Why Biology?

A THEME-BASED APPROACH

Have you ever wanted
to teach biology by

relevant themes?

Well, now you can!

Why Biology?

is the first-ever theme-based course that associates biological processes to topics relevant to students' lives. This approach enables non-majors students to create connections, become more engaged with the content, and make informed decisions as scientifically literate citizens.

HOW IT WORKS.

*Rather than starting with biology content and fitting in relevant topics, **Why Biology?** starts with the relevant themes and threads in the biology.*

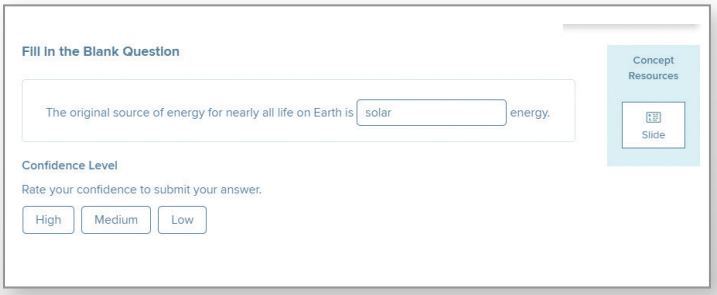
The units below contain all learning outcomes necessary for either a one- or two-semester biology course and can be covered in any order.

TABLE OF CONTENTS FOR WHY BIOLOGY?

*Instructors have the option to use the Influenza A unit or COVID-19 unit to teach evolution and viruses.

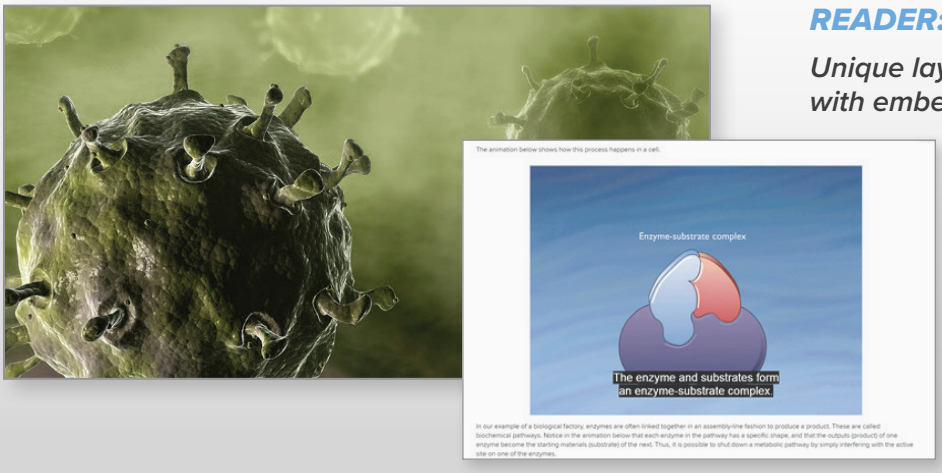
Flow of coursework for students:	What it does:
1 Adaptive Learning Assignment	**THE ADAPTIVE LEARNING ASSIGNMENT:** introduces students to the biological content in a personalized, low-pressure environment. It adapts to each student's learning, providing the opportunity to practice and enhance understanding of core concepts. All learning probes are built around specific learning objectives. Students are given immediate feedback as well as additional learning resources, such as slides and short videos, to better understand the content. Reports are generated for each individual student and for the instructor to see the most challenging learning objectives.
2 Reading	**THE READER:** incorporates the **eight** relevant themes built around course learning objectives. The unique flow of content covers the relevancy first, then the biology. Modules and lessons are presented as questions to encourage critical thinking. Key challenging concepts are enhanced within the narrative by embedding animations directly where needed. This helps students visualize processes and provides a more active learning experience while incorporating just-in-time learning. Each lesson within the five units concludes with "Quick Check" questions to help students practice what they just completed reading. Immediate feedback is provided.
3 Assessment	**THE ASSESSMENTS:** include assignable questions at the end of each unit to assess student learning. Instructors can utilize these summative assessment questions for homework, quizzes, or exams. Questions include animations, tutorials, and application of what they learned in the prep assignment and reading. Instructors can customize reports to assess student learning.

What it looks like:



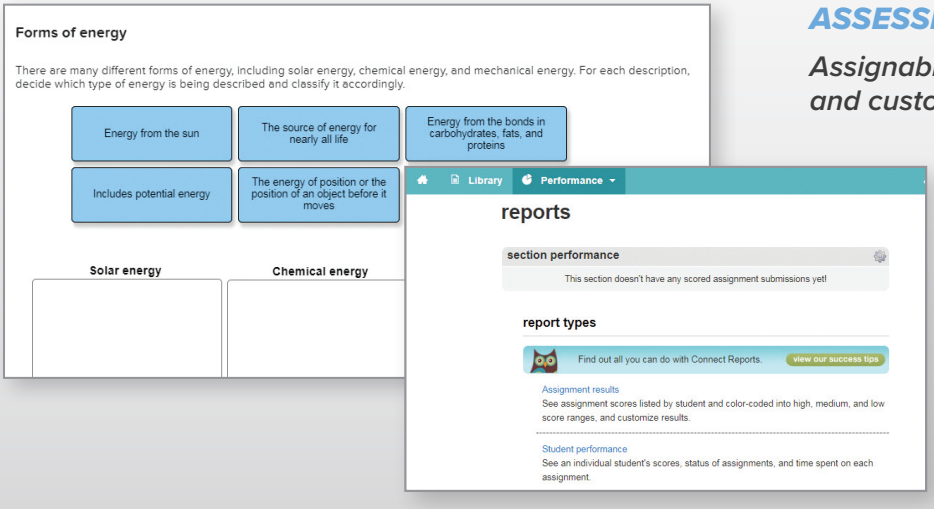
ADAPTIVE LEARNING ASSIGNMENT:

Adapts to each student's learning and provides immediate feedback with resources



READER:

Unique layout of content with embedded animations



ASSESSMENT:

Assignable questions and customizable reports

Unit flows:

All learning outcomes necessary for a one- or two-semester biology course are covered within ***Why Biology?*** *The learning outcomes are presented in a different order than other products because the content that relates to the theme is covered within that unit.*

The next series of pages includes high-level views of content coverage for each of the units. To see the detailed learning outcomes for each unit, please reach out to your McGraw Hill Learning Technology Representative.

Cancer Unit (Cells & Cell Division)

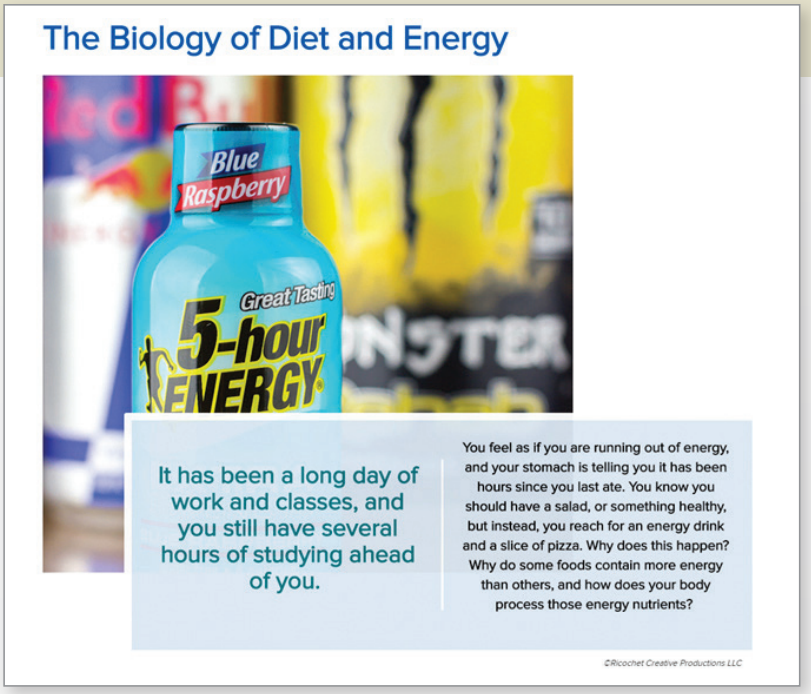
Overview of Cancer → Cell Structure, Function, and Division → Staging and Cancer Characteristics → Causes of Genetic Mutations → Treatment/ CRISPR/ Biotechnology

"When my dad was younger, he had cancer and is now a survivor. By completing the cancer unit in this product, I was able to help him understand what he went through, what cancer actually means, and what advancements have been made for treatment. It made me really care about biology."

–STUDENT,
KIRKWOOD COMMUNITY COLLEGE

Energy Drink Unit (Energy & Nutrients)

Energy Nutrients → The Digestive System → Enzymes and Transport → Cellular Respiration → Assessing Energy Drinks



Product fun fact:

Originally the theme for the "evolution and viruses" unit was going to cover Zika; however, when the Influenza A outbreak occurred, the author made a last-minute decision to use that as the overarching theme instead. This was to ensure the content was relevant!

Influenza A Unit (Evolution & Viruses)

Instructors have the option to use the Influenza A unit or COVID-19 unit to teach evolution and viruses.

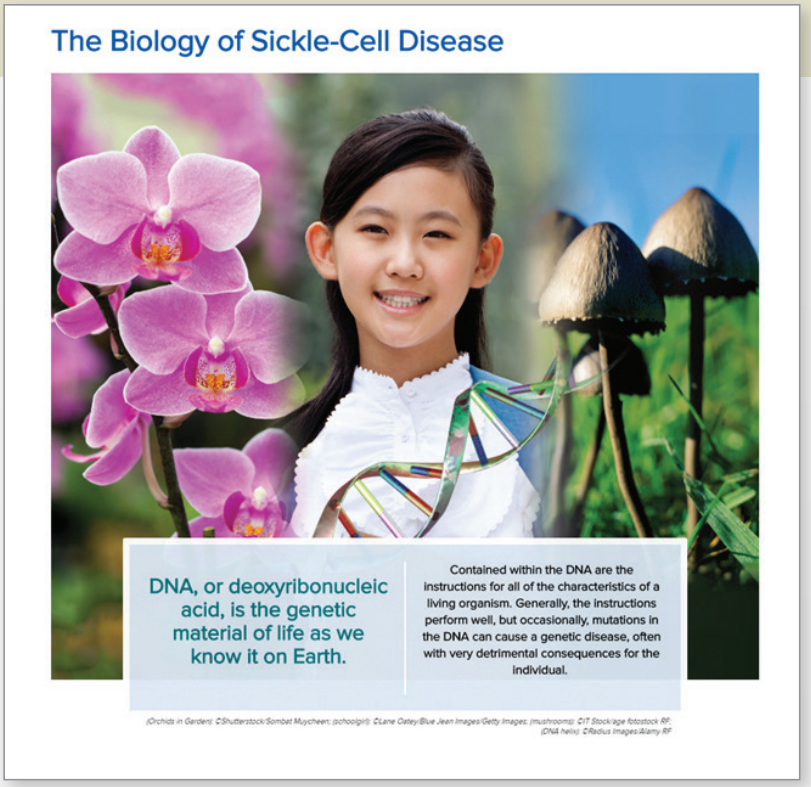
Overview of Influenza → Flu Vaccines → Evolution of Viruses → Role of the Immune System → Future of Vaccinations and Treatments

"This product fully engages the instructor and students in the themes so those vital connections can be made, helping students really learn the concepts. I've noticed my students ask more questions and are engaged with the material. They genuinely want to know more and can see the links to their own lives beyond the classroom."

–MARGARET JOHNSON,
INSTRUCTOR

Sickle-Cell Disease Unit (Genetics & DNA Biology)

Overview of Genetic Diseases ▶ **Role of the Circulatory System** ▶ **DNA & Gene Expression** ▶ **Sexual Reproduction & Inheritance** ▶ **Treatment of Genetic Disorders**

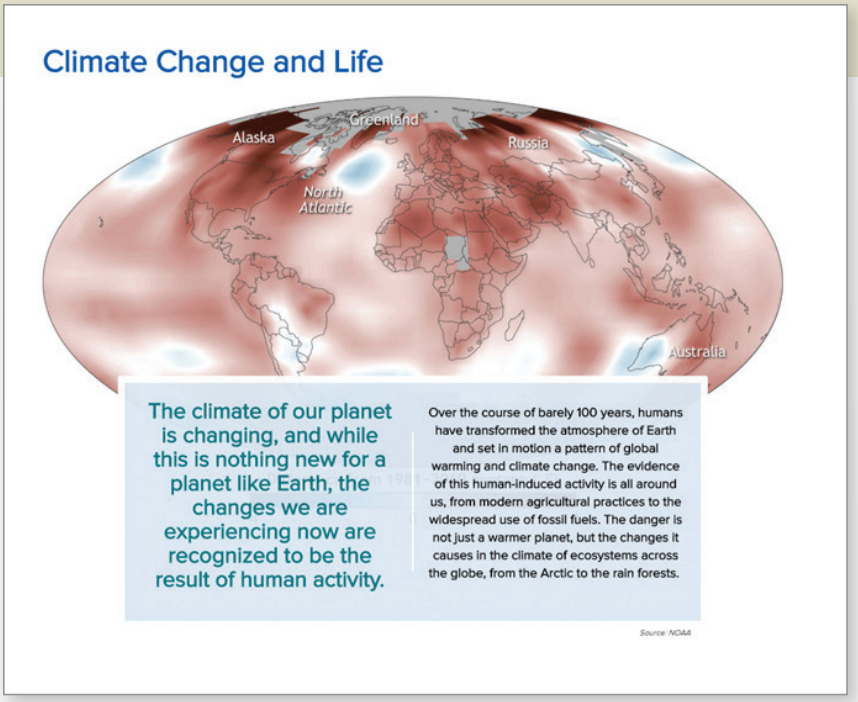


Keeping it relevant:

Everyone is aware that biology is ever-changing, and a highlight of this product is that it will be continually adapted to stay relevant. Keeping the content relevant ensures your students are engaged with the material and leaving as informed citizens.

Climate Change Unit (Ecology & Environmental Science)

Overview of Climate Change → Role of Carbon → Photosynthesis and Fossil Fuels → Consequences of Climate Change → Addressing Climate Change as a Society



"Learning by themes actually helped me put many biology terms into better perspective. I always used to say I didn't need biology for my career, but with this method I was able to see how biology is everywhere and gave me a better understanding of the material."

–STUDENT,
DREXEL UNIVERSITY

GMOs Unit (Plants & Genetic Engineering)

Overview of GMOs → **Need for GMOs** → **Biology of Plants** → **Genetic Modification Process** → **Future: Risks and Benefits**

Would You Eat a Genetically Modified Organism?

Imagine this... You walk into a grocery store and see two sets of apples on a counter. The first shows signs of browning, while the second has a crisp yellow color. Which one would you buy?

Now, let's assume the crisp yellow apples have a label stating they are genetically modified organisms (GMOs). Do you now choose the brown apples, the crisp yellow ones, or skip the apple aisle altogether? Before making your decision, would you like to know what a genetically modified organism (GMO) is, and whether all genetically modified organisms are the same?

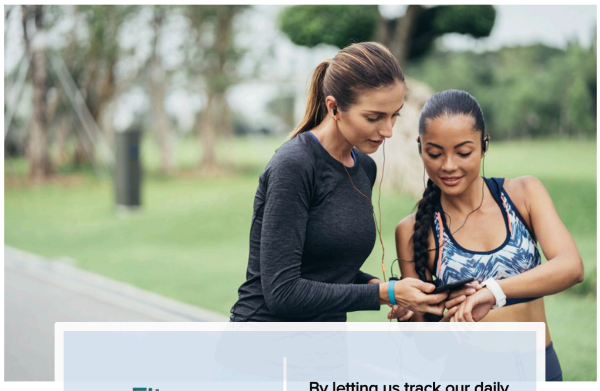
Community Support:

At McGraw Hill, we make shifting to this theme-based approach of Why Biology? easy by creating a pre-built course you can alter, numerous instructor resources, and peer-to-peer training. We want to ensure the success of your course and can pair you with like-minded instructors who have used this product and approach successfully for numerous terms.

Fitness Trackers Unit (Human Body Systems)

Overview of Fitness Trackers → Organ Systems → Relation of Physiology and Fitness → Role of Exercise and Sleep → Future of Fitness Trackers

The Biology of Fitness Trackers



Fitness trackers have personalized the exercise world.

By letting us track our daily steps, heart rates, and even how well we sleep, fitness trackers have allowed us to easily monitor our daily activities. But how do these devices work?

filadendron/Getty Images

"Learning by themes has definitely shown me that biology can be applicable to me, even as a journalism major. Everyday life has everything to do with biology and I didn't truly recognize this before this class and this product."

–STUDENT,
BOISE STATE UNIVERSITY

Sixth Mass Extinction Crisis Unit (Biodiversity)

Overview of Biodiversity → **Mass Extinction Events** → **Classification Systems** → **Sixth Extinction Crisis** → **Future of Biodiversity**

The Sixth Mass Extinction Crisis

1 million species will be lost in the next 30–50 years

Climate change, habitat destruction, pollution, invasive species—these are examples of human activities that are bringing about the sixth mass extinction event.

Charles Wollertz/Alamy Stock Photo

Student feedback:

WHAT ARE THE BENEFITS OF LEARNING BIOLOGY BY RELEVANT THEMES?

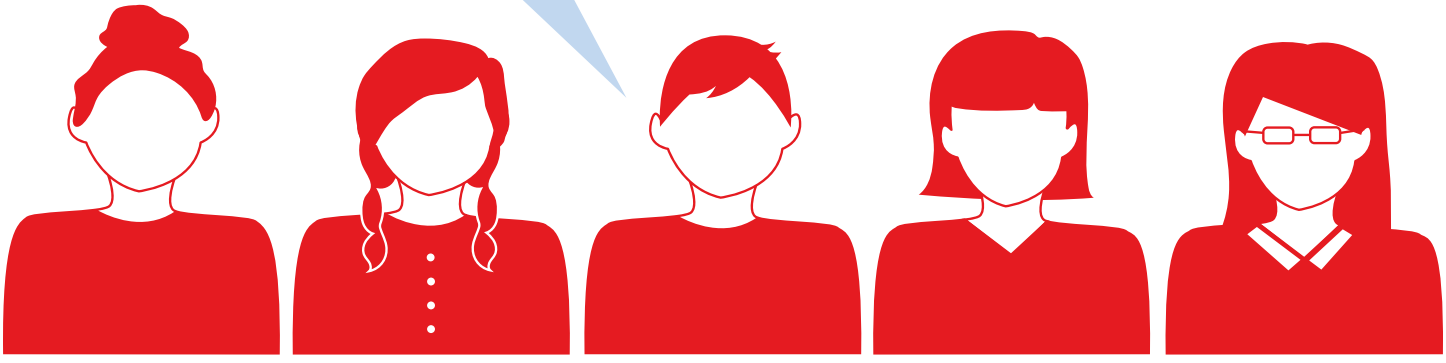
"Being able to focus on one specific theme at a time is actually very helpful. I have found that I have learned a lot more in this course than I have in other classes. It has been extremely helpful for me. I have never been one to retain information in a normal textbook style, but I am actually able to read and learn this material very easily."
—Jennifer S., student at
University of Southern Mississippi

"This product helps me relate what I'm learning to everyday life. I was able to better understand the content and it was presented in a way that prevented me from questioning 'Why do I need to learn this?' since I'm not a biology major. It kept me engaged and interested in the topics."
—Kristi K., student at
Drexel University

"You can relate this information to what you actually need to understand the material on an everyday basis. I have learned some of this stuff before, but feel it will 'stick' better now that it relates to my life."
—Brittany V., student at
St. Charles Community College

"Learning by themes makes it easier to remember while reading that the content is about that certain theme, as opposed to a chapter where everything is separated and you have to be more conscious of what the overall idea is."
—Paige R., student at
Texas A&M University Corpus Christi

"This type of learning will help students relate what they are learning to their own lives. Everyone knows someone who has cancer. Everyone has tried an energy drink."
—Zak S., student at
St. Charles Community College



*Student quotes pulled from survey data from over 300 students across 10 college campuses.

INSTRUCTORS INTERESTED IN THIS PRODUCT ARE PROVIDED WITH A WEALTH OF RESOURCES INCLUDING:

– Full instructor's manual with learning outcomes, teaching strategies, and in-class active learning ideas for each unit

– Sample syllabus and assignment calendar

– Fully built course that you can customize to your needs

– Customizable lecture PowerPoints

– Student-facing video featuring the author explaining the product

– High level of training and support from the McGraw Hill team

– Access to relevancy based resources related to the content units to present in your classroom

– Connection with other users of this product for sharing best practices and in-class activities

–Virtual Lab correlation grid

Meet Michael

*MEET AUTHOR **MICHAEL WINDELSPECHT***

As an educator, Dr. Michael Windelspecht has taught introductory biology, genetics, and human genetics in online, traditional, and hybrid environments at community colleges, comprehensive universities, and military institutions.

For over a decade Micheal served as the Introductory Biology Coordinator at Appalachian State University, where he directed a program with annual enrollments of over 4,500 students.

Michael received degrees from Michigan State University (BS, zoology and genetics) and the University of South Florida (Ph.D., evolutionary genetics). He has published papers in areas as diverse as science education, water quality, and the evolution of insecticide resistance. Michael's current interests are in the analysis of data from digital-learning platforms for the development of personalized microlearning assets and next-generation publication platforms. He is currently a member of the National Association of Science Writers and several science education associations. As a keynote speaker, he has discussed the development of multimedia resources for online and hybrid science classrooms. In 2015, he won the DevLearn Hyperdrive competition for his strategy to integrate student data into the textbook-revision process.

Among his author and editor credits, Michael has over 20 reference textbooks and multiple print and online lab manuals. He has founded several science communication companies, including Ricochet Creative Productions, which actively develops and assesses new technologies for the science classroom. You can learn more about this author by visiting his website at ***www.michaelwindelspecht.com.***

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