word Origin, Science Usage v. Common Usage and Environmental Connections.

*Earth Science: Geology, the Environment, and the Universe* gets students’ attention and keeps it with an innovative, comprehensive, conceptual presentation that creates optimum learning. The authorship team, consultants, and editorial staff have reviewed the Earth science content for accuracy. The design is highlighted with visual learning aids, supporting ancillaries, and integrated technology. The program provides a wide range of print and technology resources that addresses multiple learning styles.

Foldables™ created by Dinah Zike provides research-based methods to organizing information for effective study and retention of content. The textbook encourages all learners to utilize the “Concepts-in-Motion” animations associated with selected images, tables, and timelines as an alternative format to acquired information. There are online electronic lessons in “Interactive Tutor” that provide enhanced audio/visual concept presentations.

“What’s Earth Science Got to Do With it?” videos online provide enrichment lessons to that connect and extend learning in the Earth science classroom. ConnectED aids learners with online content, review, practice, assessment, and remediation.

**Chemistry:**

*Glencoe Chemistry: Matter and Change* includes a wide selection of Virtual Investigations that provide lab simulations in a virtual environment. The topics are spread throughout the curriculum giving students and teachers multiple options for interacting with the concepts.

**Physics:**

*Glencoe Physics: Principles and Problems* is a real-world curriculum that makes Physics relevant to students. Every lesson is created to answer Essential Questions that lead toward understanding of the Big Idea. Student begin the lesson with a Real-World Launch Lab and Physics TV video that connects it to what they already know (text to self), the world around them...
Images, animations and videos enhance the exploration with authentic examples and applications. Data Analysis Labs provide students with opportunities to interact with actual data from published research so they can see the real-world applications of the concepts. There are also Real World Physics features at the end of each chapter that explore physics used in entertainment, up-close examinations of physics applications, careers in physics, how things work, and frontiers in the field.

The combination of applying practices, WebQuests, and inquiry activities provide students with multiple opportunities to experience relevant phenomena in both representation format and in firsthand experience. The problems are connected to their world. They have to make choices, analyze data and draw conclusions as they move toward a solution.

All Physics Labs give students experience in data collection and analysis as part of the inquiry process. Launch Labs in the Concept Introduction, Mini Lab Worksheets, Physics Lab worksheets, and Probeware Lab Worksheets are located on the Lesson Resources page.

For example:
1. Physics Lab—Perpendicular Forces
2. Probeware Lab—Friction on a Plane
3. Lesson: Forces in Two Dimensions, Section: Labs, Title: MiniLab 1 (Equilibrium)
The instructional materials support instruction and learning for all students:

**Instructional Materials**

20. Allow teachers to access, revise, and print from digital sources (e.g., readings, labs, assessments, rubrics).

All chapter resource files are word documents and can be obtained and edited digitally.

Digital high school science solutions, solving real problems for the real world:

- Project-Based Learning Activities (PBLs)
- Science and Engineering Practices Handbook
- Applying Practices Worksheets

New Applying Practices activities and Project-Based Learning activities, each written to a specific NGSS performance expectation, appear at point of use. These editable worksheets can be filled in online or downloaded.
**Instructional Materials**

21. Supplies and equipment, when provided, are high quality (e.g., durable, dependable) and organized for efficient use. Supplies and equipment, when provided, are high quality (e.g., durable, dependable).

**McGraw-Hill Education,** PreK-12 educational publishers, are committed to the creation of the highest quality textbooks, support materials, and technology products. We utilize the strictest standards for gathering input into our all our programs: market research representative of a wide variety of teachers/students from across the country, academic research from school districts of varying populations, diverse authorship teams, and carefully selected and balanced teacher advisory boards. Using input from this wide spectrum at the onset of program development allows us the opportunity to carefully construct content and instruction fairly representing and addressing the interests/needs of a truly diverse population. Throughout development content and instructional practices are monitored by our authorship teams and tested by educators to insure the careful balance is implemented so that the programs we send into the marketplace will meet the intellectual, cultural, and experiential needs of students across the country helping all students move successfully into our richly diverse society.
Instructional Materials
22. Provide thorough lists that identify by learning experience all consumable and non-consumable materials aligned for both instruction and assessment.
There is a complete list of consumable and non-consumables for all investigations and demonstrations.

**Life Science:**

**INSTRUCTION:**
Science and Engineering Practices Handbook
Project-Based Learning activities
WebQuest
“What’s Biology Got to do With It?”
Launch Labs
Concept Mapping
Enrichment
Real World Biology
V Lessons
Concepts in Motion
Personal Tutors
Bellringers
BrainPOP
Interactive Tables
Reading Essentials: English and Spanish
Virtual Labs
Science Notebook
MultiLingual Glossary
Chemistry in Biology
Study Guides: English and Spanish
Vocabulary E-Games
Vocabulary eFlashcards and eGames: English and Spanish
Guided Inquiry Labs
Open Inquiry Labs
Pre-AP Labs
Forensics Labs

**ASSESSMENT:**
Applying Practices
Section Quick Check
Online Quiz: English and Spanish
Diagnostic Tests
Levelled Chapter Tests
Standardized Test Practice
LearnSmart with SmartBook
E-Assessment

**Earth Science:**

**INSTRUCTION:**
Science and Engineering Practices Handbook
Project-Based Learning activities
STEMquests
LearnSmart with SmartBook
Launch labs
V Lessons
Science Notebook
Concepts in Motion
Mini Labs
WebQuests
Interactive Tables
GeoLabs
Design Your Own Labs
Study Guides
Vocabulary eGames (English and Spanish)
Vocabulary eFlashcards (English and Spanish)

ASSESSMENT:
Section Self Check Quiz: English and Spanish
Applying Practices
Chapter Self Check Quiz
Chapter Assessments
Standardized Test Practice
Online Test Practice
“What’s Earth Science Got to do With It?”
Performance Assessment Activities
E-Assessment

Chemistry:
INSTRUCTION:
Science and Engineering Practices Handbook
Project-Based Learning activities
Applying Practices
Launch Labs
Mini Labs
Small Scale Labs
Real World Chemistry
Chemistry Math Handbook
Animations
Virtual Investigations
Solutions Manuals
Math Skills Visuals
Forensics Labs
Enrichment Supplemental Readings
Challenge Problems Lab Manual
V Lessons
Personal Tutors
Interactive Tables
Concepts in Motion
LearnSmart with SmartBook
Multilingual Glossary
Science Notebook
Webquests
Chapter Chem Labs
Calculator Based Labs
Probeware labs
Study Guides
E-Games
E-Flashcards

ASSESSMENT:
Self Check Quizes
Chapter Self Check
Online Test Practice
Chapter Assessment
E-Assessment

Physics:
INSTRUCTION:
Science and Engineering Practices Handbook
Project-Based Learning activities
Applying Practices
LearnSmart with SmartBook
Applying Practices Rubric
Pre-AP Critical Thinking Activity
Additional Challenge Problems
Connecting Math to Physics
Launch Labs
Mini Labs
Probeware Labs
Personal Tutors
Supplemental Problems
Challenge Problems
Enrichment
Reinforcement
Supplemental Problems
Physics TV
Reinforcement
V Lessons
Lab Manual
Chapter Visuals
Science Notebook
Multilingual Glossary
Physics Math Handbook
Study Guide
Vocabulary eGames (English and Spanish)
Vocabulary eFlashcards (English and Spanish)

**ASSESSMENT:**
Self Check Quiz
Chapter Self Check
Chapter Assessment
Physics Test Prep
E-Assessment
The instructional materials support instruction and learning for all students:

**Instructional Materials**

23. Use scientifically accurate and grade-appropriate scientific information, vocabulary, phenomena, and representations to support students’ three-dimensional learning.

- Earth Science TE, p. 344 (Vocabulary Introduction)
- Earth Science TE, p. 342 (Launch Lab – Phenomenon)
- Earth Science TE, p. 352 (Visual Representation)
- Earth Science TE, p. 347 (Visual Representation in Print and Digital online)
- Earth Science TE, p. 359 (Modeling)

McGraw-Hill Education and McGraw-Hill School Education, LLC, are committed to publishing pedagogically sound, high-quality, educational material that is fair, unbiased, and that recognizes the unique contributions of people of all races, cultures, and faiths. To ensure that our textbooks meet these high standards, all textbooks are authored by scholars and educators who are recognized experts in their areas of specialty. McGraw-Hill School Education, LLC also submits manuscripts to independent scholars and teachers for their review. To reach consensus on information with divergent interpretations, the recommendations of these educators and specialists are reviewed and discussed among the author and Academic Designers until final consensus is negotiated; changes are then incorporated into the manuscript to ensure that the materials are accurate and unbiased, present the materials in an age-appropriate and meaningful manner, and reflect the most current research in the subject area.
The instructional materials support instruction and learning for all students:

**Instructional Materials**

24. Adhere to safety laws, rules, and regulations and emphasize the importance of safety in science.

Biology TE, p. 1105-1109
Biology TE, p. 871
Biology TE, p. 38T-39T
Chemistry TE, P. 584
Physics TE, p. 492 (Referenced in labs and in safety videos found online.)

Safety issues are clearly indicated in the student materials and provide simple and easy-to-understand practices/steps the students can follow to make sure no one is injured during activities and labs. The *Glencoe Biology* Student Edition provides an exclusive “Investigation and Experimentation” section at the beginning of the textbook that provides students with foundation of safety procedures that will be used throughout the course.
The instructional materials support instruction and learning for all students:

**Instructional Materials**

25. Make available ongoing and embedded professional development for implementation and continued use of the instructional materials.

Biology TE, p. 482A&B

Biology TE, p. 483 (Introduce and Assess)

Biology TE, p. 485 (Content Background)

Earth Science TE, p. 436 and 437 (Teacher Notes)

Biology TE, p. 10T-27T

McGraw-Hill School Education LLC is committed to assisting teachers, administrators, and district leaders achieve your curriculum goals. Our comprehensive, complimentary Professional Development Program offers workshops and interactive training sessions that address research-based practices and strategies to meet the needs of supervisors and classroom teachers. In addition, in just a few clicks you can quickly access relevant, timely, and ongoing Professional Development videos and webinars available to you, on-demand. Directly embedded in the McGraw-Hill high school science programs are your interactive professional learning program. Learn how other science educators have successfully implemented the program and increase your awareness of new science standards.

The professional development for teachers guides them into the proper use of instruction using pedagogical sound strategies. In addition to the above training mentioned, teachers can access a variety of professional development resources including but not limited to:

The quick start and implementation courses are embedded into the online platform and are available 24/7 for teachers to access the training.

The Blue Print for Success is a teacher reference guide that is available in print and digitally and has a wealth of strategies for differentiation support to guide teachers on how to support 3 dimensional learning for the students.

A variety of professional development videos are also available that support both differentiated instruction and includes the use of Foldables as a learning tool. The foldable videos were created by McGraw Hill Education and Dinah Zike.

The teacher’s edition has a wealth of embedded professional development including: addressing misconceptions, using visual literacy, differentiation and scaffolding, inquiry for learning, guided questioning, and many more.
The instructional materials support monitoring student progress:
26. Elicits direct, observable evidence of three-dimensional learning by students using practices with core ideas and crosscutting concepts to make sense of phenomena and/or to design solutions that have been covered adequately in the instructional materials.

Biology TE, p. 601 (Service Learning / Community Project)
Biology TE, p. 606 (Virtual Lab – Biotechnology Knocking Out Genes is online)
Earth Science TE, p. 699
Earth Science TE, p. 185
Physics SE, p. 301 (Applying Practices – Modeling Changes in Energy is online)

Life Science:
Student activities and questions throughout Glencoe Biology provide opportunities for ongoing assessment and remediation. The Launch Lab is an entry-level guided inquiry activity that applies students’ prior knowledge at the beginning of a chapter. In the Teacher Edition, the Clarify a Misconception feature provides diagnostic assessment and remediation strategies. Formative assessment strategies are provided in the margins of the Teacher Edition. This Teacher Edition provides Assessment checks—an evaluation of key section concepts and an activity to re-teach students who are struggling to meet the learning objective.

Students produce tangible outcomes for Applying Practices activities, PBL projects, and student inquiry activities. The performance tasks, applying practices, and lab activities help students demonstrate their three dimensional learning by constructing explanations based on the application of the cross cutting concepts and the science and engineering practices focused on phenomenon targeting on the learning outcomes and the DCIs.

A summative evaluation is provided by the Chapter Assessment at the end of each chapter. It includes Vocabulary Review, Understand Key Concepts and Constructed Response. Think Critically, Writing in Biology, and DBQs sections require students to demonstrate higher-order thinking and use their writing skills. The cumulative Standardized Test Practice, which includes Extended Response and Essay Questions, aids students in mastering skills to be successful on local, state, and/or national tests. If students have problems with a standardized test question, a prescriptive guide is available to direct students to review specific lessons for remediation.

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the Student Edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the Chapter Test assessment is provided in three levels to support differentiated instruction. The program’s web site provides students additional formative and summative self-assessment practice. Students can email online assessment results to teachers and parents.

LearnSmart with SmartBook is an interactive and adaptive version of the book with continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on. LearnSmart includes 3 stages: Preview (before), Assess (during), Review (after/mastery).

Rich visuals with caption questions, Reading Checks and Section Assessments provide formative assessment and student metacognition integrated within the lesson.
Reading Checks are formative assessment questions integrated within the lesson for students to self-assess their reading comprehension before going onto the next lesson. The Section Assessment in the Student Edition provides students with summary statements and scaffold questions that tie to the learning objectives for that section. Online Self-Check quizzes also provide formative assessment opportunities.

The eAssessment program on ConnectED also allows teachers to build formative assessment that can be customized for each lesson of the Student Edition.

eAssessment is a key element to teaching science. McGraw-Hill Education’s eAssessment suite supports you from diagnostic to summative evaluations, leveled questions, and online scoring. eAssessment allows teachers to create tests and other assignments that can be delivered online or offline.

Rubrics are provided online for PBL projects, Applying Practices activities, and labs to evaluate progress.

The opportunities for assessment represent a the range of assessment recognized in the Understanding by Design Continuum, including informal, formative, performance expectations, summative, written, and practical. These various methods of assessment are accessible and unbiased for all students.

Project-Based Learning activities, Applying Practices activities, WebQuests, and labs are integrated throughout Glencoe
Biology. Each focuses on science and engineering practices and provides the teacher with background information and strategies for effectively using the program.

Pre-, formative, summative, and self-assessment measures include

- Diagnostic Test for each chapter
- Scaffolded Section Quick Checks
- Reading Checks, Caption Questions, and Section Assessments within the lessons
- Chapter Assessments and Standardized Test Practice
- Online quizzes
- eAssessment
- LearnSmart with SmartBook Adaptive Learning System

These tools provide the means for pre-, formative, summative and self-assessment of three-dimensional learning.

Glencoe Biology has the broad range of opportunities to demonstrate understanding of DCI’s, the practices, and Crosscutting Concepts, as well as utilize mathematics and literacy skills.

Teachers have the options of:
- eAssessment with a variety of questions types;
- Online Self-Check Quizzes;
- LearnSmart with SmartBook Adaptive Learning System;
- Multiple inquiry activities that can be used as performance tasks;
- Project-Based Learning activities
- Applying Practices activities;
- Webquests and more

All of these provide the student the opportunity to demonstrate the application and understanding of the practices within the context of the DCIs and the crosscutting concepts.

Earth Science:
Earth Science: Geology, the Environment, and the Universe offers Earth Science 4 You at the beginning of each section, providing students with an everyday relevant analogy that helps to clarify the key idea of the lesson. The program provides hands-on activities that relate Earth science to students’ everyday lives. The unit openers and career features encourage students to go beyond the classroom to investigate the Earth science behind the products and processes that are a part of their world. With these aspects of the program, students gain a greater appreciation for the applications of Earth science that make their world a better place. The “Expedition” features let students investigate a day in the life of people working in the field of Earth science. They also learn what is required of them if they are to prepare to join the scientists they read about. “What’s Earth Science Got to Do With it?” video series offers fast paced videos that connect concepts to contemporary examples found in the students’ world.

Chemistry:
A variety of assessment instruments enable teachers to inform their instruction. With preassessment opportunities in the form of Launch Labs and Foldables strategies teachers can assess where students are at the beginning of a lesson. Reading Checks and Section Assessments provide feedback on student progress towards the Essential Questions. Using that information, teachers can determine any necessary reteaching and remediation.

Glencoe Chemistry: Matter and Change offers both formative and summative assessment opportunities with access to a tool that instantly creates customizable assessments. Teachers can then use the assessment data to create individualized student plans.

Lesson quizzes are provided for each content lesson. These quizzes provide immediate feedback to the student and results can be emailed to the teacher.

MiniLabs, and ChemLabs provide additional formative performance assessment opportunities. In addition, the online Teacher Edition scripts probing questions the teacher can use to ensure student understanding and clarify misconceptions.

The eAssessment Suite allows for comprehensive management of their assessments. They can easily modify existing test items and create additional items as needed, adjust the format and even control the answers and create multiple versions of assessments. The summative and formative assessments can be taken online from any computer.

Physics:
Crosscutting Concepts are themes that appear throughout all branches of science and engineering. These are not directly correlated in Glencoe Physics: Principles and Problems, but are found implicitly in the other correlations listed on the page. The cross-cutting concepts are found within the applying practices, the performance tasks, the WebQuests and many of the inquiry exercises. Patterns, models, energy flow and the other crosscutting concepts are experienced throughout.
The instructional materials support monitoring student progress:
27. Includes editable and aligned rubrics, scoring guidelines, and exemplars that provide guidance for assessing student performance along all three NGSS dimensions to support teachers in (a) planning instruction and (b) providing ongoing feedback to students.
The program includes editable rubrics and the Blue Print for Success Teacher reference book has a section on performance assessment in the science classroom to provide guidance on planning instruction and providing ongoing feedback.

Life Science:

eAssessment is a key element to teaching science. McGraw-Hill Education’s eAssessment suite supports you from diagnostic to summative evaluations, leveled questions, and online scoring. eAssessment allows teachers to create tests and other assignments that can be delivered online or offline.

Rubrics are provided online for PBL projects, Applying Practices activities, and labs to evaluate progress.

The Glencoe Biology provides the students with relevant information that builds on their personal experiences. The high interest special features in each chapter make a connection with some aspect of students’ everyday life and society at large. The unit openers depict a career focus that relates to various applications of biology. The Teacher Wraparound Edition offers service learning activities that engage students in meaningful community service in relation to biology and the real world. The Forensics Lab Manual online connects the technical and legal fields to biology. “What’s Biology Got to Do With it?” series offers fast pace captivating videos that relate biology to the real world.

The number and quality of the opportunities for the student to think critically, creatively, and reflectively in scientific investigations are almost overwhelming in Glencoe Biology program. The number of scientific investigations in the ancillary laboratory manuals in addition to the number of labs in the textbook far exceeds the number of days in the school calendar. The teacher has the opportunity to choose the best ones to fit the local circumstances and needs of the students. The “Data Analysis Labs” and “Document-Based Questions” (DBQ) cites the actual research source from which the questions are based. This information allows students to opportunity to delve deeper into the research and extend their learning experience.

For You
You can build a wide variety of assignments in eAssessment. With a series of clicks, you can select questions by subject, standard, lesson, or a host of other factors. If you assign the work to be completed online, the system will collect data for every student and the class. Reports on proficiency and accuracy can help you make data-driven instructional decisions.

For Your Students
The online assignments are not limited to assessments. You can allow your students to practice by giving them multiple attempts at the assignment. You can also choose to allow students to see the right answer to each question or to receive feedback from each question. The system can also lock down the assignment with time restrictions. Rubrics are provided for WebQuests, Project-Based Learning Activities, Performance Tasks and Essay and Thought Based Questions. These can be used to inform instruction as well as provide feedback to students.

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Questions. These can be used to inform instruction as well as provide feedback to students.

Chemistry:
*Glencoe Chemistry: Matter and Change* employs a variety of assessments including multiple choice, short answer, matching and open response. There are performance assessment opportunities through the labs, writing activities, and additional strategies in the Teacher Edition.

LearnSmart with SmartBook is an interactive and adaptive version of the book with continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on. LearnSmart includes 3 stages: Preview (before), Assess (during), Review (after/mastery).

The new ConnectED digital platform for high school science brings a new level of engagement and effectiveness to your classroom. A one-stop shop where you can access the student eBook, digital resources, videos, worksheets, presentations, assessment tools, and planning and messaging tools.

A variety of assessment instruments enable teachers to inform their instruction. With preassessment opportunities in the form of Launch Labs and Foldables strategies teachers can assess where students are at the beginning of a lesson. Reading Checks and Section Assessments provide feedback on student progress towards the Essential Questions. Using that information, teachers can determine any necessary reteaching and remediation.

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For Your Students
The online assignments are not limited to assessments. You can allow your students to practice by giving them multiple attempts at the assignment. You can also choose to allow students to see the right answer to each question or to receive feedback from each question. The system can also lock down the assignment with time restrictions.
The instructional materials support monitoring student progress:


McGraw Hill HS Science programs includes all of the above types of assessments in the online assessment.

Project-Based Learning activities are integrated throughout each text in the Science Programs for High School. Each of these PBLs and Applying Practices activities focus on the eight science and engineering practices and provide the teacher with background information and strategies for effectively using the programs.

**Life Science:**
The teaching strategies presented in the Teacher Edition support the overarching principles of the National Science Education Standards and the NSTA Position Statement on Inquiry Learning and Laboratory Activities by providing opportunities for science inquiry, scientific discussion and debate, formative and summative assessment of student understanding, and connection to other areas of learning.

Digital high school science solutions, solving real problems for the real world:
- Project-Based Learning activities (PBLs)
- Science and Engineering Practices Handbook
- Applying Practices Worksheets

New Applying Practices activities and Project-Based Learning activities, each written to a specific NGSS performance expectation, appear at point of use. These editable worksheets can be filled in online or downloaded. Your students will be engaged and successful, integrating the three dimensions—disciplinary core ideas, science and engineering practices, and cross-cutting concepts!

The optional LearnSmart Learning system allows students to do self-assessment in a strong learning environment that also uses the research and algorithmic basis to make it unique for each student.

**Earth Science:**
Digital high school science solutions, solving real problems for the real world:
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**Chemistry:**
A variety of assessment instruments enable teachers to inform their instruction. With preassessment opportunities in the form of LauncLabs and Foldables strategies teachers can assess where students are at the beginning of a lesson. Reading Checks and Section Assessments provide feedback on student progress towards the Essential Questions. Using that information, teachers can determine any necessary reteaching and remediation.

*Glencoe Chemistry: Matter and Change* offers both formative and summative assessment opportunities with access to a tool that instantly creates customizable assessments. Teachers can then use the assessment data to create individualized student plans.

Lesson quizzes are provided for each content lesson. These quizzes provide immediate feedback to the student and results can be emailed to the teacher.

MiniLabs, and ChemLabs provide additional formative performance assessment opportunities. In addition, the online Teacher Edition scripts probing questions the teacher can use to ensure student understanding and clarify misconceptions.

The eAssessment Suite allows for comprehensive management of their assessments. They can easily modify existing test
items and create additional items as needed, adjust the format and even control the answers and create multiple versions of assessments.

The summative and formative assessments can be taken online from any computer.

*Glencoe Chemistry: Matter and Change* employs a variety of assessments including multiple choice, short answer, matching and open response. There are performance assessment opportunities through the labs, writing activities, and additional strategies in the Teacher Edition.

LearnSmart with SmartBook is an interactive and adaptive version of the book with continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on. LearnSmart includes 3 stages: Preview (before), Assess (during), Review (after/mastery).

**Physics:**

*Glencoe Physics: Principles and Problems* provides a variety of the following assessment instruments to prepare students to be successful on test:

- Section Review at the end of each lesson offers formative assessment. The response to these short answer questions illustrates students’ comprehension before going onto the next physics topic. The Critical Thinking question requires a higher-order Bloom’s level of response.
- Chapter Assessment contains three to five pages of summative questions and problems including conceptual, critical thinking, mixed review, free-response, and cumulative review.
- Standardized Test Practice assesses concepts and skills with multiple choice and extended response questions. Students practice mastery for success on local, state, and national formatted exams.
- Discussion questions in Teacher Essentials offer teachers formative questions to engage and diagnose students’ level of comprehension of the physics concept.

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the student edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the “Chapter Test” assessment is provided in three levels to support differentiated instruction. The program’s web site provides students additional formative and summative self-assessment practice. Students can email online assessment results to teachers and parents.

LearnSmart with SmartBook is an interactive and adaptive version of the book with continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on. LearnSmart includes 3 stages: Preview (before), Assess (during), Review (after/mastery).
The instructional materials support monitoring student progress:
29. Provides multiple opportunities for students to demonstrate and receive feedback on performance of practices connected with their understanding of disciplinary core ideas and crosscutting concepts.
   Biology TE, p. 131 (PBL - Cleaning Up an Oil Spill is online)
   Biology TE, p. 424 (Applying Practices is online)
   Earth Science TE, p. 269
   Earth Science TE, p. 270-271
   Physics SE, p. 80

**Life Science:**
*Glencoe Biology* has the broad range of assessment opportunities that give both the student and the teacher a variety difference way to demonstrate their understanding of DCI’s, Practices and Crosscutting Concepts.

Teachers have the options of:
eAssessment with a variety of questions types
Multiple Inquiry Activities that can be used a performance tasks
Performance Tasks
Applying Practices Activities
LearnSmart with SmartBook Adaptive Learning System
Self Check Quizzes
Webquests
And others

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link: [https://www.dropbox.com/s/3vriyqmmqmx4i/Biology%20Alignment%20Guide.pdf?dl=0](https://www.dropbox.com/s/3vriyqmmqmx4i/Biology%20Alignment%20Guide.pdf?dl=0)

**Earth Science:**
The online assignments are not limited to assessments. You can allow your students to practice by giving them multiple attempts at the assignment. You can also choose to allow students to see the right answer to each question or to receive feedback from each question. The system can also lock down the assignment with time restrictions.

*Earth Science: Geology, the Environment and the Universe* has the broad range of assessment opportunities that give both the student and the teacher a variety difference way to demonstrate their understanding of DCI’s, Practices and Crosscutting Concepts.

Teachers have the options of:
eAssessment with a variety of questions types
Multiple Inquiry Activities that can be used a performance tasks
Performance Tasks
Applying Practices Activities
LearnSmart with SmartBook Adaptive Learning System
Self Check Quizzes
Webquests
And others

Found throughout *Earth Science: Geology, the Environment and the Universe* textbook there are too many Crosscutting Concepts to address individually in the rubric. All crosscutting concepts found in the *Earth Science: Geology, the Environment and the Universe* textbook are aligned to NGSS see attached link.

**Chemistry:**
*Glencoe Chemistry: Matter and Change* has the broad range of assessment opportunities that give both the student and the teacher a variety difference way to demonstrate their understanding of DCI’s, Practices and Crosscutting Concepts.

Teachers have the options of:
eAssessment with a variety of questions types
Multiple Inquiry Activities that can be used a performance tasks
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Performance Tasks
Applying Practices Activities
LearnSmart with SmartBook Adaptive Learning System
Self Check Quizzes
Webquests
And others

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. Specific examples include. An Alignment Guide can be found in the following link:
https://www.dropbox.com/s/gs9npo5ck22tvwj/Chemistry%20Alignment%20Guide.pdf?dl=0

Physics:
*Glencoe Physics: Principles and Problems* has the broad range of assessment opportunities that give both the student and the teacher a variety difference way to demonstrate their understanding of DCI’s, Practices and Crosscutting Concepts.

Teachers have the options of:
eAssessment with a variety of questions types
Multiple Inquiry Activities that can be used a performance tasks
Performance Tasks
Applying Practices Activities
LearnSmart with SmartBook Adaptive Learning System
Self Check Quizzes
Webquests
And others

Grade-appropriate evidence of the crosscutting concepts is found in the program materials. An Alignment Guide can be found in the following link:
https://www.dropbox.com/s/ce3gmubvcusp9kb/Physics%20Alignment%20Guide.pdf?dl=0
The instructional materials support monitoring student progress:
30. Assesses student proficiency using methods, vocabulary, representations, models, and examples that are accessible and unbiased for all students.
McGraw Hill High School Science includes all of the above types of assessment items in the online assessment.

McGraw-Hill Education and McGraw-Hill School Education, LLC, are committed to publishing pedagogically sound, high-quality, educational material that is fair, unbiased, and that recognizes the unique contributions of people of all races, cultures, and faiths. To ensure that our textbooks meet these high standards, all textbooks are authored by scholars and educators who are recognized experts in their areas of specialty. McGraw-Hill School Education, LLC also submits manuscripts to independent scholars and teachers for their review. To reach consensus on information with divergent interpretations, the recommendations of these educators and specialists are reviewed and discussed among the author and Academic Designers until final consensus is negotiated; changes are then incorporated into the manuscript to ensure that the materials are accurate and unbiased, present the materials in an age-appropriate and meaningful manner, and reflect the most current research in the subject area.
The instructional materials support monitoring student progress:

**Digital assessments** are easy to manipulate and customize, are linked to Common Core State Standards, and have large problem banks.

McGraw Hill eAssessment is easy to use and customize, is correlated to the NGSS and has a minimum of 100 questions per chapter.

**Life Science:**
The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the student edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the Chapter Test assessment is provided in three levels to support differentiated instruction. The program’s ConnectED site provides students additional formative and summative online self-assessment practice. Students can email online assessment results to teachers and parents.

**Earth Science:**
McGraw Hill Science Programs include standardized test practice formatted in form like state standardized tests. There is standardized test practice at the end of each chapter in the text with additional practice online, in McGraw Hill eAssessment which also has tech enhance questions as part of the question banks to prepare students for online testing.

The eAssessment program on ConnectED allows teachers to build summative assessment that can be customized for each lesson of the student edition. ConnectED’s Plan and Present software includes formative and summative assessment. The Unit (Fast Files) resources booklets include formative assessment for each section of the text. Plus, the “Chapter Test” assessment is provided in three levels to support differentiated instruction. The program’s ConnectED site provides students additional formative and summative online self-assessment practice. Students can email online assessment results to teachers and parents.

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The eAssessment Suite allows for comprehensive management of their assessments. They can easily modify existing test items and create additional items as needed, adjust the format and even control the answers and create multiple versions of assessments.

The assessment tools help educators make instructional decisions before, during, and after instruction. The eAssessment software allows teachers to give online formative and summative assessments and easily generate data to inform their lessons as well as modify instruction for particular students. Teachers are given the necessary tools to guide instructional decision at every point.

The LearnSmart program allows students and teachers to constantly assess understanding of a given topic and automatically modify the content of the books to match the student’s learning needs. LearnSmart generates data for the student and teacher so that lessons and if necessary intervention can be precisely crafted for each student.

**Physics:**
McGraw Hill Science Programs include standardized test practice formatted in form like state standardized tests. There is standardized test practice at the end of each chapter in the text with additional practice online, in McGraw Hill eAssessment which also has tech enhance questions as part of the question banks to prepare students for online testing.
The instructional materials support monitoring student progress:
3. Digital assessment platform allows teachers to easily access student work and provide feedback. With McGraw Hill Education’s eAssessment, assessments given online are automatically graded and provide instant feedback for both teachers and students.

**Life Science:**
The assessment tools help educators make instructional decisions before, during, and after instruction. The eAssessment software allows teachers to give online formative and summative assessments and easily generate data to inform their lessons as well as modify instruction for particular students. Teachers are given the necessary tools to guide instructional decision at every point. The eAssessment program allows teachers to prepare lesson assessments by selecting questions based on difficulty level. The Unit resource booklets offer an enrichment activity for each chapter of the student edition.

LearnSmart with SmartBook is an interactive and adaptive version of the book with continual assessment and metacognitive tools to help teachers and students know what the student has mastered and what the student needs to focus on. LearnSmart includes 3 stages: Preview (before), Assess (during), Review (after/mastery).

The LearnSmart program allows students and teachers to constantly assess understanding of a given topic and automatically modify the content of the books to match the student’s learning needs. LearnSmart generates data for the student and teacher so that lessons and if necessary intervention can be precisely crafted for each student.

**Earth Science:**
*Earth Science: Geology, the Environment, and the Universe* offers both formative and summative assessment opportunities with access to a tool that instantly creates customizable assessments. Teachers can then use the assessment data to create individualized student plans.

Teachers are given the necessary tools to guide instructional decision at every point. The eAssessment Suite allows for comprehensive management of their assessments. They can easily modify existing test items and create additional items as needed, adjust the format and even control the answers and create multiple versions of assessments.

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Teachers are given the necessary tools to guide instructional decision at every point. The eAssessment Suite allows for comprehensive management of their assessments. They can easily modify existing test items and create additional items as needed, adjust the format and even control the answers and create multiple versions of assessments.

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The instructional materials support monitoring student progress:
33. Provides teachers with a range of data to inform instruction that can interface with multiple electronic grade book platforms.
McGraw Hill Education’s eAssessment provides access to 13 different reports to inform instruction and the data is easily exported into Excel or .csv files for import into grade book programs.

The new ConnectED digital platform for high school science brings a new level of engagement and effectiveness to your classroom. A one-stop shop where you can access the student eBook, digital resources, videos, worksheets, presentations, assessment tools, and planning and messaging tools.

**Features**

1. **Plan & Present:** Create personalized lessons with easy-to-use editing tools.
2. **Manage classroom assignments:** Keep everything organized. Send and receive assignments electronically to your students via their own ConnectED accounts.
3. **Tools for assessment:** McGraw-Hill Education eAssessment Suite supports you from diagnostic to summative evaluations.
4. **Comprehensive resources:** Project-Based Learning activities integrate science and engineering practices while engaging students.
5. **Access to your student eBook makes it easy for you to plan wherever you are.**
6. **Offers tools such as My Files, Planner, Notebook, and eGlossary.**
7. **Search by keyword or standard.**
8. **Contains quick calendar view and Message Center.**

**For You**

ConnectED is a comprehensive resource containing everything you need to teach your class. You can access ConnectED anywhere — from any computer, at any time — giving you complete flexibility in preparing for your class.

**For Your Students**

Students have their own version of ConnectED, complete with student worksheets and digital resources, called the Student Center. Assignments you create will show up on their to-do lists, and they can message with you and submit work directly back to your ConnectED account via the Web.
The instructional materials support monitoring student progress:
34. Provides print and digital assessments that are platform- and device-independent.
McGraw Hill eAssessment provides the ability to give assessments digitally on any device or browser including smartphones and will work on any browser.
The McGraw-Hill high school science programs via ConnectEd are compatible with all devices. The ebook is available offline with an app for iOS, Android, Windows8 tablets 7” or larger.

For the most updated ConnectEd minimum system requirements, please refer to:
http://help.k12.mhedu.com/systemcheck/