The changing world of biology education

*Miller & Levine Biology* represents a new approach to engaging students with science content that connects them with the living world.

Recognizing the ever-changing nature of science and the new tools, discoveries, and technologies that make a biology course so exciting, Ken Miller and Joe Levine have taken biology education to the next level, creating an unmatched blend of print and digital components.

The result—a biology program as dynamic as the science of biology itself.

**New Standards for More Successful Schools—and Students**

Along with the trusted content that had made *Miller & Levine Biology* the most respected high school biology program on the market, this updated edition has tools that will help support today’s classrooms. In addition to the engaging and accessible content you’ve come to expect authors Ken Miller and Joe Levine, this newly updated edition also includes:

- An increased focus on the engineering and design process
- Even more STEM and STEM activities
- More building blocks to support Scientific Literacy
- Deeper problem-based learning throughout the program
- Even more teaching support to help you transition to the new science standards

**Realize Your Potential.**

The new Pearson Realize™ platform delivers rich and engaging content, embedded assessment with instant data, and flexible classroom management tools. Realize gives you the power to truly customize to raise interest and achievement for every student.
Capture all students’ attention with engaging biology visuals!

Teaching strategies accompany every lesson!

GROUPS OF AMPHIBIANS

The three models of amphibians include more than 3,000 species, roughly 50% of which have frogs and toads.

URIDELA: Salamanders and newts
Salamanders and newts have long bodies and tails. Most also have four legs. All age continuously. Adults usually live in moist woods, where they tunnel under rocks and carpet ecos. Some species also live in water.

APODA: Caecilians
The least-known and most unusual amphibians are the legless caecilians. They have bony ribs, and many have fleshy tails. Embryos are embedded in their skin, which allows them not to all amphibians to the general definition. Caecilians live in water or burrow in soil, water or sediments, feeding on small invertebrates, such as termites. Examples: Ringed Caecilian, Yellow-Streaked Caecilian.

Table of Contents

- Chapter 1: The Science of Biology
- Chapter 2: The Chemistry of Life

Add new content
- Table of Contents
- Standards
- eText

Table of Contents

- Miller & Levine Biology for Realize
- Table of contents

Lead a Discussion

Think about how cell division relates to the growth of animal reproduction. For example, what if you lived to a hundred? How might your cells divide and multiply? Why did the cell make copies of itself? Ask students to share their thoughts.

Differentiated Instruction

Focus on English Language Learners: Access Content

Beginning Readers: Show students how each cell nucleus divides during sexual and asexual reproduction by using these simple diagrams on the board.

Answers

Problem 10.3: For the cell to have a genetic material as its name.

In your own words, the diagram should show the following characteristics: For both sexual and asexual reproduction, each cell divides into two new cells, and each new cell contains the same genetic information. For sexual reproduction, the process is called mitosis, and it results in the formation of new cells. For asexual reproduction, the process is called meiosis, and it results in the formation of new cells.
We tore up the table of contents, rethought our approach to every topic, and sought to weave a narrative of discovery into a connected web of technology. The resulting program, *Miller & Levine Biology*, combines our years of research, teaching, and writing with an unprecedented level of technology and teacher support.

Biology is a science of great stories and remarkable adventures. Our approach for this program has been simple—involv e students in these stories, and make them part of those adventures. We think you’ll find that this new program does just that.

A sincere thank you for making *Miller & Levine Biology* the most respected and best-selling high school biology program in the country. We hope you’re as excited about this new program as we are.

A re-hash of our Dragonfly book? Think again.

The dazzling speed of new development presented us with the chance to write a completely different textbook—one built around new advances in understanding and new ways of learning, investigating, and exploring. Quite simply, we wanted to put the power of technology and new ways of thinking directly into the hands of you and your students.
A Changing Landscape

Teaching Biology brings new challenges each year—and we’re thrilled that there’s now a greater expectation for students to learn science by actually doing science. Our most recent edition gives you even more problem-based learning activities and teacher support to help you transition to new ways of teaching through a coherent, phased approach to implementation.
Support all students with a solid framework for learning

*Miller & Levine Biology* allows you to communicate your love of science to your students in a way that will engage them and offer accessibility for all levels and types of learners. Big Ideas woven throughout each lesson, integrated inquiry, and a variety of assessment and study tools help deepen understanding of key concepts.

**Start with the End**

Students are guided to their learning goals from the very first questions posed in each new chapter. Throughout *Miller & Levine Biology*, considering the Big Ideas is the starting point towards mastering biology.

**Big Ideas Focus Students on Their Learning Goal**

With the Big Idea in mind, important questions will follow. Lessons in the Student Edition raise these important questions, and reinforce comprehension with robust assessment at the section and chapter level.

**Chapter Mysteries**

Chapter Mysteries give students a real-world context for understanding the Big Ideas. Not only are the mysteries woven into the chapter, but the concepts presented in each chapter mystery are extended with further explorations in the accompanying Untamed Science video.
Unparalleled Graphics Enhance Instruction

Visual Features give a different perspective on content, connecting difficult concepts to real-world issues that your students will understand.

Integrated Inquiry Supports Deep Understanding

Quick Labs and End-of-Chapter Labs encourage students to interact with subject matter—helping to deepen understanding of Key Concepts and Big Ideas in an open-ended inquiry environment.

Frequent Assessments Measure Student Understanding

Lesson Assessment and Chapter Assessment offer students a frequent opportunity to review and understand the concepts introduced in that lesson. Chapter Assessments call on students to think critically and use the chapter concepts to solve the Chapter Mystery introduced on the first page.

Additional Student Resources

Other resources to supplement the activities found in the Student Edition with in-depth strategies for reading support, lab skills, and test preparation:

- Study Workbook A
- Lab Manual A
- Study Workbook B: Reading Foundations
- Lab Manual B: Skills Foundations
New ways of teaching, new opportunities

The changing landscape of science education poses great challenges—as well as opportunities—to the teaching of biology. With *Miller & Levine Biology*, you’ll have the tools you need, exactly when you need them.

**Problem-Based Learning**

Each Unit kicks off with a comprehensive Problem-Based Learning Project that puts a spotlight on Performance Expectations as well as Disciplinary Core Ideas, Cross Cutting Concepts, Scientific and Engineering Practices, and Links to the Common Core.

**Personalized Learning**

Pearson’s Realize platform offers a truly personalized learning experience for every student with technology that links to instructional materials with formative and summative assessment.

**Teacher Support**

Teacher tools help you understand what the new standards mean, diagnose where you are, and help you get where you need to be.
Connect to STEM

Students have a natural interest in science and engineering, which blossom through real-world engineering design problems and hands-on inquiry. These types of activities and assessments promote higher-order critical thinking skills that result in improved student performance.

- Print and digital STEM activities support the implementation of the engineering and design process in an engaging and hands-on way.
- Teachers are provided with point-of-use STEM activities and teaching strategies throughout the program.

Common Core

Students have many opportunities to practice and develop their scientific literacy skills embedded in the Common Core State Standards.

- Common Core call-outs are provided point of use to help support the implementation of these standards in the biology classroom.
- Each chapter opens and closes with a statement or question that addresses the Common Core state standards.
Our print and technology components allow you to customize your planning, teaching, and assessing in as many ways as you can imagine.

1. **Teacher’s Edition**

   Plan your classroom time with ease. The Teacher’s Edition contains numerous resources to support your teaching style and the needs of your classroom. Chapter planning guides, wrap-around notes, lesson planning for differentiated instruction and ELL teaching strategies provide tools to plan your day.

2. **Differentiated Instruction**

   Differentiated Instruction teaching notes indicate strategies for **reaching all learners** in the classroom—from Special Needs to Above-Level, as well as ELLs.

3. **Pearson Realize™**

   PearsonRealize.com includes a wealth of digital assets to support your classroom. It includes assignable activities, editable worksheets, automatic grading and remediation for your students.
5. Visual Strategies

All graphics in the program have been created to support the instructional value relative to the chapter concepts. **Visual Features** give a different perspective on content, connecting difficult concepts to real-world issues that your students will understand.

---

### Workbook Resources

Workbook resources supplement the Teacher’s Edition with in-depth strategies for reaching all learners!

#### Study Workbooks A and B, Teacher’s Editions

Two levels of workbooks offer guiding questions, lesson outlines, vocabulary reviews, and self-tests to allow you to differentiate instruction for your students. Workbooks also utilize 21st-Century Skills, Chapter Mysteries, and Visual Reviews to assist you in engaging your students.

#### Lab Manuals A and B, Teacher’s Editions

Two levels of brand-new lab manuals give you the opportunity to differentiate lab settings for your classroom. Lab coverage includes Real World Labs, Skills Labs, Forensics Labs, and Do-Your-Own Labs to allow you the flexibility of choosing labs to fit your curriculum.

#### Assessment Workbook

Ensure your students are mastering content with this brand-new assessment program! Assessments include 80 leveled Unit Tests, 350 leveled Chapter Tests, and 130 Visual Quizzes to help you prepare your classroom for end-of-year testing.

#### ELL Handbook

Utilizing ELL expert Jim Cummins’ approach to bilingual education, the ELL Handbook provides numerous strategies for reaching the students in your classroom who lack fluency in English.

---

See the back cover for a complete program component list!
PearsonRealize.com—the online habitat for your biology classroom

PearsonRealize.com includes the standards-aligned content you’ve come to expect, as well as even more flexible class management tools and embedded assessments that deliver data to you instantly.

**Find Content Quickly**
- Easy navigation provides point-of-use access to lesson content and instructional resources.
- Powerful search tools help you find the content by keyword standard.
- Content delivered in seconds allows you to adjust your lesson plan quickly.

**Customize Easily**
- Drag-and-drop functionality lets you rearrange the Table of Contents
- Pearson content can be modified to meet the needs of your classroom.
- The ability to add your own content helps you enrich your lessons.

**Access Data You Need**
- Comprehensive reports track student mastery, item analysis, progress, and usage at a glance.
- Easy to read, color-coded graphs take the guesswork out of data.
- Clickable date points allow you to analyze data quickly.

**Online Activities**
Crossword puzzles, memory match games, drag-and-drop activities, and presentation tools allow students to interact with engaging multimedia, and reinforce their biology lessons!
Virtual Labs Bring Biology to Life

At point of use in every chapter in the program, these highly visual tools create an exciting yet comfortable learning environment, differentiated for all learners. Students engage in virtual lab experiences, tailored to specific topics in the narrative, which offer real-world context such as:

- Investigating the effects of shark fishing and pollution on the ecology of a coral reef
- Building a biogas-powered generator on a dairy farm
- Analyzing the effectiveness of different diets and exercise regimens on the health of virtual patients
- Designing, building, and modifying a rooftop rainwater capture system
- Detecting patterns of succession at different sites in a forest to determine when wildfires occurred

See for yourself at PearsonRealize.com!

Adventure Videos with Untamed Science

Join these backpacking “eco-geeks” as they take high school science students on real-life science adventures. Each video explores the concepts introduced in the Chapter Mystery out in the field. Exclusively with Miller & Levine Biology!

Biology Simulations

Students interact with biology content in a visual and interactive environment.

Editable Worksheets

Generate the assignments you want with our trusted content. Customize worksheets from the Study Workbooks, Lab Manuals, and Assessment to meet your needs.
Miller & Levine Biology—
The best-selling and most effective high school biology program

What customers are saying about Miller & Levine Biology

“The Miller & Levine Biology program has many resources that allow for differentiated teaching to reach students of all levels. Hands-on mini labs…are perfect for the kinesthetic learners in the class. I would highly recommend this program for schools who are looking for a ‘new’ biology text to enrich their curriculum.”

Sharon Spencer
Assistant Principal
The Bronx Center for Science & Mathematics
Bronx, NY

“The Miller & Levine Biology program is the most complete, accurate, comprehensible and student-friendly of any in print. This program prepares students like no other text to score significantly higher on the state tests in biology. Our school is an example, having raised its scores 60 points in one year, in no small part due to our high science score achievements.”

Mark L. Friedman
Educator, Biology and Marine Biology
Animo Leadership Charter High School
Inglewood, CA

“The Jackson Public School District adopted the Miller & Levine ‘Dragonfly’ textbook in 2002. The text is easy to comprehend by all learners in the classroom. The authors provide excellent analogies and teaching strategies that will support teachers in providing differentiated instruction for learning styles. With the hands-on support of the authors and a student/teacher-friendly textbook, our passing rate on the State Biology Exam has increased from 78.7% in 2002 to 91.8% in 2007.”

Sheila Smith
Science Specialist
Jackson Public Schools
Jackson, MS
Pearson Biology users outperformed their counterparts 8 out of 10 times!

**District 1**

<table>
<thead>
<tr>
<th></th>
<th>Pre-Implementation</th>
<th>Post-Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Students Meeting/Exceeding State Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson</td>
<td>33.7%</td>
<td></td>
</tr>
<tr>
<td>Competition</td>
<td>17%</td>
<td></td>
</tr>
</tbody>
</table>

Enrollment:
- Prentice Hall: 24,582
- Pearson: 18,130

Net Increase:
- Prentice Hall: 33.7%
- Pearson: 17%

**District 2**

<table>
<thead>
<tr>
<th></th>
<th>Pre-Implementation</th>
<th>Post-Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Students Meeting/Exceeding State Standards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson</td>
<td>18.3%</td>
<td></td>
</tr>
<tr>
<td>Competition</td>
<td>11.3%</td>
<td></td>
</tr>
</tbody>
</table>

Enrollment:
- Prentice Hall: 4,303
- Pearson: 7,360

Net Increase:
- Prentice Hall: 18.3%
- Pearson: 11.3%

Miller & Levine Biology
Collection Includes:

Miller & Levine Biology
A traditional textbook designed for classroom of mostly on-level students.

Components:
- Student Edition
- Teacher’s Edition
- Print Ancillaries (see below)
- CD/DVD and Online Resources (see below)

Foundations Series: Miller & Levine Biology
Relevant biology content with embedded reading support and learning strategies for struggling learners.

Components:
- Student Edition
- Teacher’s Edition
- Print Ancillaries (see below)
- CD/DVD and Online Resources (see below)

PearsonRealize.com
An online program with digital support for the entire collection.

Online Components:
- Student Edition
- Assessments
- Remediation
- Games
- Chapter Mysteries
- Content Essentials Presentations
- Editable Worksheets
- Simulations
- Interactive Art
- Notetaking
- Study Guides
- Quizzes
- Test Prep
- Data Analysis
- Virtual BioLab

Miller & Levine Biology and Foundations Series Shared Resources

Print Ancillaries:
- Reading and Study Workbook A
- Reading and Study Workbook B
- Reading and Study Workbook A, Teacher’s Edition
- Reading and Study Workbook B, Teacher’s Edition
- Lab Manual A
- Lab Manual B

CD/DVD:
- Untamed Science™ BioAdventures DVD
- Virtual BioLab CD-ROM
- ExamView® Assessment Suite CD-ROM
- Classroom Resource CD-ROM
- Lab Manual A, Teacher’s Edition
- Lab Manual B, Teacher’s Edition
- Assessment Resource
- Probeware Lab Manual
- Spanish Student Edition
- Multilingual Glossary
- ELL Handbook

Online:
- PearsonRealize.com

(see above for components)