



BIOZONE - Background Information

About BIOZONE

BIOZONE has a proven track record: we have been designing and writing science resources for high school science programs for over 30 years.

BIOZONE's authors come from many backgrounds and have both science degrees and high school teaching experience so we understand the challenges of teaching accurate and engaging science to today's students. Our authors dissect curricula to ensure we integrate required components into our resources. This means our resources are *designed not aligned!* Whether it be in the classroom or learning remotely, our extraordinary suite of print and digital resources engage students and deliver positive outcomes.

We consult widely with our audience to ensure we bring the very latest scientific and pedagogical principles to all of BIOZONE's titles, while keeping the needs of students front and center.

[Listen to Publisher and President Richard Allan](#) describe how our unique approach ensures we stand out from the crowd.

Our purpose, our passion, our persistence to inspire better outcomes for the future of our planet through science education is why we exist.

About our NGSS Resources

BIOZONE's high school NGSS resources take the very best features of a textbook and combine them with the utility of a workbook to produce a **worktext**. This highly visual, engaging format allows students to interact with the stimulus material and record their answers in place, **forming a record of work**. The result: accessible, yet rigorous, programs designed to engage learners of all types.

BIOZONE's Standard NGSS series consists of three titles:

- ***Biology for NGSS***
- ***Earth and Space Sciences for NGSS***
- ***Physical Sciences for NGSS***

All have been designed and written to meet the requirements of the Next Generation Science Standards for High School. We have used the Disciplinary Core Ideas to structure the titles, resulting in a logical arrangement which has flexibility in delivery order.

How has Biology for NGSS been designed for the NGSS framework?

Biology for NGSS has been written specifically to meet the requirements of the Next Generation Science Standards (NGSS) for High School Life Sciences (HS-LS). It has been designed to ensure all three dimensions: disciplinary core ideas (DCIs), science and engineering practices (SEPs), and crosscutting concepts (CCCs) are integrated as outlined in the framework. We have utilized the 5Es instructional model as a basis for developing materials to specifically address the three dimensions of the NGSS framework.

[View the alignment to the NGSS framework here.](#)

Student-focused activities require learners to generate explanations based on the understanding they have developed through exploration. They deepen their understanding by elaborating on their knowledge or apply their knowledge and experience to develop solutions to problems. By successfully completing sequences of activities, students can demonstrate competency in skills and ideas. This is central to meeting the NGSS Performance Expectations.

Our [evaluation and evidence document](#) provides ample, specific evidence and examples demonstrating how ***Biology for NGSS*** meets the requirements of the NGSS framework. This includes demonstrating evidence for the integration of

the three dimensions, assessments, including testing student knowledge of the Performance Expectations, and phenomena-based approach.

Phenomena-based

Biology for NGSS is strongly based in phenomena and promotes student enquiry. Students are encouraged to observe and understand the world around them through the use of real case studies, data, and investigative phenomena (practical activities) and anchoring phenomena. This inquiry-based approach requires learners to apply what they've learned in a previous activity to a new situation, not simply recall information.

Anchoring phenomena begin every content chapter, providing a central focus for student engagement and learning. They have been carefully selected to encompass the content of the chapter and be familiar to a wide range of students. However, we have selected examples that many students cannot fully explain at the beginning of the topic. The anchoring phenomena serve to not only pique student interest but can also be used by teachers to identify prior knowledge and any gaps and misconceptions students bring with them to the topic. These can then be addressed as the content is explored. At the end of the chapters, the anchoring phenomena are revisited, and students should now be able to fully explain them.

Formative assessment

Formative and summative assessment opportunities are inbuilt into **Biology for NGSS**.

We suggest using activities where students are carrying out 'ELABORATE' and 'EVALUATE' components of the 5Es instructional model for formative assessment. This is because students are required to show a deeper understanding of the three dimensions to fully engage with these activities. When elaborating, they are expanding on the concepts learned; during evaluation components, they can be assessed for their understanding of the concepts.

Anchoring phenomenon and anchoring phenomenon revisited activities can also be used as formative assessments. The anchoring phenomenon task at the start of chapter provides teachers with an opportunity to gauge students' prior knowledge of a topic before it begins. Any gaps or misconceptions can be identified and addressed during instruction. Revisiting the anchoring phenomenon at the end of a chapter provides a formative check point to ensure students have a firm grasp of the content before progressing to a summative assessment task. If required, material can be revisited.

BIOZONE's test bank content is an ancillary resource designed to test student understanding of the DCI content. The questions can be ingested into test generator software and used as formative assessment.

Summative assessment

Summative assessment tasks evaluate student skills, understanding, and application of knowledge. They require students to demonstrate their learning by drawing on all three dimensions to answer questions related to a particular phenomenon, solve problems, design models, or analyze data. These tasks are designed to meet specific Performance Expectations, as identified in the Teacher's Edition.

Opportunities to directly assess specific Performance Expectations occur regularly throughout **Biology for NGSS**, both within the body of the chapter and in the "Summing Up" activities at the close of most chapters.

[View the alignment to the Performance Expectations here.](#)

Support resources and services

The *Biology for NGSS* worktext is supported by a suite of products for both students and teachers.

BIOZONE WORLD

This new online platform brings together all our digital resources in one place for easy access and delivery.

BIOZONE WORLD incorporates digital versions of our highly acclaimed titles together with our rich digital collection of proprietary resources (presentation slides and interactive 3D models) as well as curated OER videos and links to OER websites.

Teacher's Edition and Classroom Guide (print)

The Teacher's Edition is prefaced by the Classroom Guide. Use the Classroom Guide to find out more information to aid your delivery of *Biology for NGSS*:

- Additional teacher notes to aid content delivery.
- Pedagogy and features of the worktext.
- Understand how the three dimensions have been addressed (includes summary tables showing the three dimensions and Performance Expectations covered in each activity).
- Access ideas for teaching strategies in a differentiated classroom
- Formative and summative assessment tasks.
- Setting homework
- Supporting BIOZONE products (the Teacher Toolkit)
- Suggested answers in place for each activity.
- Appendix with answers to questions requiring detailed explanations.

Pacing Guide

A Pacing Guide provides support for a suggested timing and delivery of the program. It identifies the following components:

- Important vocabulary
- Investigations
- Identifying where formative and summative assessment opportunities appear in the program

Resource Hub

The Resource Hub is a FREE online resource where students and teachers using the printed worktext can access material to support the content of *Biology for NGSS*. It includes access to curated OER enrichment content, e.g. videos, animations, and BIOZONE's own proprietary resources, including interactive 3D models, Presentation Slides, and interactive spreadsheets (to support selected activities with a data analysis or computer modeling component).

Test Bank content

BIOZONE's Test Bank content has been designed as an assessment tool to test student understanding of the DCI content of the framework. The Test Bank questions are designed to be ingested into test generator software.

Question types include:

- Multiple choice
- Multiple response
- True/false
- Modified true/false
- Numeric response
- Matching
- Short answer

Training and professional development

BIOZONE offers a range of pedagogical and technical options to fully support schools during pilot and implementation phases. In addition, all customers have the option of utilizing BIOZONE's professional development sessions to ensure seamless integration of our NGSS programs in your classroom. Naturally, ongoing support is provided through the duration of the adoption period.

Customer testimonials

User input and satisfaction drive us to continually improve our products. Hear what teachers have to say about **Biology for NGSS**:

"Updates regularly to stay current. Great connection to NGSS."

"Engaging and contain good examples that help align with Next Generation Science Standards."

"My students find the examples very interesting and relevant, they are often different than the classic examples we are used to seeing. They find success with the methodology that BIOZONE is built on, with the focus on collaboration and building understanding."

"Great layout. Nice amount of reading with follow up questions for the students all presented in manageable amounts and with great explanations."

"I like that Biozone is driven by NGSS."

Video: Reuben Medlock from Oceanside Unified School District discusses [his school's use of BIOZONE products](#)