SAVVAS

PROGRAM OVERVIEW

Biology

Miller & Levine

Experience It!

IT'S THE SCIENCE OF DOING!

Phenomenal
experiences drive student inquiry.

Observe it. Explain it. Use evidence. *Miller & Levine Biology* immerses students in phenomena-based lessons through Problem-Based Learning and Case Studies. Send students on a journey of discovery with compelling real-world phenomena.

PROBLEM: How can you reduce the impact of an invasive species on your local ecosystem?

TO SOLVE THIS PROBLEM, perform these activities as they come up in the unit and record your findings in your Explorer's Journal.

PROBLEM LAUNCH

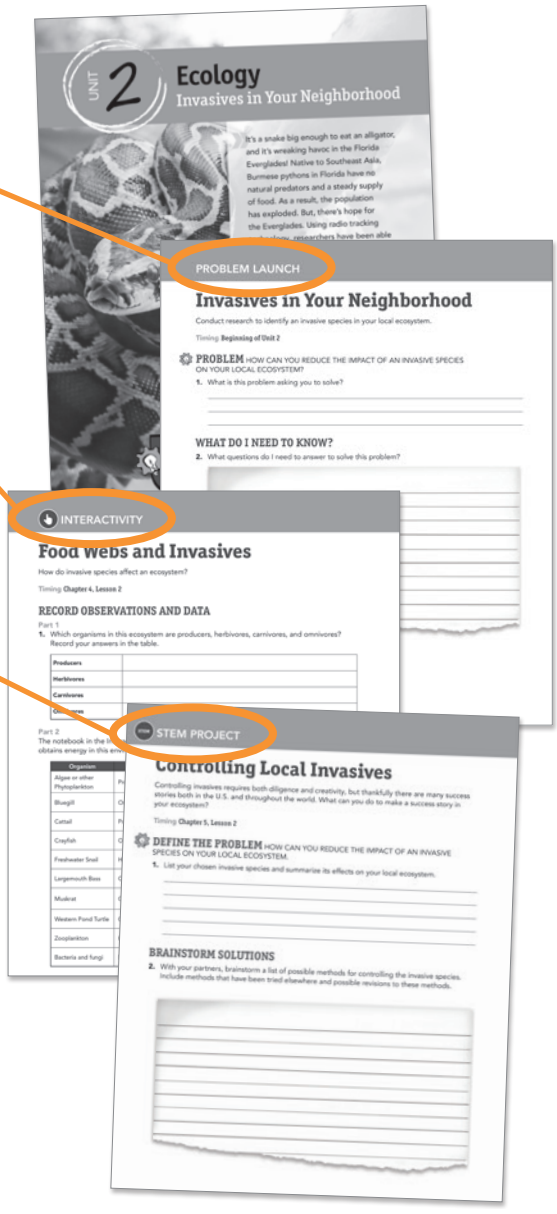
INTERACTIVITY

STEM

STEM PROJECT

VIRTUAL ACTIVITY

PROBLEM WRAP-UP



Problem-Based Learning Projects

Support students' understanding of a relevant and local phenomena. These student-led research projects encourage student inquiry and discourse.

How do species interactions shape ecosystems?

Case Studies

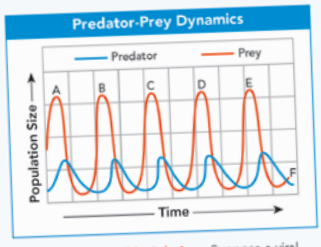
- Launch every chapter with an intriguing, open-ended scientific problem or question.
- Learning connects to the Case Study in activities, figures, and assessment prompts, creating a cohesive storyline. Look for the orange Case Study Connections label.
- Students gather data, cite evidence, and apply scientific reasoning to develop argument-driven discussions with their peers as they Make Their Case.

CASE STUDY Analyzing Data

Predator-Prey Dynamics

The relationships between predator and prey are often tightly intertwined, particularly in an environment in which each prey has a single predator and vice versa. The graph here shows an idealized computer model of changes in predator and prey populations over time.

1. **Use Computational Models** Suppose a bacterial infection kills off most of the prey at point B on the graph. How would this affect the predator and prey growth curves on this computer model at point C? At point D?
2. **Analyze Graphs** Suppose a sudden extended cold spell destroys almost the entire predator population at point F on the graph. How would the next cycle of the prey population appear on the graph?



3. **Develop Possible Solutions** Suppose a viral infection kills all the prey at point D. What effect would this have on the predator and prey curves at point E? What will happe years to the predator population? could ecologists develop to ensur ued survival of the predators?

Make Your Case

Scientists and park rangers agree that reintroducing wolves to Yellowstone was a wise action to take. Happily, the wolves helped reverse the changes in Yellowstone and make it a much healthier ecosystem. However, scientists are not convinced that the wolves were the only cause of the improvements that Yellowstone experienced.

Apply Scientific Reasoning

1. **Conduct Research** Compare the Yellowstone wolf story with a situation in your region where human activity that affected one species, or a couple of species, resulted in a trophic cascade. Which aspects are similar to the Yellowstone story, and which are different? Have researchers offered and tested hypotheses to explain the changes?
2. **Engage in Argument** Develop an argument, supported by evidence, about ways to protect or restore the ecosystem that you researched. Do you think your solution will work throughout the ecosystem, or just in certain parts of it? Compare and contrast your chosen system with Yellowstone.

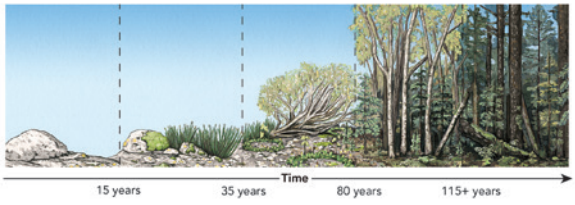
Secondary Succession When a disturbance affects an existing community but doesn't completely destroy it, a process of secondary succession occurs. Secondary succession proceeds faster than primary succession, in part because bits of the old community survive and can regrow rapidly. Secondary succession is shown in **Figure 6-8B**. On land, secondary succession often follows a wildfire, hurricane, or other natural disturbance. We think of these events as disasters, but many species are adapted to them. Although forest fires kill some trees, for example, other trees are spared, and fire can stimulate their seeds to germinate. Secondary succession can also follow human activities like logging and farming.

INTERACTIVITY

CASE STUDY

Figure 6-8
Primary and Secondary Succession

In both types of succession, one group of species replaces another group.



A. Primary succession occurs on newly exposed surfaces. In Glacier Bay, Alaska, a retreating glacier exposed barren rock. Over the course of 100 years, a series of changes has led to the hemlock and spruce forest.

Experiences
create real learning opportunities.

Do more inquiry! Throughout each lesson, students are engaged through inquiry labs, STEM activities, and interactivities as they investigate key questions, apply science and engineering practices, and interpret data.

Labster™

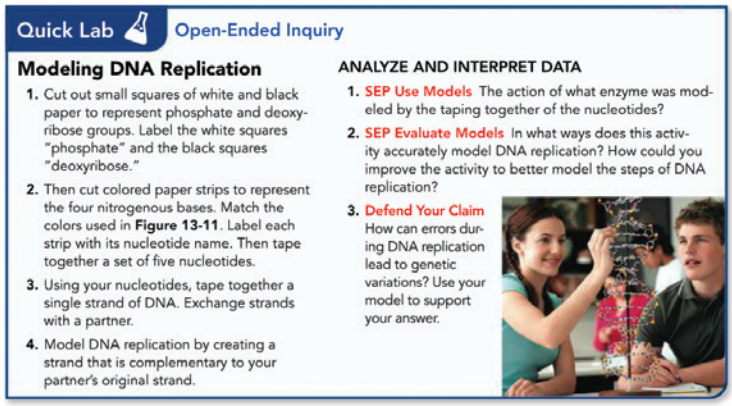
Award-winning Virtual Lab Simulations

- Immersive, interactive learning with gamified missions and storytelling
- Based on real scientific case studies and data
- Point-of-use quizzes

hhmi BioInteractive

Resources at Point of Use

- Animations and Interactive Media
- Scientists at Work career videos
- Spreadsheet data analysis tutorials

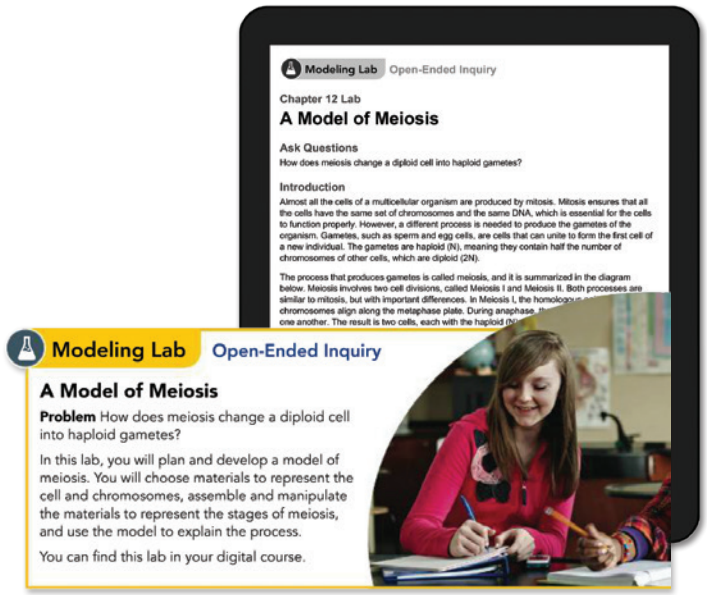


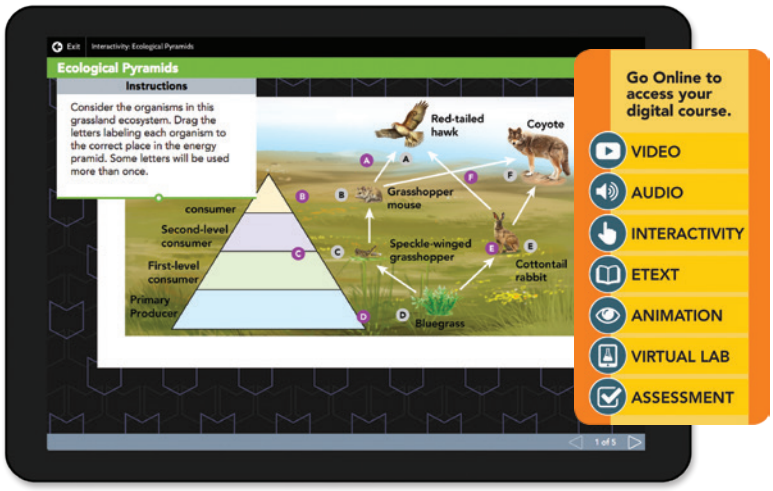
Quick Labs

- Students explore with hands-on inquiry experiences.
- Students analyze and interpret real data as they model biology concepts.
- Save valuable time with easy setup and cleanup.

Inquiry Labs

- Strengthen inquiry skills as students make models, study local science issues, and complete in-depth experiments.
- Customize and edit on the Savvas Realize™ digital platform.
- Two versions of each lab for differentiation





Interactive Virtual Simulations

- Students manipulate visuals and interactive content to deepen understanding.
- Variety of options, including digital art, drag and drop, art review, videos, and vocabulary cards
- Located throughout the narrative to enhance explanations

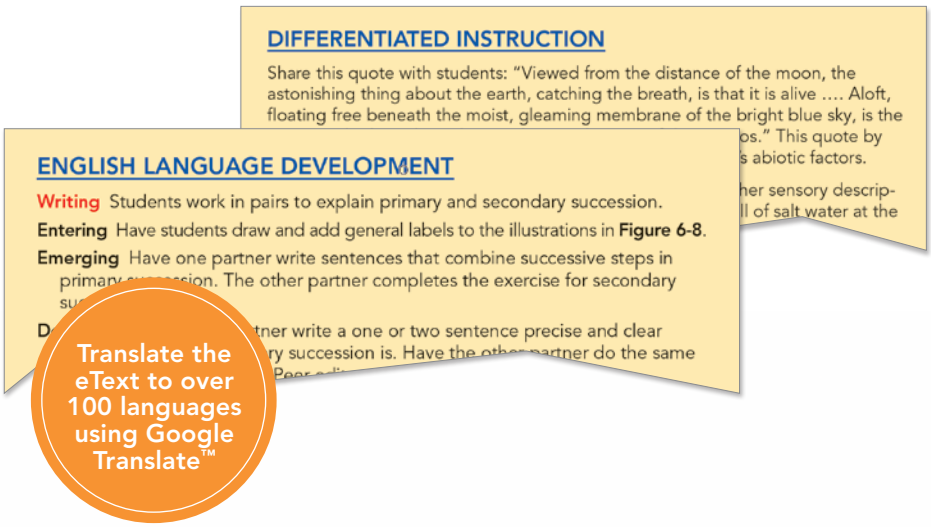
ACCESSIBLE
biology for all students.

Authors Ken Miller and Joe Levine are active scientists and passionate storytellers who want *Miller & Levine Biology* to inspire students. They combine an engaging narrative with inquiry activities, visual supports, teacher tools, and other reading aids so all students can succeed.

Reach All Students

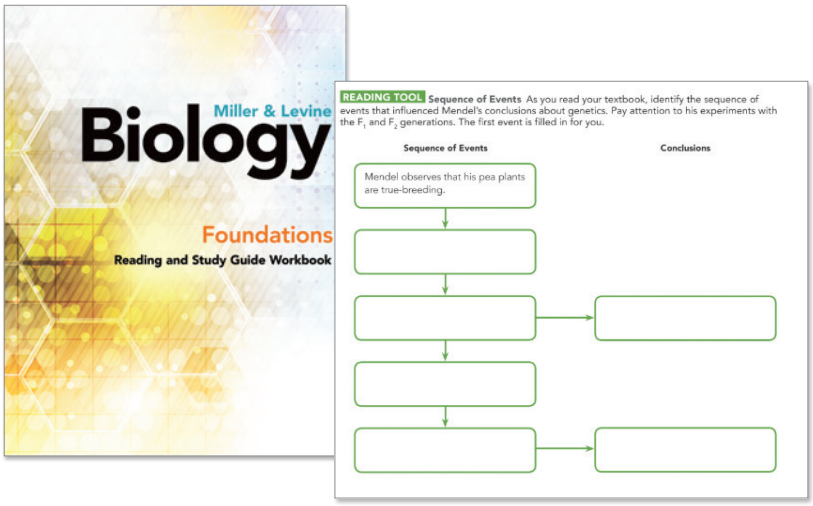
Modify instruction with point-of-use resources in the Teacher Edition to provide access for all students. Support for:

- English learners
- Special needs students
- Less proficient readers
- Struggling students
- Advanced students



Translate the eText to over 100 languages using Google Translate™

Miller & Levine Biología is availabe in print and on Savvas Realize™.



Reinforce Learning with the Foundations Reading and Study Guide

- Available in English and Spanish
- **Reading Tools** target strategies to support reading comprehension.
- **Visual Reading Tools** support difficult concepts with interactive visuals and alternative practice opportunities.
- **Science Vocabulary** boxes put the spotlight on new words and pronunciation to help students learn the language of biology.

3-D Assessment Tasks

Complete Assessment Suite

- **Performance-Based Assessments** measure students' mastery of all three dimensions through scenario-based performance tasks.
- **"Assess on the Spot"** prompts in the Teacher Edition provide quick **Formative Assessment** opportunities that assist teachers in clarifying and adjusting instruction as necessary.
- **Reading Checks** in the Student Edition provide self-assessment pause points for students.
- **Summative Assessments** at the end of every chapter include customizable interactive online quizzes and assessments with automatic grading.
- Students **"Make Their Case"** by constructing arguments, evaluating and working with their peers, and presenting solutions to the chapter case study.
- **End-of-Course Test Prep** prepares students for high-stakes exams. Students interact with a phenomena to demonstrate their progress on all three dimensions.
- **ExamView® Assessment Bank** provides more opportunities to customize and administer assessments.

Meet the Authors

Active scientists, passionate storytellers

"You don't need a lab coat, degree, or laboratory to be a scientist. What you need is an inquiring mind, the patience to look at nature carefully, and the willingness to figure things out."

– Ken Miller

"We want students to really understand biology—which means more than memorizing facts. We've worked hard to put the information together in ways that will help you understand why that information is important."

– Joe Levine

Try It Online!

Experience the award-winning digital platform. Savvas Realize™ is a Thin Common Cartridge (TCC) certified provider, so content runs on all compliant LMS platforms. Access all your digital content, virtual labs, simulations, assessments, and student data in ONE location. Use our LTI-Advantage (LTI-A) integration to make sharing content, assessments and data easier between certified LMS systems.

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