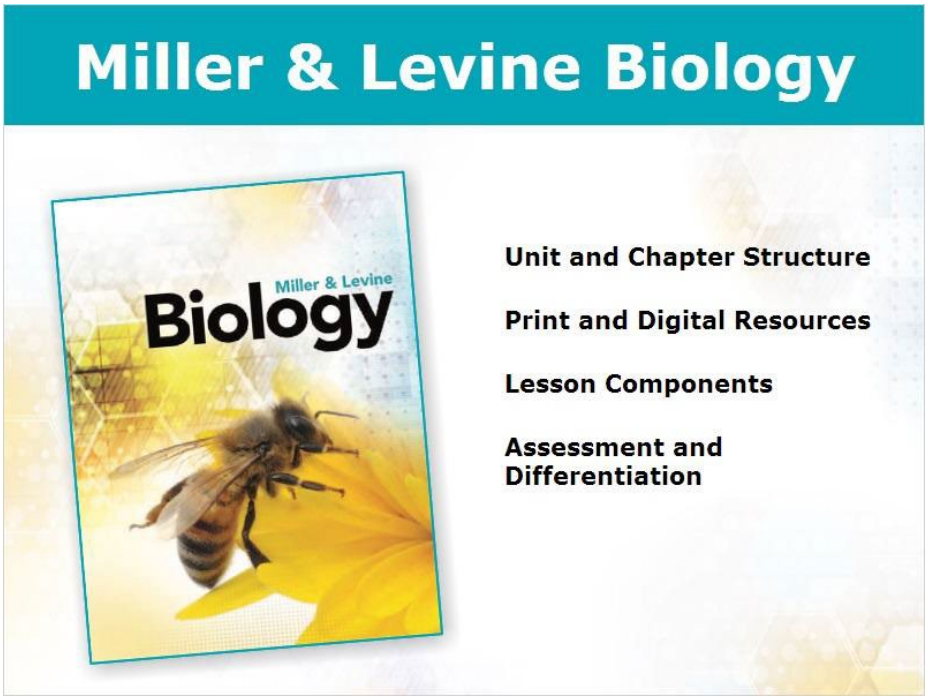
Miller & Levine Biology © 2019 Program Overview

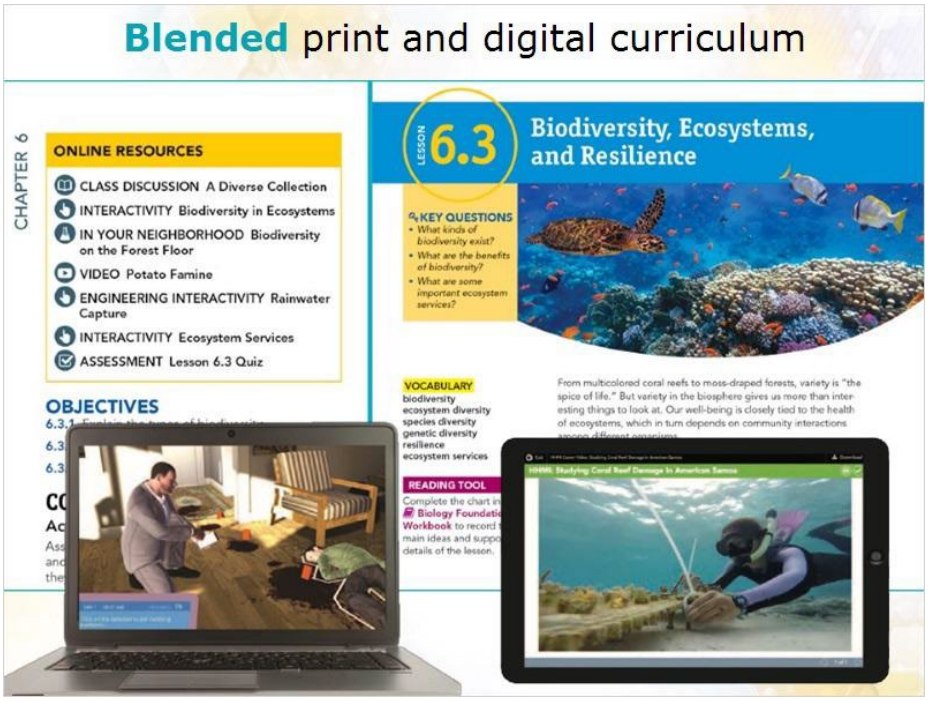
Introduction



In this tutorial, we'll explore the features of *Miller & Levine Biology*.

We'll take a look at unit and chapter structure, print and digital program resources, lesson components, and assessment and differentiation features.

Unit and Chapter Overview



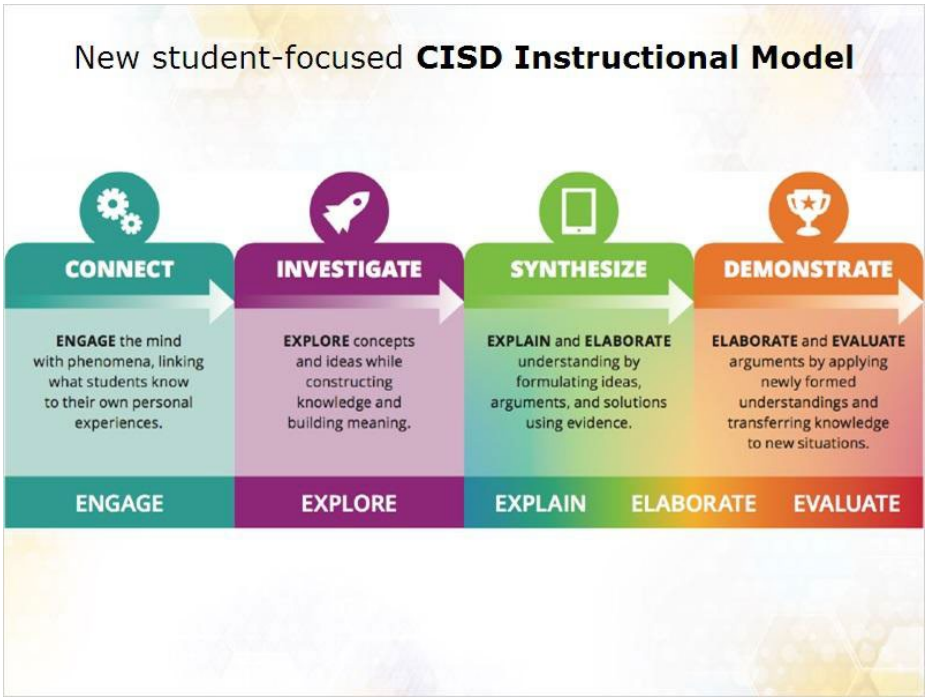
Miller & Levine Biology offers an exciting and unique approach to biology instruction.

This innovative new program was developed for the modern biology classroom with a focus on the new Next Generation Science Standards (or NGSS), STEM integration, and 21st century education. This blended print and digital curriculum immerses students in biological study as they investigate and interact with natural phenomena.

The components of the *Miller & Levine Biology* curriculum will:

- Ignite curiosity with authentic case studies, exciting partnerships, lab investigations and simulations.
- Promote understanding with reading support, visual aids, ELD strategies, performance-based assessment, and student monitoring.
- Inspire learning and a lifelong passion for science with real-world experiences, problem-based learning, and student-driven pedagogy.

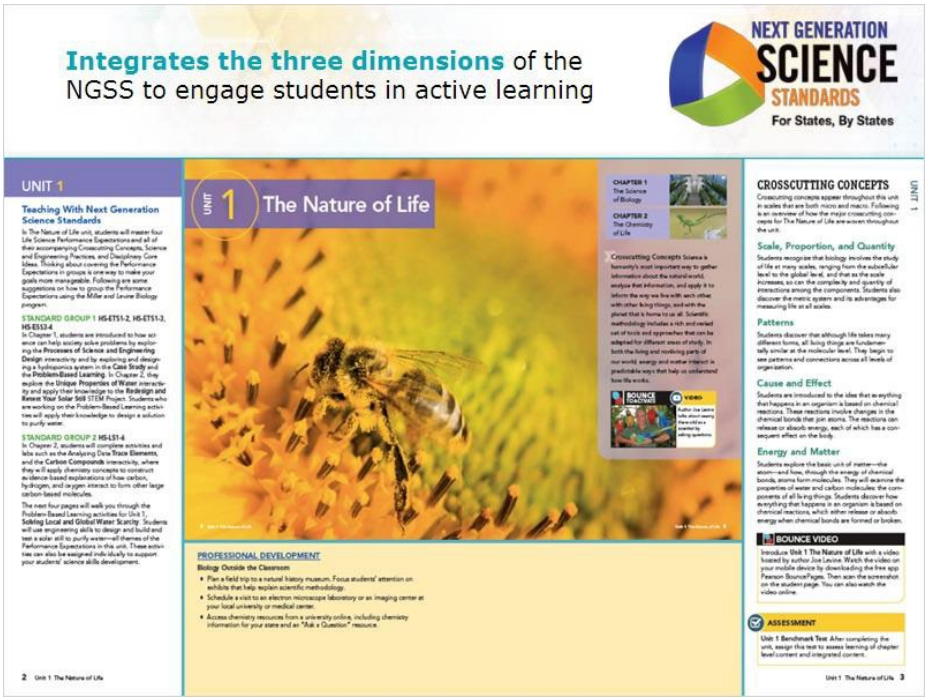
Next Generation Science Standards



Miller & Levine Biology was developed with student engagement and the NGSS in mind. The student text has a reduced page count from earlier editions and a focus on core content needed for NGSS mastery. Students engage in making sense of phenomena and designing solutions to problems.

Miller & Levine Biology also integrates a new student-focused **CISD Instructional Model** (Connect, Investigate, Synthesize, and Demonstrate). This model emphasizes the science and engineering practices that include obtaining, synthesizing, and communicating information through problem-based learning. The CISD model aligns with the sequence of learning in the 5E instructional model.

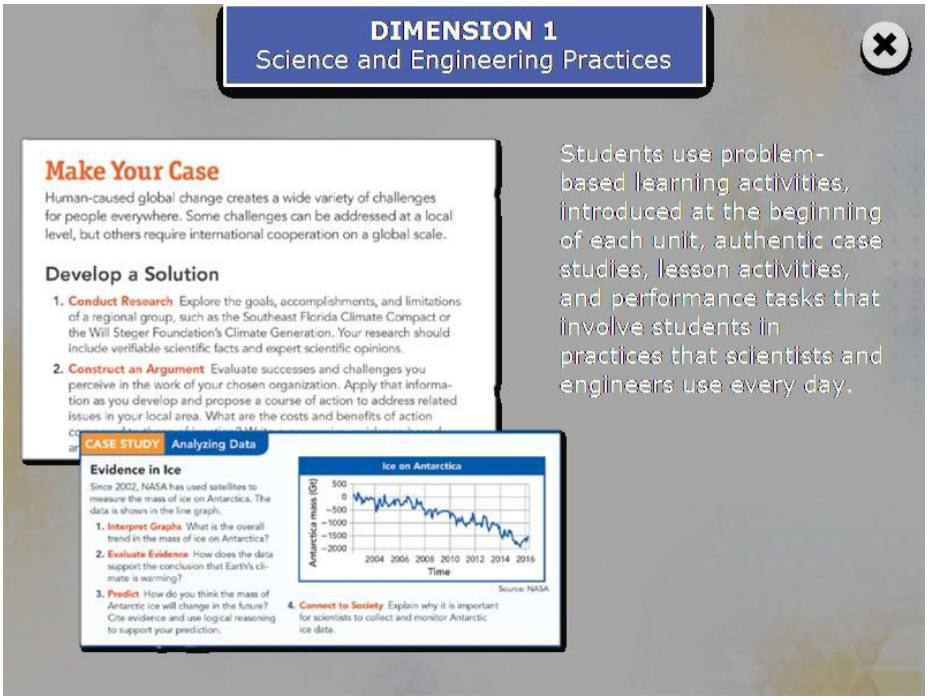
Three-Dimensional Learning



Miller & Levine Biology integrates the three dimensions of the Next Generation Science Standards to engage students in active learning. Lessons simultaneously bring together crosscutting concepts, disciplinary core ideas, and science and engineering practices.

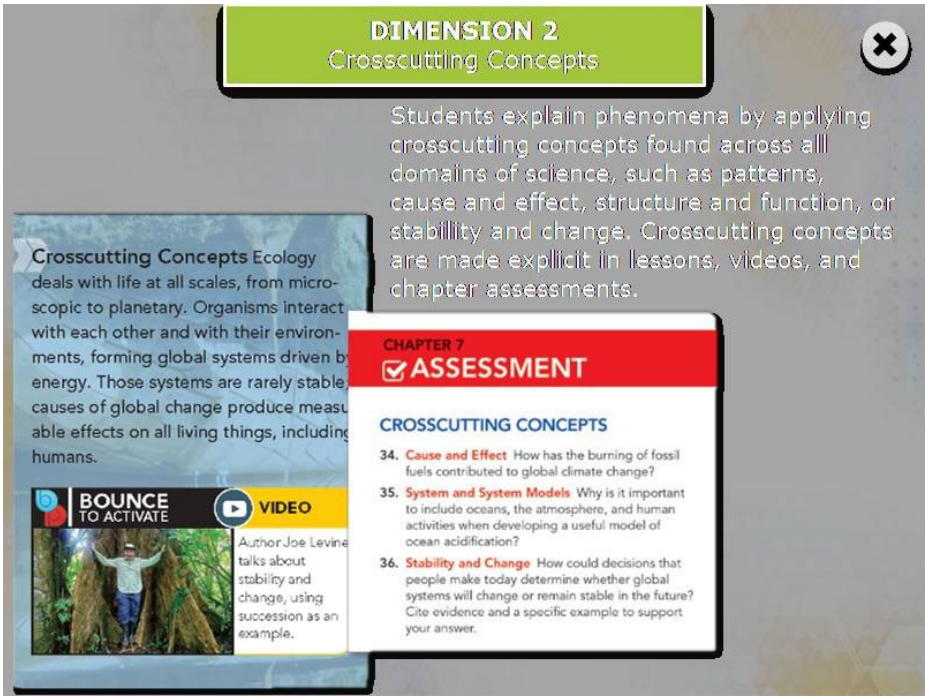
Now, let's learn more about the three dimensions.

DIMENSION 1: Science and Engineering Practices



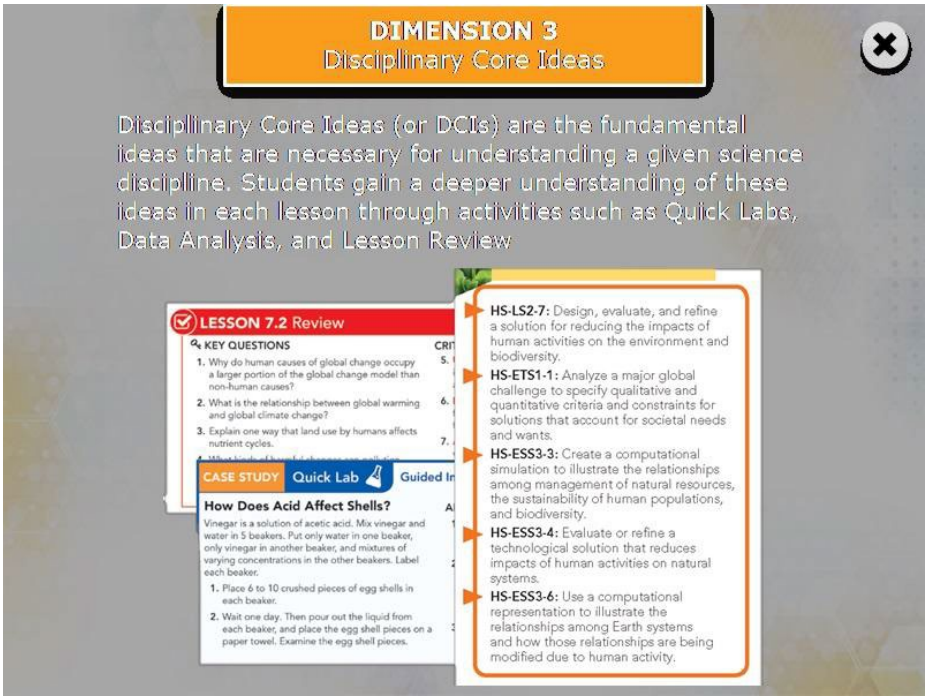
Students use problem-based learning activities, introduced at the beginning of each unit, authentic case studies, lesson activities, and performance tasks that involve students in practices that scientists and engineers use every day.

DIMENSION 2: Crosscutting Concepts



Students explain phenomena by applying crosscutting concepts found across all domains of science, such as patterns, cause and effect, structure and function, or stability and change. Crosscutting concepts are made explicit in lessons, videos, and chapter assessments.

DIMENSION 3: Disciplinary Core Ideas



Disciplinary Core Ideas (or DCIs) are the fundamental ideas that are necessary for understanding a given science discipline. Students gain a deeper understanding of these ideas in each lesson through activities such as Quick Labs, Data Analysis, and Lesson Review.

Problem-Based Learning

The Problem-Based Learning strand introduced in each unit is just one way this program engages students in the practice and language of science.

Every unit focuses on a real-life, long-term problem that will engage students in analytical thinking, collaboration, and self-directed learning. Applicable standards, pacing, and instructions for the unit are located in the teacher materials.

The Explorer's Journal: Problem-Based Learning Workbook is a student tool for navigating the **Problem-Based Learning** activities. Students record and evaluate their findings in their digital Explorer's Journal on Savvas Realize.

Students use their Explorer's Journal to take notes, answer questions, track their progress, and evaluate their work. This journal includes prompts and questions that help students extract the information they need from each activity in the learning path. The workbook also guides students as they record data, develop their own conclusions, and prepare to demonstrate the knowledge they have gained when they present their findings in the Problem Wrap-up.

Identifying and Solving Real Problems

Miller & Levine Biology encourages students to think like scientists by participating in an active learning environment.

Throughout each lesson, students learn about real-life issues in their community and take steps to solve them. Engaging Case Studies provide examples of biology in the real world and connect related activities, visual features, and labs together for greater comprehension while making biology relevant to their lives. The Case Studies serve as anchoring phenomena for the chapter.

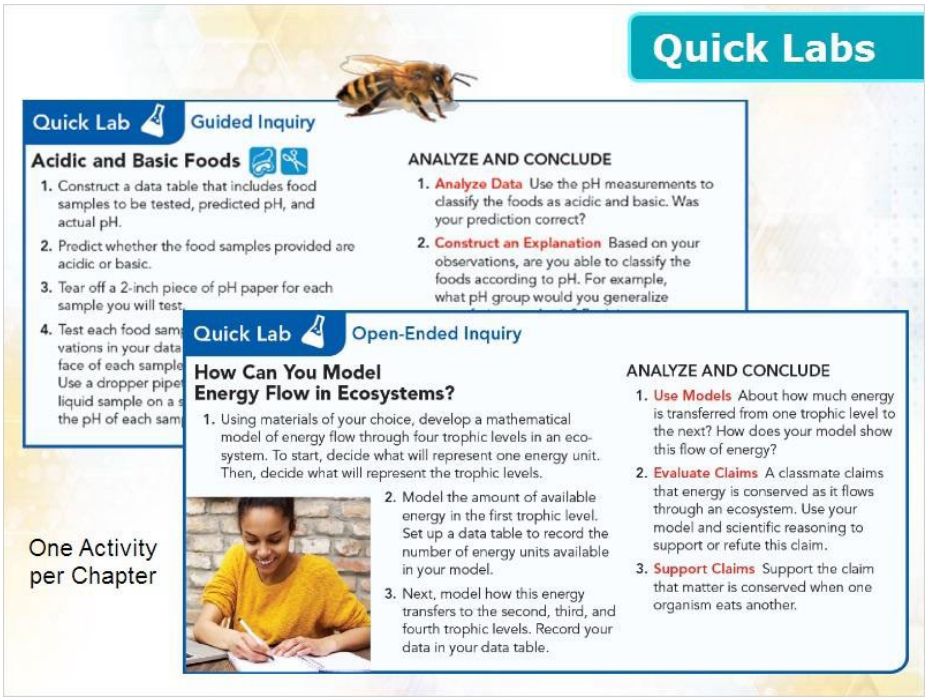
Students Make their Case in the Case Study Wrap Up by gathering data, citing evidence, and applying scientific reasoning to develop argument-driven discussions with their peers. The Technology on the Case and Society on the Case articles further extend the case study by showing how scientists use technology to make an impact in the world around them.

Go beyond the classroom with Scientists at Work Videos in Realize, which allow students to experience first-hand accounts from biology professionals in the field. Integrated in the core course, these multimedia resources from HHMI Biointeractive pique students' interest and maximize comprehension of biology concepts.

Other resources from HHMI Biointeractive include engaging animations, Data Analysis Tutorials, Holiday Lectures on Science and Short Films. Lectures and Films include a collection of supporting materials, quizzes, hands-on activities, and teacher lesson plans to increase their impact.

Data Analysis tutorials teach students essential analysis techniques and are aligned to a collection of supporting materials, quizzes, hands-on activities, and teacher lesson plans to increase their impact.

Inquiry-Focused Labs and Field Trips



Quick Labs are at point of use in the student narrative, with one activity per chapter. They are easy to implement, have minimal set-up and clean-up, and can be completed in a short period of time.

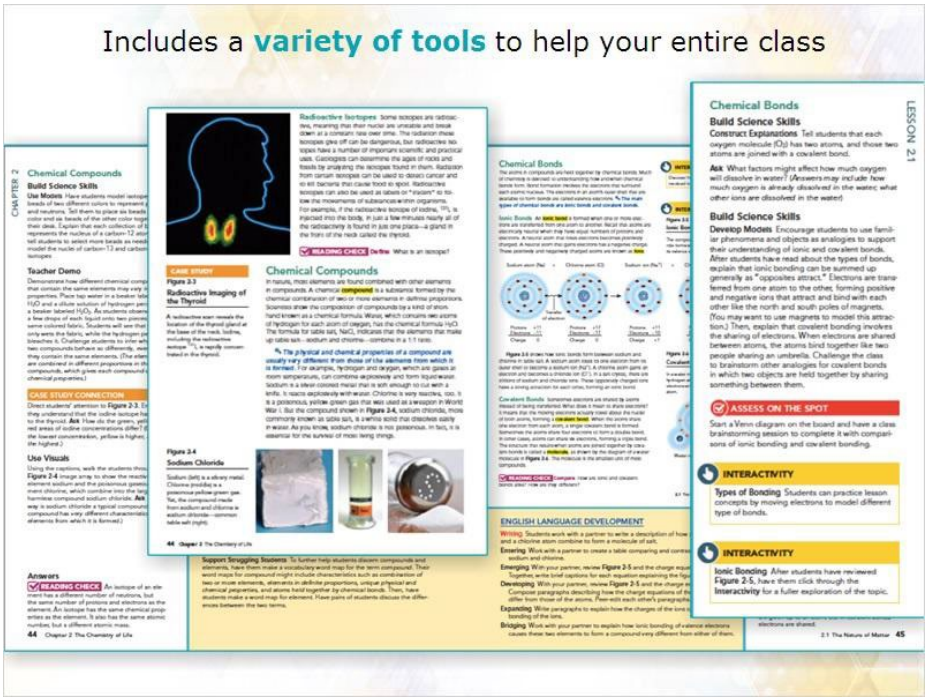
Each chapter also includes an in-depth investigation, or Chapter lab. Students strengthen inquiry skills as they make models, study local science issues, and complete experiments. Teachers can customize labs to fit every classroom with online editable versions in Realize.

Miller & Levine Biology integrates two cutting edge virtual lab simulations from Labster into our program. All Labster Labs are based on real-life case studies that captivate student attention as they conduct a wider range of experiments in a virtual million-dollar lab setting. Additional Labster Lab Simulation packages, with up to 21 labs, are available.

By using Virtual Labs, students simulate the classroom lab experience in an enhanced digital environment. Students conduct experiments that may not be possible in a traditional classroom lab. Labster Virtual labs make safety concerns and clean-up obsolete!

Google Expeditions are virtual reality tours that take students on immersive journeys all around the world. Teachers can lead classroom-sized groups of students through collections of 360° and 3D images.

Learning Strategies



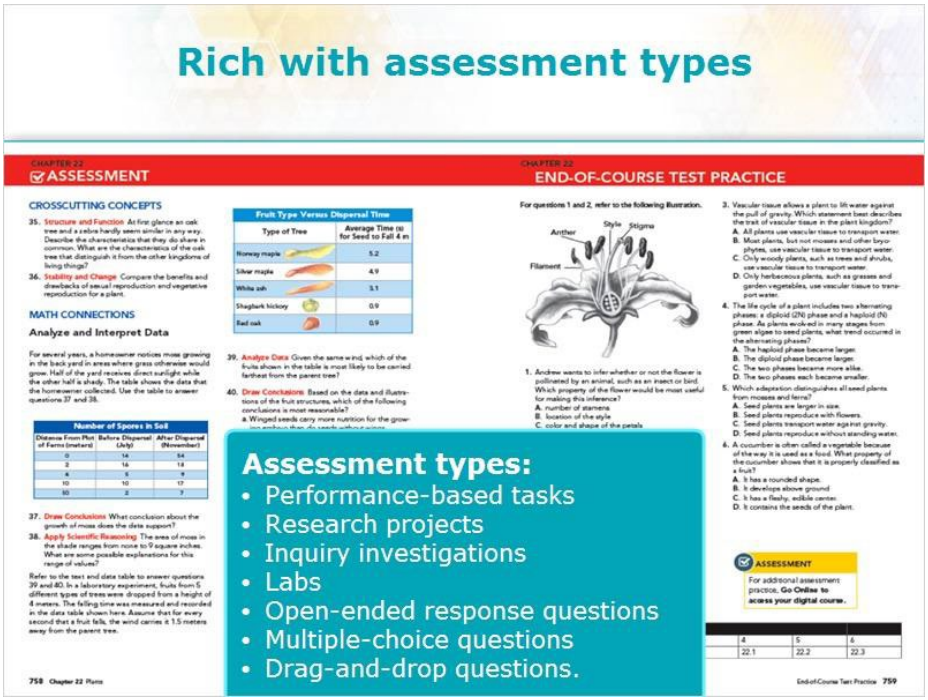
Miller & Levine Biology includes a variety of tools to help your entire class build science literacy, comprehend abstract concepts, and achieve success in biology.
Reach all students using tips provided in the margins including connections to visuals, connections to other subjects, reading tools, and activities.

The *Biology Foundations: Reading and Study Guide Workbook* offers reading support with summaries at a simple reading level and scaffolds content so students are able to access on-level material.

Differentiated Instruction components include modified instruction for special needs students, struggling students, less proficient readers, and advanced students.

Support for ELL Students accompanies on-level activities in every lesson, with strategies for modification and extension. The Teacher's Edition provides writing, reading, and speaking and listening activities to support English language learners.

Student Assessment and Evaluation Tools



The *Miller & Levine Biology* program is rich with assessment types that work in combination to assess three-dimensional learning.

Item types include performance-based tasks, research projects, inquiry investigations, labs, open-ended response questions, multiple-choice questions, and drag-and-drop questions.

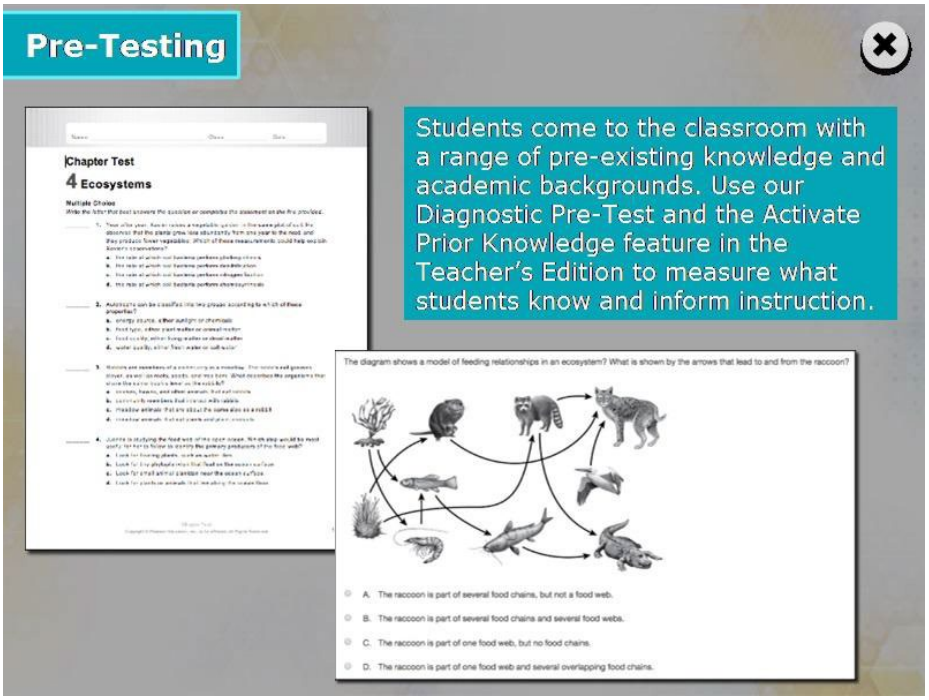
When students take the assessments online in Realize, the teacher receives instant feedback on performance, which informs instruction based on results.

Miller & Levine Biology includes the following assessment types:

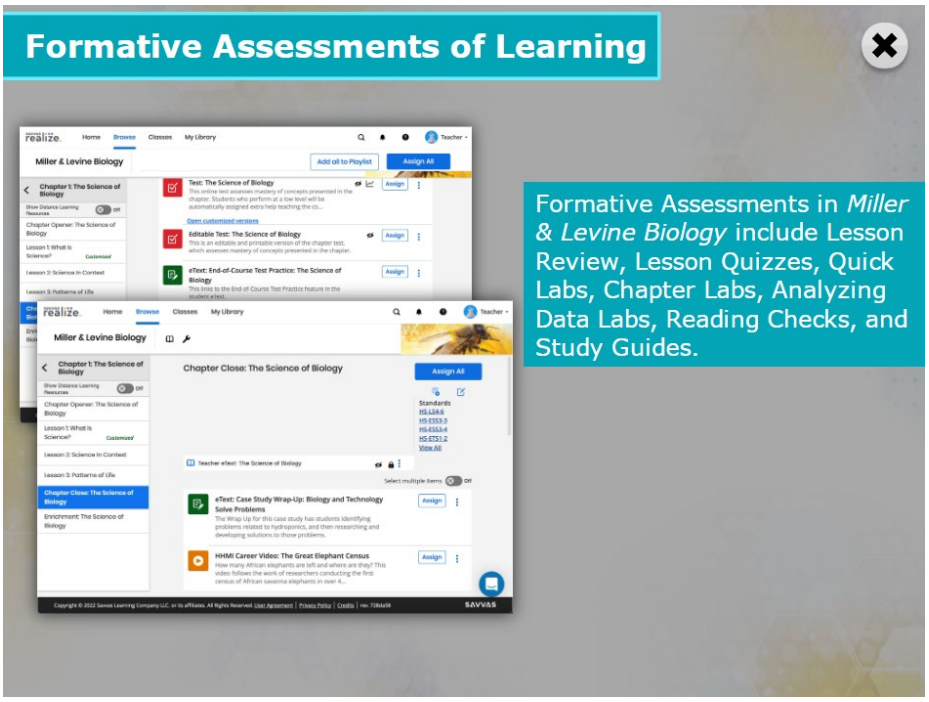
- Pre-Testing
- Formative Assessments for Learning
- Summative Assessments of Learning
- Performance-Based Tasks

Let’s learn more about each assessment type.

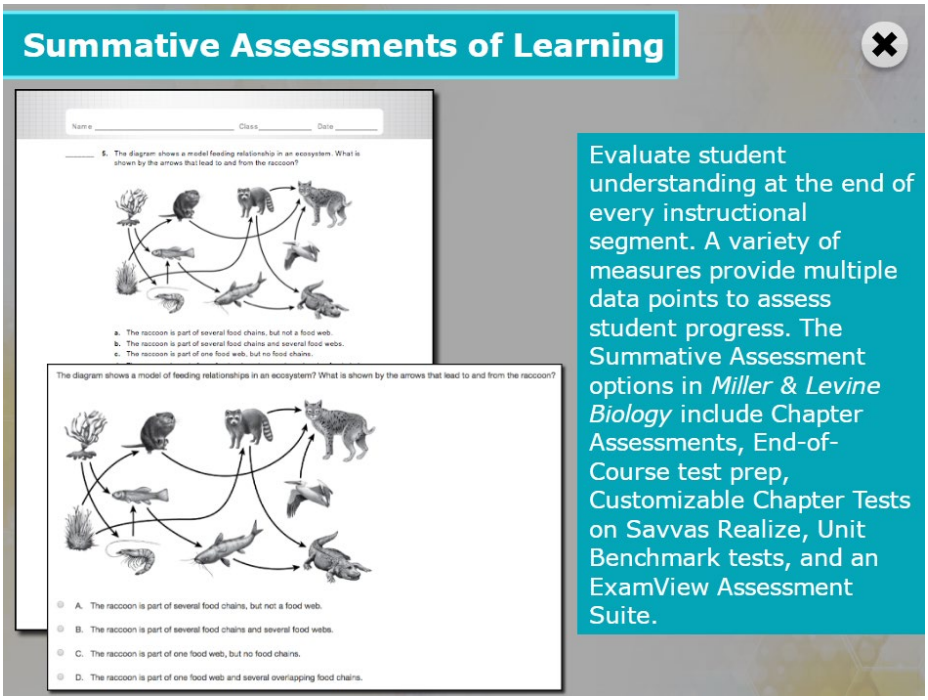
Pre-Testing



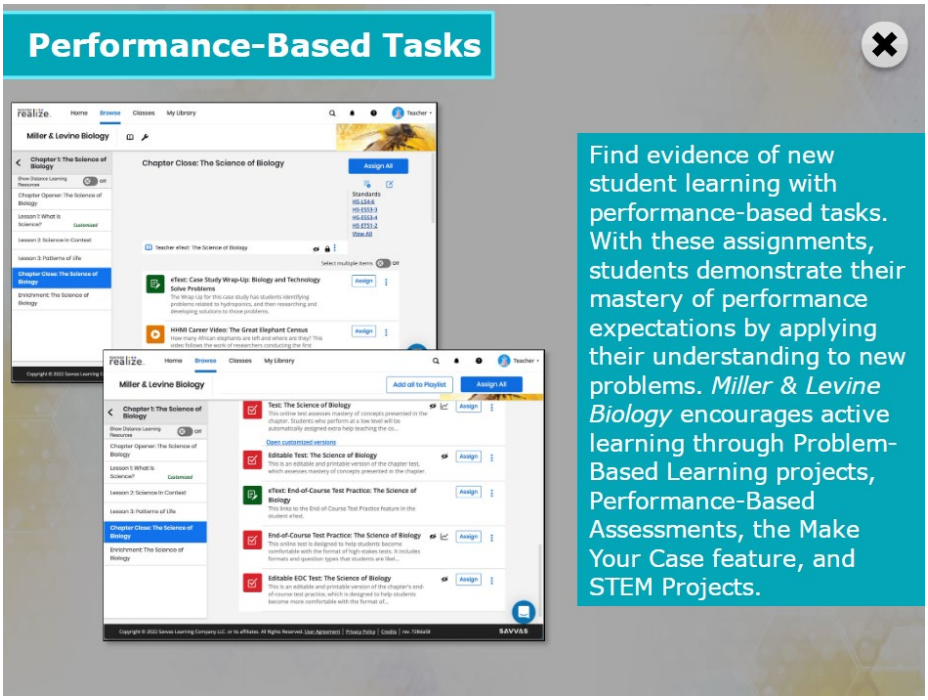
Formative Assessments for Learning



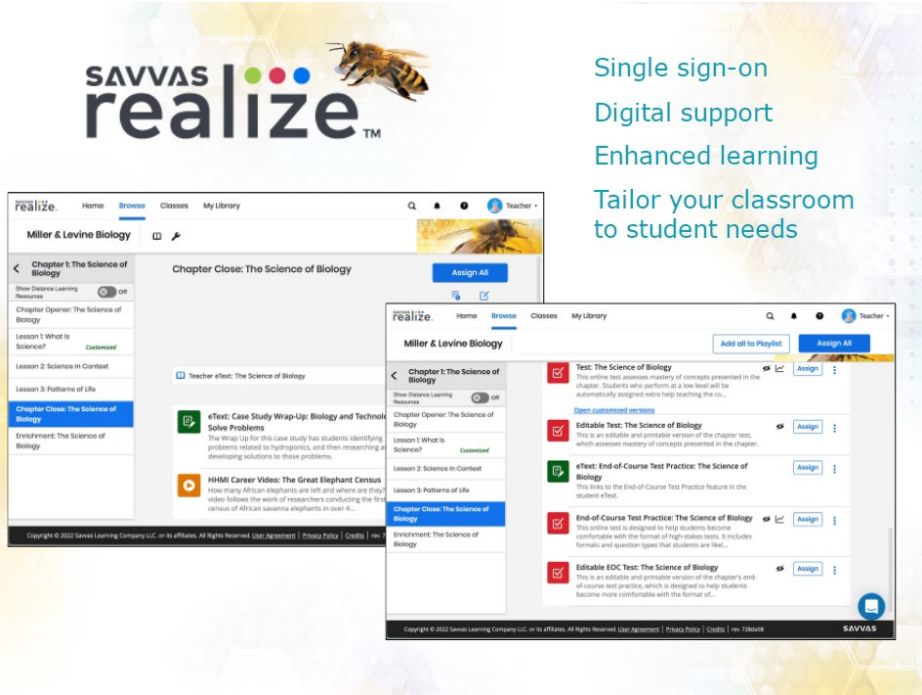
Summative Assessments of Learning



Performance-Based Tasks

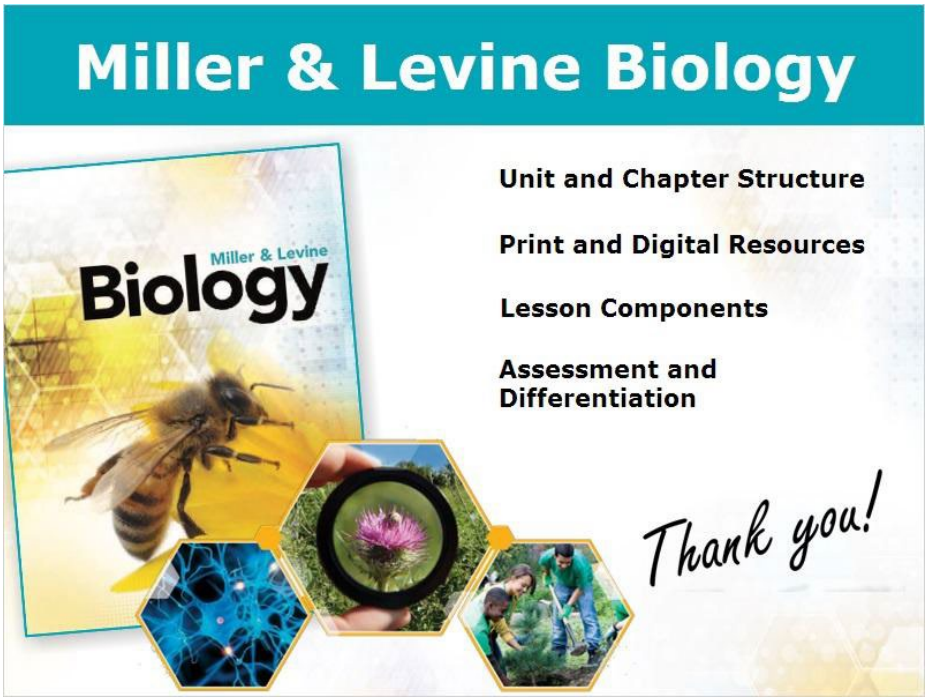


Savvas Realize



SavvasRealize.com is your online destination for *Miller & Levine Biology*. A single sign-on provides access to all content, management tools, and real-time student data. Throughout the lessons, digital support is presented at point of use to enhance the learning experience. Instructor resources are easy to find and customize to help you tailor your biology classroom to your students' needs.

Closing



In this tutorial, we examined the key program features and materials of *Miller & Levine Biology*. We looked at unit and chapter structure, print and digital program resources, lesson components, and assessment and differentiation features.

Visit MySavvasTraining.com to learn more about *Miller & Levine Biology*.