

Glencoe Science

Biology

Transform Your Classroom!



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Glencoe Biology: Leveraging technology to drive personalized student success while engaging and motivating students with hands-on, project-based activities and real-world applications.

The increased pace of change in education in the last few years has created seismic shifts in the delivery and consumption of educational materials. Students want to connect what they learn in the classroom to what they see happening in the real world – today!

Helping students draw these parallels and keeping them engaged is what McGraw-Hill Education is all about.

We deliver to you the most effective, innovative, and inspiring high school biology curriculum that meets both Next Generation Science Standards (NGSS) and local science standards.

Glencoe Biology is designed to be universally accessible to a broad range of learners enrolled in a first year high school biology curriculum. *Glencoe Biology* combines dynamic content, engaging lab experiences, and a rich array of resources to ensure every student understands the “Big Ideas” in biology

Whether you’re looking for a hybrid digital-print or a digital-first program, *Glencoe Biology* gives you proven, comprehensive content with real-world applications to help your students lead the way in biology!


Motivate students to engage real-world problems with these interactive digital tools:

- **Concepts-in-Motion**
- ***Science and Engineering Practices Handbook***
- **Virtual Investigations**
- **Project-Based Learning Activities (PBLs) and Applying Practices Worksheets**
- **Games, Videos, and Models**

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*Next Generation Science Standards is a registered trademark of Achieve. Neither Achieve nor the lead states and partners that developed the Next Generation Science Standards was involved in the production of, and does not endorse, this product.

A young girl with a backpack is the central focus, looking upwards with a hopeful expression. She is wearing a purple and pink plaid shirt and black pants. In the background, another child with a backpack is visible, and the setting is a lush, green forest with tall trees.

We firmly believe that the betterment of people, communities, and the world is grounded in education without limits – exclusive to no one, personalized to everyone.



RAMP UP THE ENGAGEMENT...

With Interactive Learning

Motivate your students with hands-on, project-based activities and real-world application. These program resources ramp up your students' engagement with biology like never before!

- **Student eBook** with highlighter and note-taking tools.
- **Sciences and Engineering Practices Handbook** with accurate reference material and real-world examples.
- **Online Personal Tutor** to guide students through select biology content.
- **ConnectED Mobile** gives you the ability to manage all your teaching content offline.

Engaging Student Resources

Give your students the resources they need to maximize biology-in-action! The *Student eBook* helps students turn biology in the real world into learning moments by giving students access to their program materials and resources anytime and anywhere.

Empower students to learn from biology as-it-happens with the *Student eBook* which learners can access anytime and anywhere using the Open eBook icon.

Help students build active learning skills using these interactive tools:

- Step-by-step example problems with coaching notes and practice problems at point-of-use.
- Highlighter and note-taking tools.
- Worksheets and digital asset links in **ConnectED**.

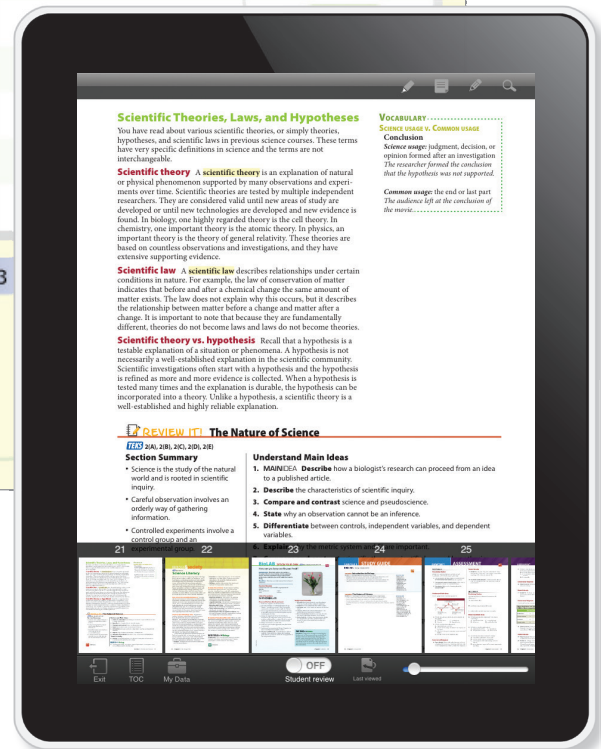
The **ConnectED Mobile** app gives you complete access to your eBook, alongside planning tools, reference materials, and other program resources. **ConnectED Mobile** is available on select iOS and Android™ devices.

Table 5.2 Estimated Number of Extinctions Since 1600

Group	Mainland	Island	Ocean	Total	Approximate Number of Species	Percent of Group Extinct
Mammals	30	51	4	85	4000	<input type="text"/>
Birds	21	92	0	113	9000	<input type="text"/>
Reptiles	1	20	0	21		
Amphibians	2	0	0	2		
Fish	22	1	0	23		
Invertebrates	49	48	1	98		
Flowering plants	245	139	0	384		

0.2 0.01 0.1 2.1 1.3

Drag each option to its corresponding category



The eBook in ConnectED Mobile is available offline for home use if students do not have access to the web.

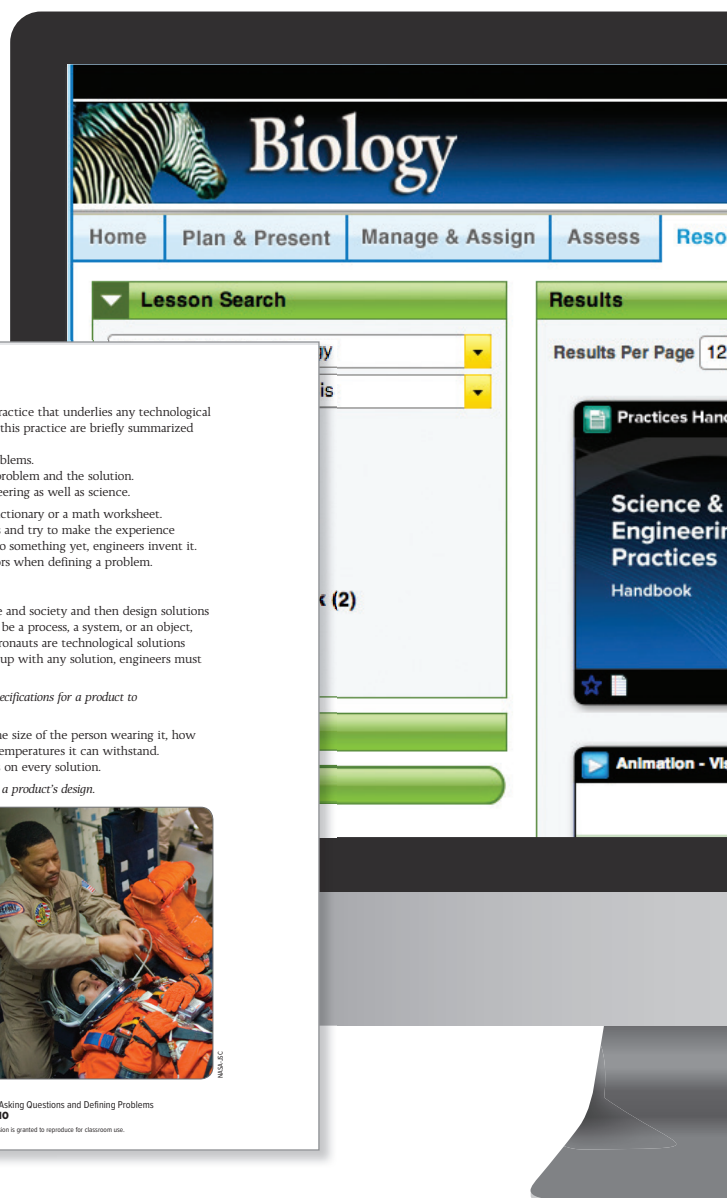
Real-world Connections

Be confident helping students achieve more! Use the *Science and Engineering Practices Handbook* 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.



Find the Practices Handbook in your teacher resources.

Interactive Student Resources

Written to meet each Next Generation Science Standard (NGSS) performance expectation, **Applying Practices Worksheets** and **Project-Based Learning Activities** (PBLs) challenge your students to solve real problems in the real world. These sheets are editable, downloadable, accessible online, and designed to meet specific performance expectations.

Interactive student resources, learning activities, and worksheets are embedded for point-of-use access. Students can use these dynamic resources immediately to practice new concepts.

Students practice biology in action with these learning tools.

- **Project-Based Learning Activities** that integrate traditional science content with engineering content.
- Design-your-own labs.
- Guided Laboratory Investigations.
- Modeling activities.
- Research and communicate projects.

The image displays a digital interface for a teacher center and a corresponding student worksheet. The teacher center interface at the top features a navigation bar with 'Home', 'Connected', 'Help', and 'Logout' options, a search bar, and a 'Standards' button. Below this is a 'TEACHER CENTER' header with various icons for 'es', 'PD', and other resources. The main area shows a grid of resource thumbnails, including one titled 'Applying Practices W...' and another 'Bellringer Transparen...'. The student worksheet, titled 'Can Scientists Model Natural Selection?', includes fields for 'Name', 'Date', and 'Class'. It contains sections for 'Safety Precautions', 'Materials', 'Background', 'Question', and 'Procedure'. The 'Background' section explains natural selection and the lab's purpose. The 'Question' section asks how natural selection can be modeled in a laboratory setting. The 'Procedure' section lists eight steps for the experiment, including safety, group formation, and data collection.

Find **Applying Practice Worksheets** in your teacher resources and teacher blades. Also accessible at point-of-use in student resources.

Science in Action

Glencoe Biology offers you diverse lab opportunities to deepen your students' understanding of science by experiencing it and experimenting with biology first-hand!

Use these lab activities included in every chapter to bring science to life for your students.

- Launch Labs
- MiniLabs
- Data Analysis Labs
- BioLabs

More lab resources are available to you through ConnectED, including:

- Lab Manual
- Forensic Labs
- Open Inquiry Labs
- Guided Inquiry Labs
- Pre-AP Labs
- Probeware Labs
- Video Labs
- Virtual Labs

Name _____ Date _____ Class _____

Launch Lab

CHAPTER 1
Why is observation important?

Scientists use a planned, organized approach to solving problems. A key element of this approach is gathering information through detailed observations. Scientists extend their ability to observe by using scientific tools and techniques.

Procedure

1. Read and complete the lab safety form.
2. Pick an unshelled **peanut** from the **container of peanuts**. Carefully observe the peanut using your senses and available tools. Record your observations.
3. Do not change or mark the peanut. Return your peanut to the container.
4. After the peanuts are mixed, locate your peanut based on your recorded observations.

Data and Observations

Analysis

1. List the observations that were the most helpful. Which were the least helpful?

Launch Lab

Why is observation important?

Scientists use a planned, organized approach to solving problems. A key element of this approach is gathering information through detailed observations. Scientists extend their ability to observe by using scientific tools and techniques.

For a lab worksheet, use your StudentWorks™ Plus Online.

Inquiry **Launch Lab**

Launch Lab is found on the Chapter opener

Virtual Labs
Cell Reproduction
✕

Question

How can cancer cells be recognized?

Purpose
In this Investigation you will explore the similarities and differences between the cell cycles of normal cells and cancer cells.

Objectives:

- Identify the various phases of the cell cycle.
- Compare and contrast the cell cycles of normal and cancer cells.

Procedure

1. Click the TV to watch the video about the cell cycle.
2. Click Information to read about cancer statistics and risk factors.
3. On the biology laboratory navigation screen, click the microscope to analyze tissue samples under the microscope. Click the slide carousel to view actual slides of normal and cancerous tissues.
4. Click the microscope to see

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Prophase

Metaphase

Anaphase

Telophase

Normal Lung

Tissue Slides

Check

Reset

Return



TIME SAVING TECHNOLOGY...

Creates interactive digital solutions

To meet you wherever you are on the digital spectrum, *Glencoe Biology* interactive learning and teaching resources are easy-to-use, whether you're a technology novice, digital native, or somewhere in the middle.

- **ConnectED** is your digital teaching platform making it easy and convenient to customize lessons, review assignments, and communicate with students.

Effective Teaching and Learning

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 access Student eBooks, assessments tools, worksheets, presentations, messaging tools, and so much more!

The screenshot shows the 'Biology' Teacher Center interface. At the top, there's a navigation bar with 'Home | ConnectED | Help | Logout' and a search bar. Below that, a 'TEACHER CENTER' banner features icons for user, books, folders, calendar, and a globe. A main menu includes 'Home', 'Plan & Present', 'Manage & Assign', 'Assess', 'Resources', and 'PD'. The 'Plan & Present' section is active, showing 'Chapter 8: Cellular Energy' and 'Chapter Overview' dropdowns, an 'Open eBook' button, and a pink 'My Files' icon. The main content area is split: on the left, a large image of sheep grazing in a field with a castle in the background; on the right, a sidebar for 'Monday, May 12, 2014' showing a class dropdown for '3rd bio (1)', sections for 'Scheduled Lesson Plans', 'Assignments Due', and 'Other Events' (all with 'no' results), and a 'Messages' section with 'Shared Updates (0)' and 'You have no messages at this time.' The footer contains the McGraw-Hill Education logo, copyright information, and links for 'TERMS OF USE | PRIVACY AND COOKIE NOTICE | TECHNICAL SUPPORT | MINIMUM REQUIREMENTS | HELP'.

Plan, Teach, and Assess with *ConnectED*

- Plan and present personalized lessons with intuitive editing tools.
- Send and receive classroom assignments electronically to your students' **ConnectED** accounts.
- Create and customize premade diagnostic and summative evaluations using eAssessment.
- Access and review notes students take in their eBooks to plan class time and assignments more effectively.
- Search curriculum by keyword or standard.
- Offers tools such as My Files, Planner, Notebook, and eGlossary.
- Communicate with students using Message Center.

The screenshot shows the ConnectED Student Center interface for a Biology course. At the top, there is a navigation bar with 'Home', 'Homework', 'Resources', and 'Collaborate' buttons. A search bar and 'Standards' link are also present. The date 'Today is Thursday, July 17, 2014' is displayed. On the left, there are sections for 'DUE (0)', '[+] DUE LATER (0)', and 'HOMEWORK HISTORY (0)'. A 'Media' window is open, showing a diagram of a diploid parent (SsYy) undergoing meiosis to produce four types of haploid gametes: SY, sY, Sy, and sy. A handwritten note from 'Mr. Savage' says 'Producing Variation.' and includes a drawing of two chromosomes, one blue and one red, with a green arrow pointing to a specific gene location. A 3D model of a chromosome is visible in the bottom left of the media player.

Expanded features such as Personal Tutors and Cyber Science™ go beyond the limitations of the printed page.

Apply Interactive Practice

Students have their own digital learning platform called **ConnectED Student Center**, complete with student worksheets and digital resources. Assignments you create appear in their to-do lists. Students can message you directly and submit their work.

With **ConnectED Student Center**, your students can access their class resources anytime, anywhere.

Use expanded Student Center features such as Personal Tutors and Cyber Science 3D™ videos to go beyond the limitations of the printed page and bring science into your student's lives like never before.

Encourage students to see science all around them with Biology MiniGames. These fun MiniGames present key biology topics from course material using sci-fi themed games with their own style and plot.



EFFECTIVE RESULTS...

To support student success

Easy-to-use eAssessment and reporting tools equip you with the data you need to make informed instructional decisions and keep students engaged.

- **eAssessment** supports diverse types of evaluations and includes online scoring and report generation for digital and/or print distribution.
- **LearnSmart®** an interactive and adaptive learning system, effectively differentiates and supports struggling and advanced learners alike.
- **Professional Development** resources including pertinent information on new science standards and implementation best practices are available to you at point-of-use.

Turn Students into Star Performers

Turn your classroom into a biology success center with **eAssessment** suite – a robust resource – giving you powerful tools to assess student progress and make data-driven instructional decisions.

The **eAssessment** reporting feature means you'll always have access to valuable data on individual students and whole classes to help you differentiate and support student mastery of concepts appropriately.

Other features of eAssessment to help increase your efficiency:

- Question Bank with questions organized by strand, subject, and lesson.
- Assessment creation or customization of premade assessments.
- Report generation on proficiency and accuracy.

Identify students with knowledge gaps to make data-driven instructional decisions with eAssessment.

The screenshot displays the McGraw-Hill eAssessment interface. On the left, there are navigation panels for 'Question Sets' and 'Tests'. The main area shows a 'Chapter 8 Assessment (Ancillary)' with a 'Multiple Choice' question: '1. Which defines energy?' with options a. ability to do work, b. creation of heat, c. increase of disorder, and d. power to change. The answer is 'a'. Below this, another question is partially visible: '2. Which is the biological import...' with options a. creates glucose from light, b. makes biological proteins, c. provides chemical energy, and d. repairs cell membranes. The answer is 'c'. A third question is also partially visible: '3. Which occurs during the Krebs...' with options a. breaking down pyruvate, b. capturing light energy, c. creating glucose molecules, and d. producing ethyl alcohol. The answer is 'a'. A fourth question is also partially visible: '4. Which is an autotroph?' with options a. daisy, b. earthworm, and c. mushroom.

Overlaid on the bottom right is an 'Assignment Results' report for 'Practice Homework' for 'Sample Student' in '2nd Period' at 'SAMPLE SCHOOL'. The report shows a score of 13 / 87 and a date of June 11, 2014. The report includes a table with the following data:

Question #	Question Type	Points	Response
X 1	True / False	0 / 1	T
X 2	True / False	0 / 1	F
3	True / False	1 / 1	T
4	True / False	1 / 1	T
X 5	True / False	0 / 1	T
6	True / False	1 / 1	F
7	True / False	1 / 1	T
8	True / False	1 / 1	F
9	True / False	1 / 1	F
X 10	True / False	0 / 1	F
11	True / False	1 / 1	T
12	True / False	1 / 1	F
X 13	True / False	0 / 1	T
14	True / False	1 / 1	T

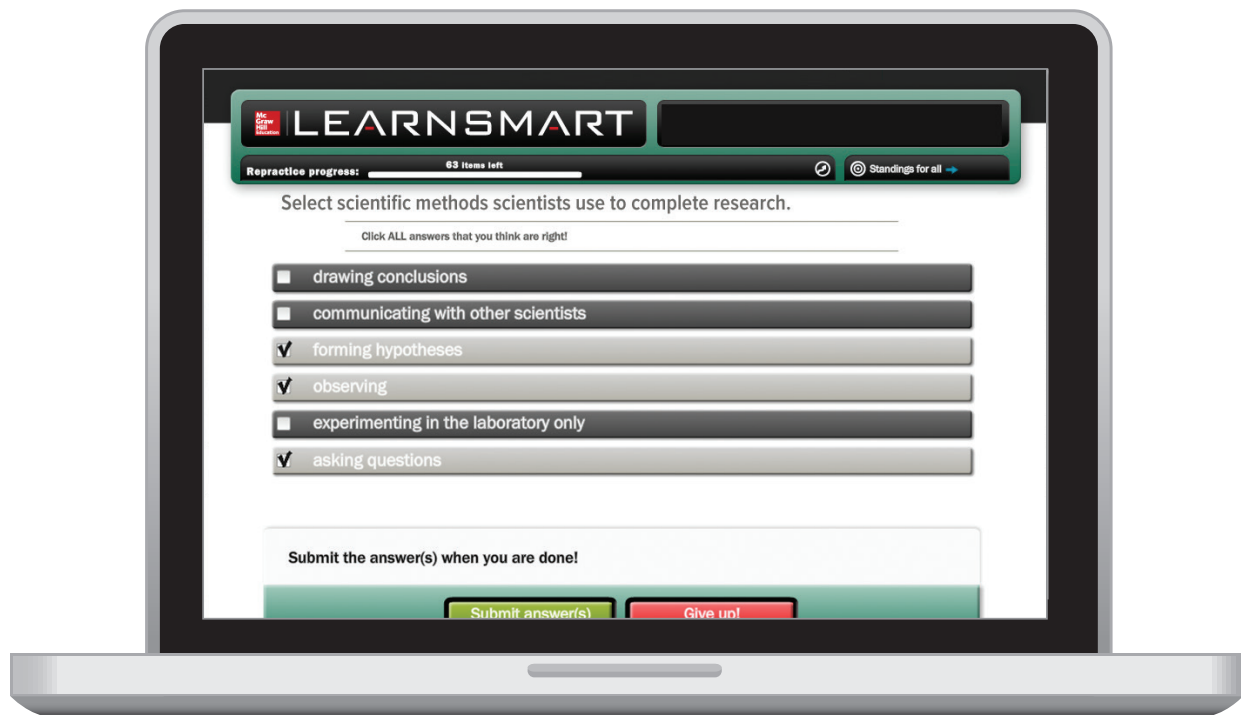
eAssessment suite collects valuable data for every student and the class.

Increase Knowledge Retention

Increase retention of material, improve students' performance, and make your class more interactive and productive with proven adaptive learning system, *LearnSmart*®.

As an interactive and adaptive learning system, *LearnSmart*® is designed to help students learn faster, study more efficiently, and retain more knowledge for greater success. Both dynamic and progressive, *LearnSmart*® adjusts biology concepts to align with each student's progress, based on their demonstrated skill and performance.

No two students learn the same way. *LearnSmart*® personalizes content for each student's unique learning needs.



Pinpoint knowledge gaps for individual students and across classes.

Empower students to personalize their learning experience with optimal learning paths so they spend more time on what they don't know with *LearnSmart*®.

- Practice of basic biology concepts to improve recall and application before moving on.
- Additional exposure and increased practice to master new concepts.
- Presentation of concepts individual students struggle to master.

Transform Your Classroom

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 *Glencoe Biology* is your interactive professional learning program. Learn how other science educators have successfully implemented the program and increase your awareness of new science standards.

Relevant Resources for science educators.

Rich, web-based resources include modeled classroom instruction videos, implementation support, technology resource optimization, and professional learning community support.

Use the ConnectED, Professional Development tab to access on-demand webinars and these free video libraries:

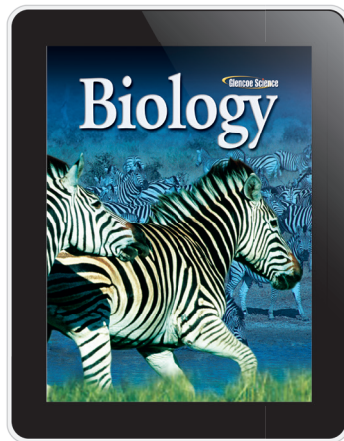
- Dinah Zike/Foldable Videos
- Mathematical Practice Videos
- Pedagogical/Instructional Support Videos
- Digital Instruction Videos
- STEM Videos

Customized, comprehensive, and expertly-crafted solutions translate into meaningful program success.

The screenshot displays the Glencoe Biology Teacher Center interface. At the top, there is a navigation bar with the following items: Home, Plan & Present, Manage & Assign, Assess, Resources, and PD (which is circled in blue). To the right of the navigation bar are icons for user profile, calendar, folder, and other tools. Below the navigation bar, there is a sidebar menu with the following categories: Implementation Support, Dinah Zike/Foldable Videos, Digital Instruction Videos (highlighted in green), and On-Demand Webinars. The main content area shows a grid of video thumbnails, each titled "Transform Your Classroom with Technology Grades 6-8". A video player window is open, showing a teacher standing in front of a green chalkboard, addressing a class of students. The video player has a yellow header and a close button (X) in the top right corner.

Biology Glencoe Science

Transform Your Classroom!



Sample and Discover Online
mheonline.com/onlinesamples/science