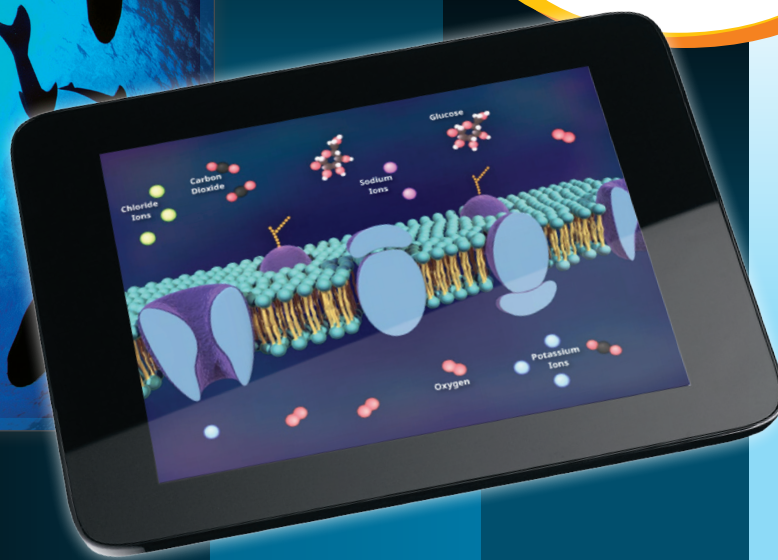


Biology

© 2017 | REVIEWER'S GUIDE



Featuring content
from **THING**
EXPLAINER and
 Google Expeditions

Houghton Mifflin Harcourt **Biology**.

Less paper, more **convenience**.

Everything you need—now in one convenient online location!

The Interactive Online Edition gives students and teachers 24/7 point-of-use access to all program components.



Dashboard

Classrooms using **Biology** © 2017 will now have the benefit of the **improved** online interface provided by the HMH Dashboard. This also includes mySmartPlanner, enabling teachers to combine calendar functionality with curriculum mapping and program resources.

Try it now!

Just follow these steps to see how interactive and engaging online resources can be!

1	Go to:	HMHScience.com
2	Click on	PREVIEW
3	Enter Sample Word and Click Next:	HSNASC17
4	Fill in the Required Personal Information, Click the Checkbox to Agree to the Terms of Use and Privacy Policy, and Click:	Register
5	Write Down Your User Name and Password and Log in at:	HMHScience.com

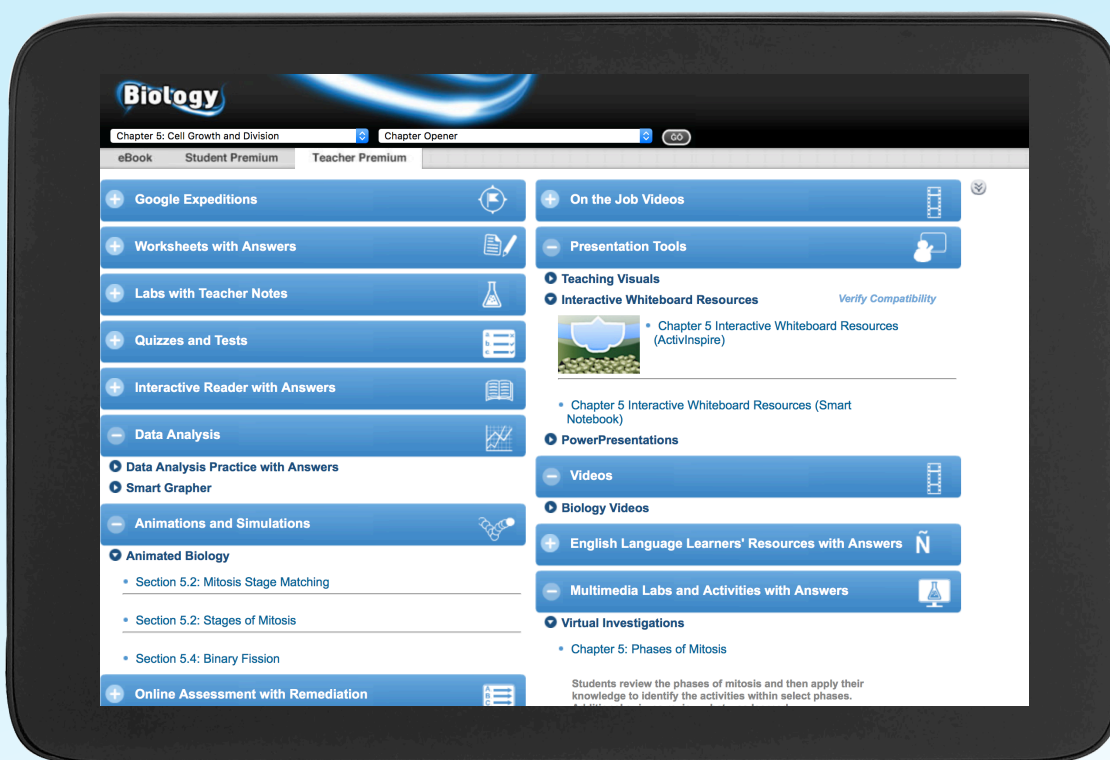
Any Device, Anytime, Anywhere

Data Analysis

These worksheets help build data analysis skills by having students draw graphs, interpret graphs and data tables, and draw conclusions.

Interactive Whiteboard Resources

Teaching visuals from each chapter have been adapted specifically for interactive whiteboard use.

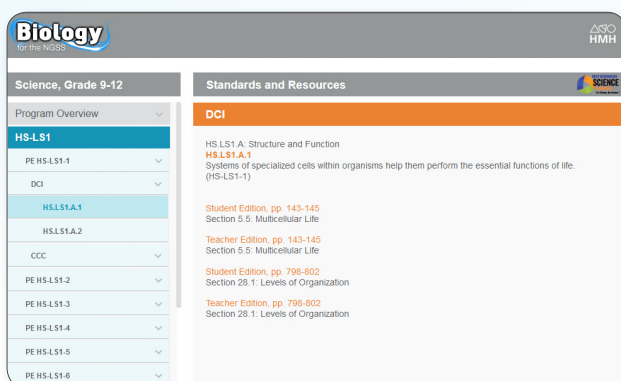


Animated Biology

Nearly 100 animations and simulations bring biology concepts and principles to life.

Virtual Investigations

Twenty-two engaging presentations, interactive activities, and simulated scientific investigations reinforce students' understanding of biology and science skills as well as strengthen critical-thinking and problem-solving skills.



NGSS* Correlations

To make the standards more accessible, easy-to-use correlations are included in the Teacher Edition as well as online.



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Print components **designed** and **aligned** for easy access

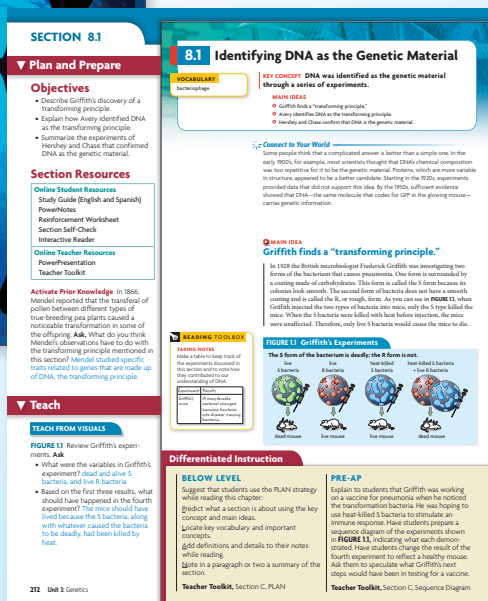
Nearly 300 pages lighter!

In an effort to align more closely with the scope of material typically covered in a biology classroom, we've removed less commonly taught topics from the print textbook. Students and teachers alike will find the **smaller footprint** to be much more manageable. Full chapters of these topics are still available in the online materials.



Student Edition

Offers features that make biology concepts more accessible, such as **highlighted vocabulary**, **problem-solving support**, and references to online student support tools.



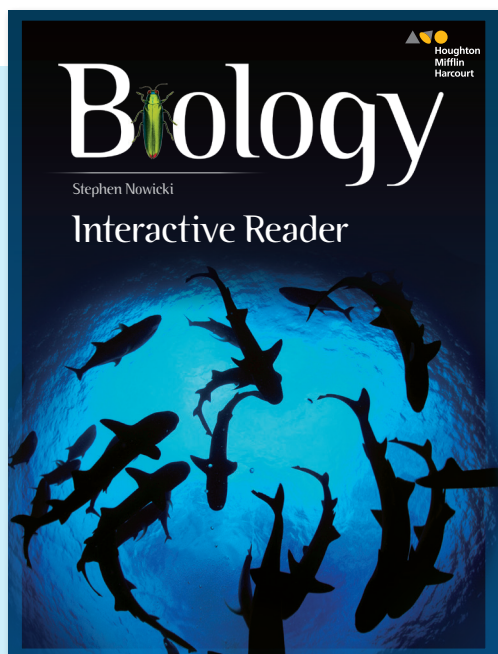
Teacher Edition

Packed with a wide variety of **strategies** to help all students master biology concepts, plus **extended learning** opportunities for advanced students.

Dr. Stephen Nowicki

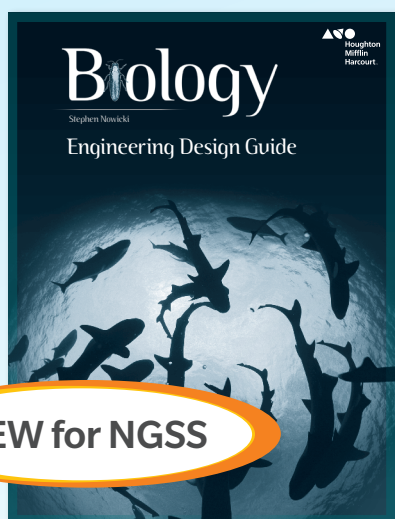
*"Writing this textbook from scratch was important to me because I could include a **wide variety of teacher input** before writing. Many teachers and students have said they **love the readability** and the **real-world relevance**. An **important distinction** of this program is the **diversity of resources**, especially digital, that are available to teachers and their 'digital native' students."*





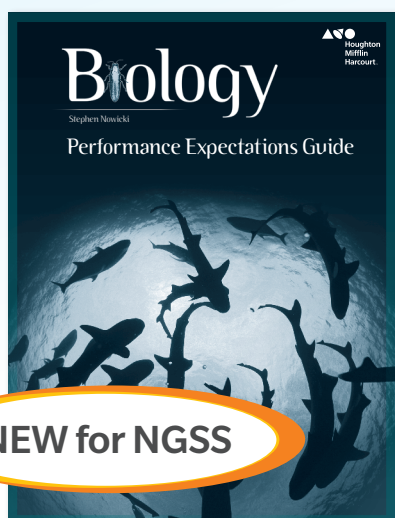
Interactive Reader and Answer Key

A **write-in worktext** that provides all of the essential content and vocabulary of the Student Edition at a reading level one to two grades below the text. A great resource for students of all ability levels, the Interactive Reader is both a core instructional tool for **struggling students** and a useful **study guide** for other students. The Answer Key provides teacher notes and answers for every section of the Interactive Reader.



Engineering Design Guide Student Edition and Teacher Edition

This Engineering Design Guide provides an overview of the **engineering design process**, along with activities and checklists that can help foster students' **critical-thinking** and **problem-solving skills**. For curriculums aligned to NGSS*, this guide can also help support the engineering-related Performance Expectations.



Performance Expectations Guide Student Edition and Teacher Edition

Designed to integrate easily into any curriculum, a separate Performance Expectations Guide is available to ensure that students meet the NGSS Performance Expectations. Also included is an **overview of NGSS** and **teacher tips** for integrating each activity into the classroom.

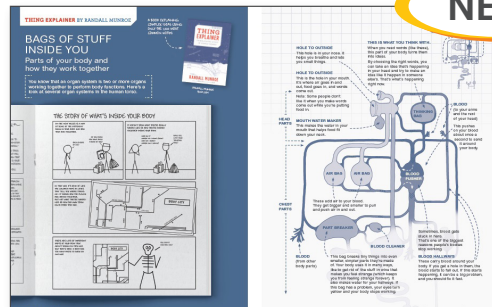


Print and Digital Tools That Motivate and Engage

HMH Biology offers the latest print and multimedia resources that speak directly to your students in a visual language they understand—ensuring that they will stay engaged.

Thing Explainer

Through an exclusive partnership with author and Internet sensation **Randall Munroe**, HMH has incorporated highly engaging and educational material from Randall's latest book, *Thing Explainer*, into our print and digital editions. Randall's webcomic style, as seen on **xkcd.com**, humorously explains complex topics in easy-to-understand language.



NEW!



NEW!

Google Expeditions

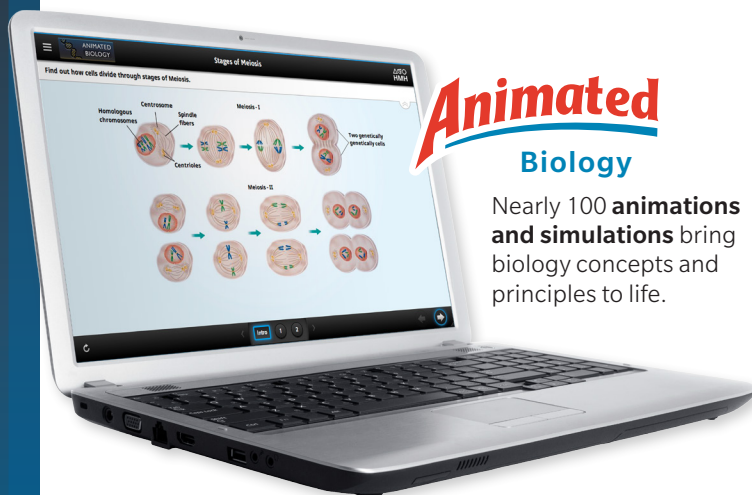
Through its alliance with Google®, HMH is developing content for Google® Expeditions. Using a simple Google Cardboard™ device and a smartphone, students are swept away into **immersive virtual worlds** where learning and engagement are maximized. These virtual field trips are 3D, 360-degree experiences in fascinating locations, directly tied to content! A **Teacher Guide** provides ideas for incorporating the Expeditions into your lessons, as well as tips on **how to guide and customize the experience**.



NEW!

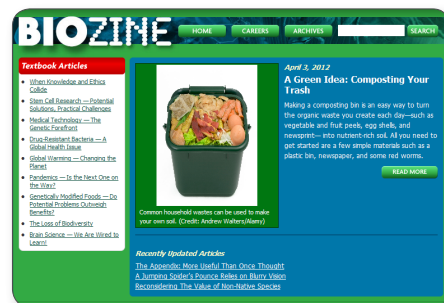
On the Job STEM Videos

As part of our Premium offering, HMH now includes 29 *On the Job* STEM videos that **profile STEM careers** in today's fastest-growing industries. Our energetic hosts shadow passionate professionals in a day "on the job." These short segments are inspirational and entertaining with the hosts actually performing parts of the job! These videos will **motivate students** to enter emerging STEM fields.



Animated Biology

Nearly 100 **animations and simulations** bring biology concepts and principles to life.



BioZine

This interactive online magazine keeps the program up to date by connecting students to **current events**, with features like science news feeds, updates on current biology research, careers, and in-depth detail about unit features.

Editable!

Name _____ Class _____ Date _____

That's Amazing! Worksheet
Poison Frogs: Chytrid Fungus
 with Dr. Michael Heithaus

Problem
 Do poison dart frogs have something to worry about? They are not in danger from predators, but their populations are decreasing even in areas that are protected. One hypothesis is that a fungus called chytrid is attacking and killing the frogs. Use the data that Steven and Mike collected to investigate this problem.

INVESTIGATION
 To see if chytrid might be harming strawberry poison dart frogs, we need to find out (1) if chytrid infects this species, and (2) if infected frogs are getting sick. One way to find out if frogs are healthy is to see if they weigh more or less than we would expect for a frog of their size. After weighing the frogs, we give each frog a "condition score"—frogs that have higher values are healthier and frogs that have lower (negative) scores are sicker.

Mike and Steven collected ten individuals of several frog species. Table 1 provides data on condition scores and the presence or absence of chytrid fungus for ten individuals of each species.

Table 1. Infection status and conditions of reptiles and amphibians collected at La Selva, Costa Rica

Sample	Strawberry poison dart frog		Cane toad		Red-eyed tree frog	
	Infected?	Condition	Infected?	Condition	Infected?	Condition
1	No	2	No	-0.5	No	1
2	No	1	No	1	No	0
3	No	2	No	0.5	No	2
4	No	0	No	1	No	-1
5	No	1	No	2	No	1
6	Yes	-1	No			
7						

That's
Amazing!
VIDEO

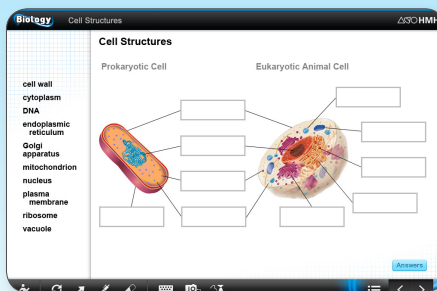


Video-Based Inquiry

Online video-based inquiry activities engage students by offering a glimpse into the bizarre world of nature and the application of the scientific method. After being amazed by nature's wonders, students will apply the Data Analysis and Conclusion phases of the scientific method on editable lab datasheets.

Teaching Visuals

Digital illustrations and diagrams (many from the textbook) are ideal for **whole-class instruction**.



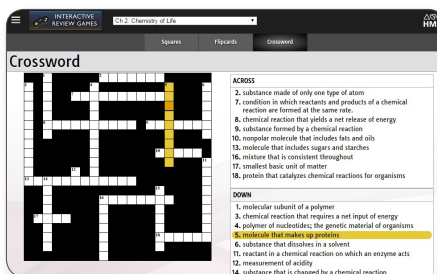
Interactive Whiteboard Resources

Key **teaching visuals** and **content-reinforcement lessons** from each chapter have been adapted specifically for interactive whiteboard use.

NEW!

A&E® Biology Videos

These professionally produced **engaging videos** can be used to introduce or reinforce core biology concepts.

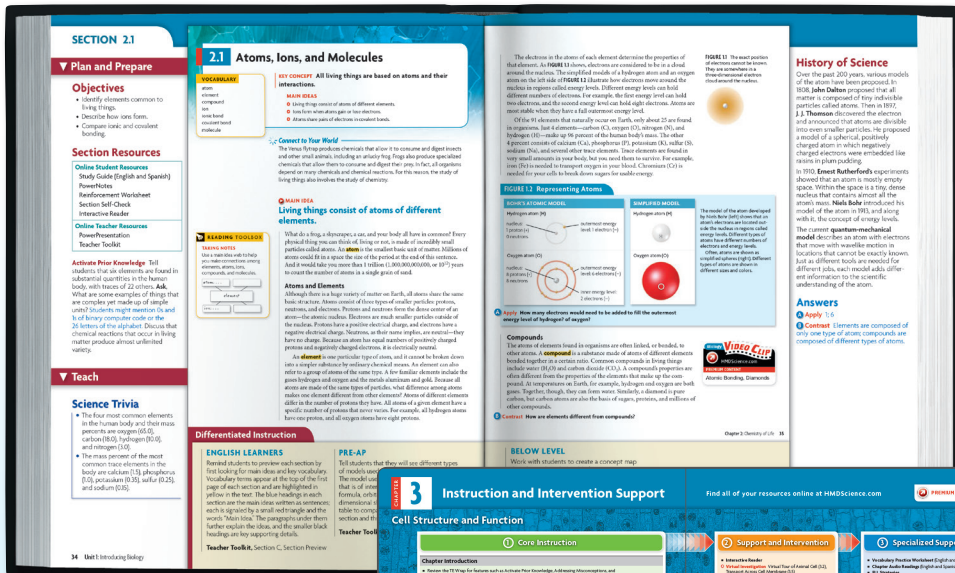


Interactive Review Games

Nothing encourages students to study and review more than a game! The **online review games** covering the key concepts and vocabulary from each chapter will keep students engaged while they prepare for upcoming tests.

Unparalleled resources for Differentiated Instruction

HMH Biology enables you to reach all learners by providing time-saving, easy-to-use resources to help students of all abilities achieve understanding and success.



Teacher Edition

The **Differentiated Instruction** feature located in each section of the Teacher Edition includes learning strategies for **below-level, English learner, inclusion,** and **Pre-AP®** students.

The **Instruction and Intervention** feature located in each chapter of the Teacher Edition provides **strategies for every lesson** to assist you in helping students with a wide range of needs. To simplify lesson planning, these support pages at the beginning of each chapter provide a full listing of the activities and classroom resources available for each section.

Name: _____ Class: _____ Date: _____

Section 1: Cell Theory
Study Guide A

KEY CONCEPT
Cells are the basic unit of life.

VOCABULARY

cell theory	organelle	eukaryotic cell
cytoplasm	prokaryotic cell	

MAIN IDEA: Early studies led to the development of the cell theory.
Match each scientist in the table with the statement listed below that describes what he did to help develop the cell theory.

a. concluded that animals and, in fact, all living things are made of cells.
b. was the first to identify cells and name them.
c. proposed that all cells come from other cells.
d. concluded that plants are made of cells.
e. observed live cells and observed greater detail.

Scientist	Letter of Statement that Completes the Sentence
1. Hooke	
2. Leeuwenhoek	
3. Schleiden	
4. Schwann	
5. Virchow	

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Holt McDougal Biology
Study Guide A

Section Study Guides A and B

A student worksheet that covers the content in each section of the textbook. Each study guide is organized by key concepts, main ideas, and vocabulary checks. Study Guide A is a lower-level version of Study Guide B, designed for **struggling students** or **English language learners**.

ENGLISH & SPANISH

Editable!

Textbook Audio Files

The entire Student Edition textbook has been professionally read and is available to students in either English or Spanish, providing an alternative means of accessing the content for students who require additional **comprehension support**.

Spanish Support

Recognizing the growing number of Spanish-speaking students in the classroom, **HMH Biology** provides a complete suite of time-saving, targeted resources that will engage **English language learners**. Refer to the footnote on the components list on the back of this brochure for more information.

Biology

Stephen Nowicki

Interactive Reader

Interactive Reader

This write-in worktext presents all the vocabulary and essential content from the textbook in a lower-level, easy-to-read text, with instructional visuals and frequent comprehension checks. This unique component is a great tool for all students—the core content for struggling students and a useful study guide for others.

SECTION 8.2 Structure of DNA

KEY CONCEPT DNA structure is the same in all organisms.

DNA is composed of four types of nucleotides.

Since the 1920s scientists have known the chemical parts of the DNA molecule. DNA is a very long polymer, or chain of repeating units. The units, or monomers, that make up DNA are called **nucleotides** (NOO-klee-oh-vay). Each nucleotide has three parts: a phosphate group, a base, and a sugar.

There are four different types of DNA nucleotides: cytosine (C), thymine (T), adenine (A), and guanine (G). All of the nucleotides contain a phosphate group and a deoxyribose sugar. They differ in their nitrogen-containing bases, as shown in the table below.

Notice that thymine (T) and cytosine (C) have nitrogen-containing bases with a single-ring structure. Adenine (A) and guanine (G) are bases with a double-ring structure. A single molecule of human DNA is made of billions of nucleotides.

THE FOUR NITROGEN-CONTAINING BASES OF DNA		
Abbreviation	Chemical Formula	Model
Adenine (A)	<chem>C10H9N5</chem>	
Thymine (T)	<chem>C5H7N3O2</chem>	
Cytosine (C)	<chem>C4H5N3O</chem>	
Guanine (G)	<chem>C5H7N5O6</chem>	

Circle the names of the four nucleotides shown in the table above.

NUCLEOTIDE

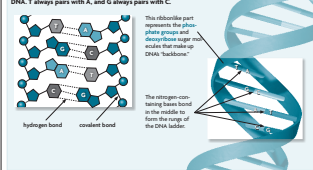
The small units or monomers that make up a strand of DNA are called **nucleotides**. Nucleotides have three parts.

phosphate group
nitrogen-containing base
deoxyribose (sugar)

- phosphate group: one phosphate with four oxygen
- deoxyribose: ring-shaped sugar
- nitrogen-containing base: a single or double ring built around nitrogen atoms and carbon atoms

BASE PAIRING RULES

The base pairing rules describe how nucleotides form pairs in DNA. T always pairs with A, and G always pairs with C.



What sequence of bases would pair with CTACG?

8.2 Vocabulary Check

nucleotide
double helix

Mark It Up

Go back and highlight each sentence that has a vocabulary word in bold.

8.2 The Big Picture

- Label the drawing at the right with the terms nucleotide, base pairing rules, and double helix. Write each term and draw a line that connects the term to the appropriate part of the drawing.
- What are the three different parts of a nucleotide?
- What are the names of the four nucleotides?
- Use the base pairing rules to write the sequence that would pair with the following sequence: TCACGTA.



Editable!

Unit 3 Interpreting a Pedigree

Unit Project

Pedigree analysis has provided valuable insights into the inheritance of many traits and disorders that occur in humans. The pedigree method is a convenient means of tracking and predicting the mode of inheritance of a particular trait. In this project, you will enter for analysis a simulated pedigree of a specific genetic disorder. You will research and discuss the disorder and the sample pedigree and determine how the information is used in genetic counseling. You will analyze and describe the pedigree and create a three-panel worksheet that explains your results.

- Your teacher will provide a list of human genetic disorders and a sample pedigree for analysis.
- Research the disorder you have chosen. In particular, you will need to know in mode of inheritance, such as autosomal dominant or X-linked recessive.
- Write a coverage summary of what you have learned about the disorder, including details that provide human interest, such as how the disorder is diagnosed and treated, or what life is like living with the disorder.
- Research pedigree to find out how they can be used to assess couples who are thinking about having children. What are the qualifications of a genetic counselor? Write a summary of your findings.
- Explain your sample pedigree on the cover panel of your worksheet. You may use colored markers, construction paper, or a computer file of your work. Be sure to explain and describe the content. Provide key to the symbols, and post it on your worksheet. Take your pedigree appropriately.
- For each generation in your pedigree, write a description of the genotype and phenotype of its members. You may label each individual of a generation with his or her genotype directly on the pedigree. Then write a short explanation for each. You may show how you use certain symbols and genotypes by using a Punnett square or by explaining the existing symbols. Post your explanation on the worksheet in such a way that the generation in which the explanation belongs is obvious.
- In your research and worksheet preparation, be sure the following questions are answered:
 - How can a family pedigree be useful when discussing your medical history with a doctor?
 - Under what conditions of inheritance can a pedigree predict with 100 percent certainty when the genotype of an offspring will be?
 - Be creative as possible, and be sure your worksheet is neat, organized, and easy to follow.

On the following page you will find the evaluation rubric. Points will be assigned according to how well a task is done, as well as whether you have fully or only partially completed a task. Any task left undone will be assigned a zero. Your teacher will provide a checklist for this project.

Unit 3 Resource Book
McDougal Littell Biology

Unit Project 133

ENGLISH & SPANISH

Editable!

Reinforcement

A one-page section-level worksheet that **summarizes core concepts** and asks students to provide short answers to questions relating to the summary.

Unit Projects

Long-term projects provide opportunities for **independent learning** during the course of the unit and involve **scientific writing**, creativity, and research. Each project includes a rubric as well as teacher notes, with strategies for project management and differentiated instruction.

Editable!

Unit 3 Experiment with Osmosis

Pre-AP Activity

In Chapter 3, you have learned that osmosis is the movement of water molecules across a semipermeable membrane from a region of higher concentration to one of lower concentration. You also learned that the terms isotonic, hypertonic, and hypotonic can be used to describe the concentration of solutes relative to each other.

SOLUTES AND SOLVENTS

Osmosis refers to the movement of water, which is the solvent in many solutions. If you compare two solutions of different concentrations, the solution with a higher solute concentration will have a lower solvent concentration, and vice versa. The direction of osmosis—whether a solution is hypertonic or hypotonic—depends on the relative concentrations of solute particles in the solutions, not the types or variety of solute particles.

WATER BALANCE IN CELLS

The cytoplasm of a cell contains many different solutes: salts, proteins, sugars, and more. In fact, the movement of water in and out of a cell is determined by the concentration of particles dissolved in the cytoplasm compared to the concentration of particles dissolved in the fluid surrounding the cell. Cells that live in salt water are very sensitive to changes in their surroundings. If the surrounding solution becomes hypertonic or hypotonic, the cell will either shrivel up and die or burst and die, respectively. Cells that live in freshwater, however, are not so sensitive to changes in their surroundings. The control of water balance in cells that live in salt water, such as plant cells, are much more robust than those in their surroundings. In a hypertonic environment, such as when a piece of celery is put into a glass of water, a plant cell shrivels until it begins to wilt. In a hypotonic environment, such as when a piece of celery is put into a glass of water, the plant cell swells until it begins to wilt. In an isotonic environment, such as when a piece of celery is put into a glass of water, the plant cell remains the same. The pressure is called turgor pressure, or turgidity, and the normal state for most plant cells. Turgor pressure allows plant cells to maintain the volume of water they hold and also allows the plant as a whole to achieve its most rigid state, thereby increasing its exposure to sunlight and maximizing its potential for photosynthesis.

Experimenting with Osmosis

In this activity, you will measure the rates of five potato cores and then soak them in solutions of varying concentrations. You will measure their mass the following day and calculate the percent change in mass of each. You will use the data to determine which solutions are hypertonic, hypotonic, and isotonic, and what the concentration of solutes is in a potato.

Unit 3 Resource Book
McDougal Littell Biology

Pre-AP Activity 25

Wide-ranging support for Reading and Vocabulary

Your students will get the most out of their reading with numerous student and teacher print and multimedia point-of-use resources that enable them to build understanding and retain more information on key concepts.

CHAPTER

3

Cell Structure and Function

BIG IDEA

Cells are the smallest unit of living matter that can carry out all processes required for life.

NEW!

Student Edition

Big Ideas in every Chapter Opener & Summary help students concentrate on key concepts.

KEY CONCEPT Fermentation allows the production of a small amount of ATP without oxygen.

MAIN IDEAS

- Fermentation allows glycolysis to continue.
- Fermentation and its products are important in several ways.

4.6 Fermentation

VOCABULARY
fermentation
lactic acid

KEY CONCEPT Fermentation allows the production of a small amount of ATP without oxygen.

- MAIN IDEAS**
- Fermentation allows glycolysis to continue.
 - Fermentation and its products are important in several ways.

Connect to Your World

Think about a time when you worked or exercised hard. Maybe you moved heavy boxes or furniture. Maybe, playing basketball, you found yourself repeatedly running up and down the court. Your arms and legs began to feel heavy, and they seemed to lose strength. Your muscles became sore, and even when you rested you kept breathing hard. Your muscles were using fermentation.

MAIN IDEA

Fermentation allows glycolysis to continue.

The cells in your body cannot store large amounts of oxygen for cellular respiration. The amount of oxygen that is provided by breathing is enough for your cells during normal activities. When you are reading or talking to friends, your body can maintain its oxygen levels. When you are doing high levels of activity, as the sprinter in **FIGURE 4.6**, your body cannot bring in enough oxygen for your cells, even though you breathe faster. How do your cells function without enough oxygen to keep cellular respiration going?

Recall that glycolysis yields two ATP molecules when it splits glucose into two molecules of pyruvate. Glycolysis is always occurring and does not require oxygen. If oxygen is available, the products of glycolysis—pyruvate and the electron carrier NADH—are used in cellular respiration. Then, oxygen picks up electrons at the end of the electron transport chain in cellular respiration. But what happens when oxygen is not there to pick up electrons? The production of ATP without oxygen continues through the anaerobic processes of glycolysis and fermentation.

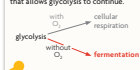
Fermentation does not make ATP, but it allows glycolysis to continue. Fermentation removes electrons from NADH molecules and recycles NAD⁺ molecules for glycolysis. Why is this process important? Because glycolysis, just like cellular respiration, needs a molecule that picks up electrons. It needs molecules of NAD⁺.



FIGURE 4.6 Muscle cells use anaerobic processes during hard exercise.

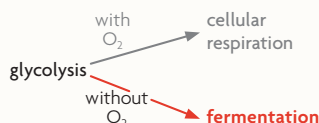
VISUAL VOCAB

Fermentation is an anaerobic process that allows glycolysis to continue.



VISUAL VOCAB

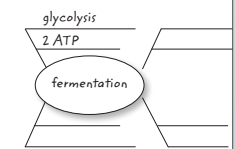
Fermentation is an anaerobic process that allows glycolysis to continue.



READING TOOLBOX

TAKING NOTES

Use a mind map to take notes on the processes involved in fermentation.



YARNING NOTES

Use a mind map to take notes on the processes involved in fermentation.



CONNECT TO HUMAN BIOLOGY

Muscle cells need ATP to contract. You will learn how muscles produce your movements in *Protection, Support, and Movement*.

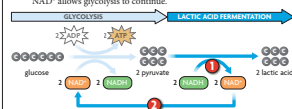
WebQuest

Energy and Athletic Training

Without NAD⁺ to pick up high-energy electrons from the splitting of glucose, glycolysis would stop. When the high-energy electrons are picked up, though, a myofibril cell can continue breaking down glucose and other simple sugars to make a small amount of ATP.

Suppose that a molecule of glucose has just been split by glycolysis in one of your muscle cells, but oxygen is unavailable. A process called lactic acid fermentation takes place. Lactic acid fermentation occurs in your muscle cells, the cells of other vertebrates, and in some microorganisms. **Lactic acid**, C₃H₅O₃, is what causes your muscles to "burn" during hard exercise.

- 1 Pyruvate and NADH from glycolysis enter the fermentation process. Two NADH molecules provide energy to convert pyruvate into lactic acid. As the NADH is used, it is converted back into NAD⁺.
- 2 Two molecules of NAD⁺ are recycled back to glycolysis. The recycling of NAD⁺ allows glycolysis to continue.



As you can see, the role of fermentation is simply to provide glycolysis with a steady supply of NAD⁺. By itself, fermentation does not produce ATP. Instead, it allows glycolysis to continue to produce ATP. However, fermentation does produce the lactic acid waste product that builds up in muscle cells and causes a burning feeling. Once oxygen is available again, your cells return to using cellular respiration. The lactic acid is quickly broken down and removed from the cells. This is why you continue to breathe hard for several minutes after you stop exercising. Your body is making up for the oxygen deficit in your cells, which allows the breakdown of lactic acid in your muscles.

Sequence Which process must happen first, fermentation or glycolysis? Explain.

MAIN IDEA

Fermentation and its products are important in several ways.

How would your diet change without cheese, bread, and yogurt? How would pizza exist without cheese and bread? Without fermentation, a pizza crust would not rise and there would be no mozzarella cheese as a pizza topping. Cheese, bread, and yogurt are just a few of the foods made by fermentation. Milk is changed into different cheeses by fermentation processes carried out by different types of bacteria and molds. Waste products of their fermentation processes give cheeses their different flavors and textures. Additionally, some types of bacteria that use lactic acid fermentation sour the milk in yogurt.

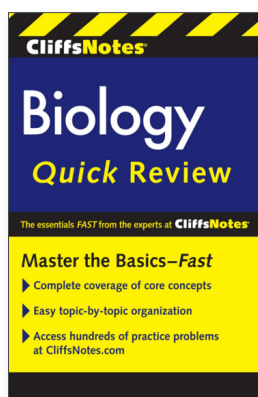
Sequence Which process must happen first, fermentation or glycolysis? Explain.

It's the vocabulary and reading support that sets **HMH Biology** apart. Throughout the Student Edition pages, numerous reading and comprehension support tools enable students to build understanding.

Print Support for Reading and Vocabulary

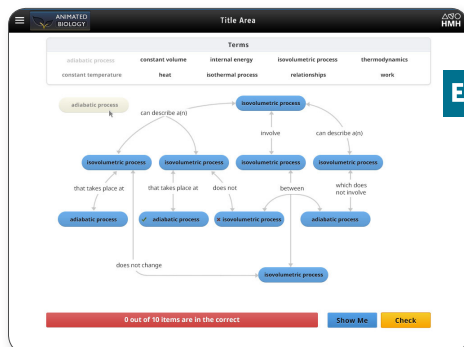
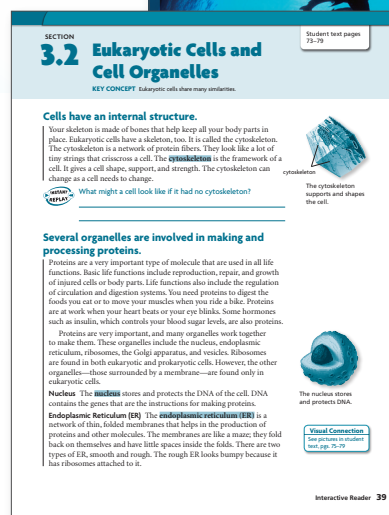
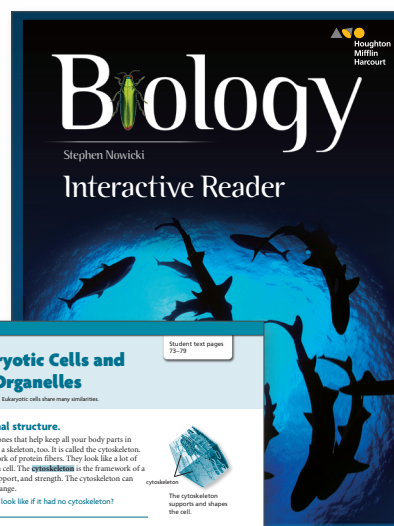
The **Interactive Reader** provides all of the essential content and vocabulary of the Student Edition at a reading level **one to two grades below** the text.

A great resource for students of all ability levels, the Interactive Reader serves as a core instructional tool for struggling students and has twice the reading and vocabulary support as the Student Edition.



CliffsNotes® Biology Quick Review

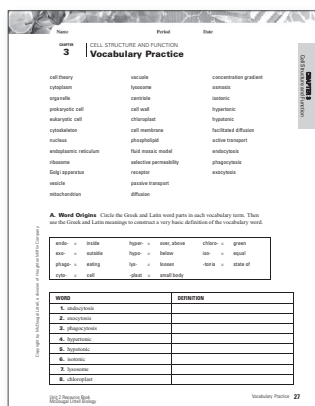
With a Premium package purchase, a class set of these study guides provides **essential reinforcement of core concepts** in an easy-to-use format.



Editable!

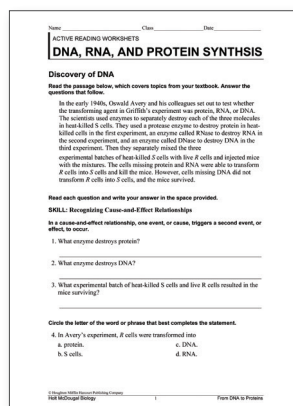
Interactive Concept Maps

Each chapter includes an interactive, advanced **graphic organizer** that shows the relationships among concepts covered and helps students develop logical thinking and study skills.



Vocabulary Practice

Multiple-page vocabulary worksheet supports **review and reinforcement** of all the vocabulary terms introduced in the chapter through a wide variety of lower-level to higher-order thinking skill strategies—vector vocabulary, word origin, word categorizing, word relationships, and crossword puzzle.



Active Reading Worksheets

Nearly 150 topical reading excerpts help boost students' science **reading comprehension** with questions that promote deeper thinking.

Editable!

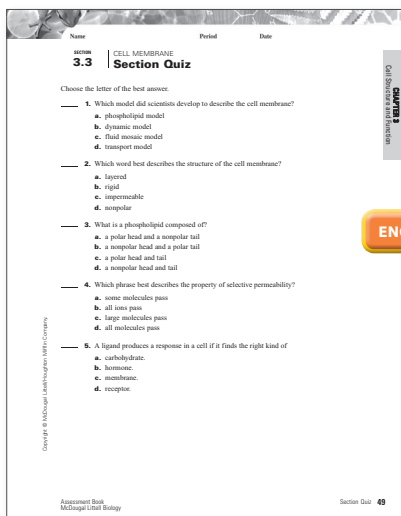
Flexible Assessment Tools to Track Student Progress

The comprehensive assessment options located on [HMHSience.com](https://www.hmhsience.com) bring together all HMH *Biology* assessment tools into one convenient place, giving you many choices for the best way to assess your students' learning.



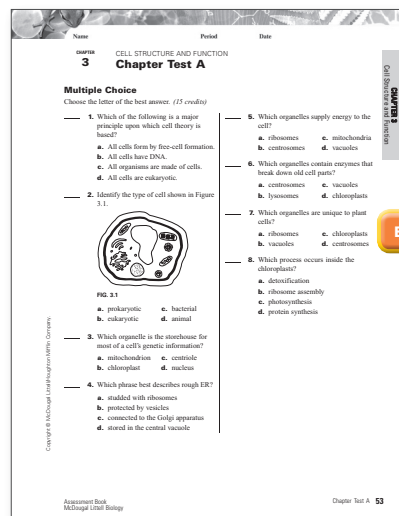
ExamView® Banks

A complete ExamView Software Suite includes all assessment questions for the program and more than **5,000 additional questions** in Bonus Banks.



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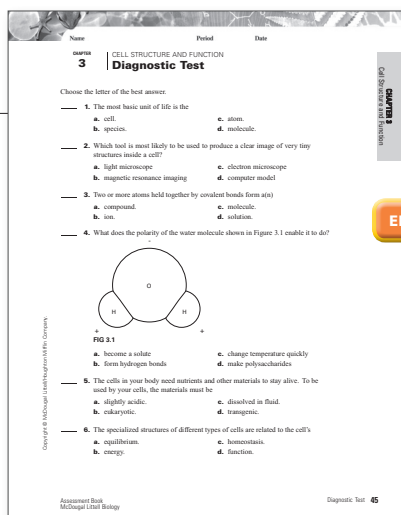


Section Quizzes

A five-question multiple-choice quiz for each section of the textbook is designed for student **formative assessment** to aid in remediation.

Chapter Test A & B

Two **full-length** chapter tests include multiple-choice and short-answer questions. Test B is an on-level test while Test A is a lower-level test of the same content.



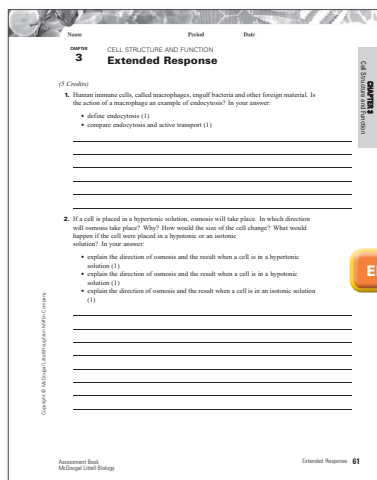
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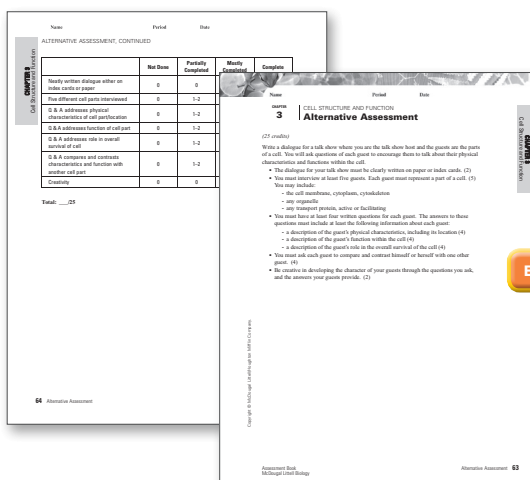
Diagnostic Tests

Diagnostic tests are designed to be given at the beginning of a topic to **determine students' existing knowledge** and help teachers customize the lesson plan.



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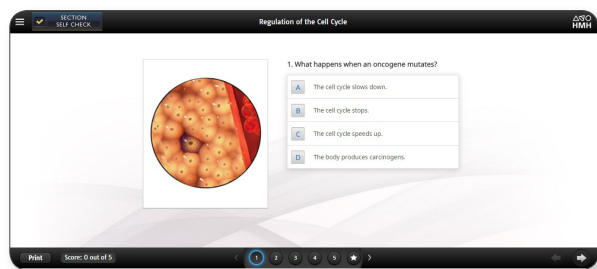
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Extended Response Tests

This type of assessment strategy encourages students to think in **short essay format** as they respond to chapter-specific writing prompts.

Alternative Assessment

For students who benefit from **non-traditional assessments**, these tests provide another way of determining their understanding of biological facts, concepts, and principles.



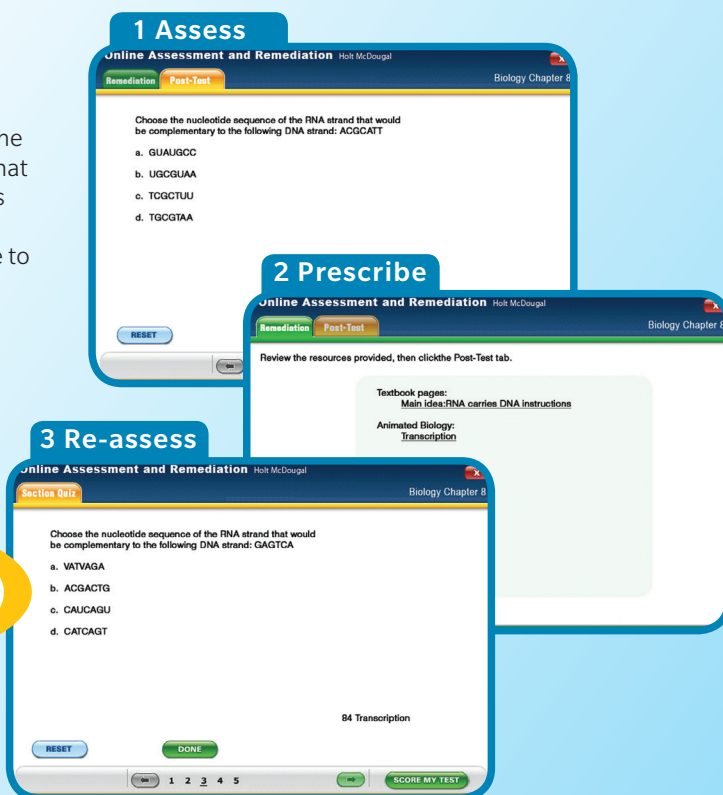
Section Self-Checks

A five-question multiple-choice **interactive online quiz** for each section of the textbook provides immediate feedback for student self-evaluation.

Online Assessment and Remediation

Teachers use an advanced automated assessment and remediation engine to assign section quizzes to students. The assessments are **automatically graded**, and remediation that uses materials from the program is prescribed. A post-test is offered to determine student mastery. Critical student **performance data** are recorded and made readily available to the teacher. Additionally, the standard section quizzes and chapter tests that are available online are also available for teachers to assign to students through this system. These types of assignments do not include remediation.

Individualized remediation



Convenient access to

Labs, Data Analysis and STEM

HMH Biology includes the most comprehensive lab resources with its wide variety of print and digital lab options for every classroom, along with the most robust data-analysis strand to help students develop these critical skills.

Editable!



Over 200
Editable Labs!

Laboratory Experiments

Wide variety of labs located at point of use on **HMHScience.com**:

- Editable lab sheets
- Teacher notes and answer keys
- Referenced on Instruction and Intervention pages in Teacher Edition

Quick Labs

Designed for reinforcement of key concepts using easy-to-obtain materials

Standard

Focus on experimental skills and application of chapter concepts through the use of scientific methods

STEM

Science, Technology, Engineering, and Mathematics problem-based labs that emphasize inquiry and the engineering design process

Open Inquiry

Short project-based labs that encourage students to collaborate, strategize, construct, and evaluate a lab challenge of their own creation

Biotechnology

Provide blending of technology and biological concepts

Forensic

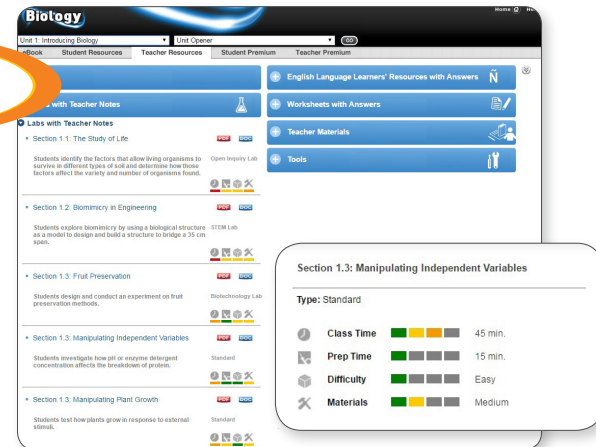
Blend popularity of crime shows on television and concepts students are learning in the classroom

Challenge

Two labs per unit extend concepts presented in the unit chapters for students in advanced, accelerated, or honors biology classes

Probeware

Labs that integrate technology and biology concepts.

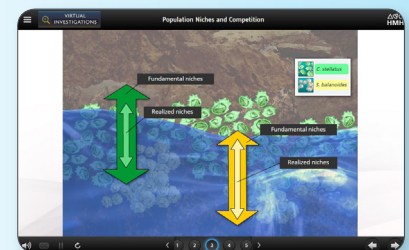


Labeled Labs

Lab activities are labeled online by **class time**, **prep time**, **difficulty** and **materials** to help teachers choose appropriate activities to fit their classroom needs.

Virtual Investigations

Twenty-two **multimedia lessons**, each approximately 30 minutes in length. The engaging presentations, interactive activities, and simulated scientific investigations reinforce student's understanding of biology and science skills while strengthening inquiry and lab skills.



Virtual Labs

Fourteen virtual labs enable students to conduct **meaningful experiments** in a lab or field setting without the expense, time, or risk of traditional lab settings.

Editable!



Each chapter now includes a STEM feature in the Student Edition. This feature relates content to everyday life and encourages students to think in an innovative way.

Over **100 exercises** that strengthen students' scientific reasoning skills. Sample topics include classifying and categorizing, cause-and-effect relationships, hypothesis, generalizations and analogies, and summarizing and reviewing.

The lab datasheets that accompany this resource include activities that engage students and **promote the use of data analysis skills.**

These practice skill sheets, which reinforce the data analysis lesson in each chapter, help students build the skills necessary to understand different types of data, to graph data, and to **analyze and interpret** the meaning behind the data.

The Data Analysis feature in the print Student Edition addresses practice of critical data-analysis skills in every chapter. Students learn to **analyze, calculate, interpret, and hypothesize** about various forms of data, including models, graphs, and charts.

The lab datasheets that accompany this resource include activities that engage students and **promote the use of data analysis skills.**

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The © 2017 **Biology** program is available in five configurations: Premium, Hybrid, Digital, Digital Enhanced, and Class Set packages. The Hybrid bundle is the base option, with the print Student Edition and Teacher Edition, the student eBook, and all worksheets, labs, and Spanish resources. The Premium bundle provides added print resources such, as Interactive Readers and CliffsNotes® Study Guides. Digital bundles offer a low-cost, digital-only option. The Premium, Hybrid, Digital Enhanced, and Class Set bundles include the *On the Job* STEM videos and rich multimedia, animations, and simulations. Common Cartridge® options are also available for purchase.

	Student***	Teacher	Print	Digital
Student Edition**				
Teacher Edition				
Interactive Reader (and Answer Key for Teacher)				
Performance Expectations Guide SE/TE				
Engineering Design Guide SE/TE				
CliffsNotes Biology Quick Review (with Premium package only)				
Interactive Online Edition				
• NGSS* Correlation Tool				
• Teacher Guide for Google Expeditions				
• Student eBook: Audio files and SE pages**				
• Worksheets (Chapter Study Guides A and B**, Reinforcement**, Active Reading, Vocabulary Practice, Pre-AP Activity, Unit Project)				
• Labs** (STEM, Open Inquiry, QuickLabs, Standard, Challenge, Biotechnology, Probeware, Forensic, Virtual Labs)				
• Lab Resources (Labs with Teacher Notes, Laboratory Manager's Professional Reference, Handling and Care of Organisms, Comprehensive Materials List, Solutions List, Probeware and Calculator Information)				
• Multilanguage Glossary				
• Student Toolkit (Scientific Reasoning Skill Builder, Project Resources, Smart Grapher, FoldNotes, Periodic Table, Glossary, Scientific Calculator, Graphing Calculator)				
• Teacher Toolkit (Teaching Strategies, English Learner Strategies, Classroom Management Resources, Lesson Planner, Project Resources, Teacher Toolkit)				
• Multimedia and Activities (A&E Video Clips, Animated Biology, Virtual Investigations, Video Labs, WebLinks, WebQuests, BioZine, <i>That's Amazing!</i> Video-Based Inquiry)				
• Presentation Tools (Teaching Visuals, Interactive Whiteboard Resources, Power Presentations)				
• <i>On the Job</i> STEM Videos (with Premium package only)				
• Interactive Review (Interactive Concept Maps, Self-Checks, Interactive Review Games)				
• Data Analysis (Practice, Smart Grapher)				
• Online Assessments (ExamView, Section Quizzes**, Chapter Diagnostic Tests**, Chapter Tests A&B**, Alternative Assessments**, Chapter Extended Response Tests**, Online Assessment with Remediation)				

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Also available in Spanish. *All of the student-facing resources are available to the teacher via the Teacher's Interactive Online Edition.

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