Humans are as much a part of nature as every other creature, and we have a specific role to play as part of God’s Creation.
Life is recognized on the basis of its characteristics, which include cellular structure, metabolism, reproduction, development, homeostasis, genetic material, and adaptability. Our worldview strongly influences how we see life, the questions we ask about it, and the theories we will consider to explain it.

This new ByDesign Biology program, considers two popular contrasting worldviews—materialistic Darwinism, which claims that life originated without divine intervention, and biblical theism, which is the belief in the existence of God. Like all worldviews, the Darwinian and biblical worldviews provide a framework for understanding reality—and particularly biology. This new program explores both worldviews while adhering to the principles, beliefs, and high standards of the Seventh-day Adventist (SDA) educational system.

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Student Edition
The ByDesign Biology curriculum is designed to serve the SDA family and is grounded in the foundations of the faith beliefs of the SDA church, making it easy for high school biology teachers to present content while maintaining accordance with SDA worldviews. Parents and families who have consciously chosen a faith-based education for their child(ren) can feel confident in the ByDesign Biology curriculum.

Additional Resources
The ByDesign Biology curriculum offers additional resources to assist with program implementation. The in-depth Teacher Edition features reduced Student Edition pages and includes answer keys and curricular connections to other subjects, such as social studies.

The teacher lab resources also provide additional information to adapt experiments, guide students through potential areas of difficulty, and answer student questions.

ByDesign Biology provides a commitment to excellence and expands what it means to receive a well-rounded education within our faith-based community.
Science, and particularly biology, is not about knowing everything; it is a process for discovering something about reality, and that something is amazing. Science is a systematic method of acquiring knowledge and understanding the natural world by collecting and analyzing empirical data, followed by interpretation.

The NGSS encourage an explicitly materialistic approach to the sciences, particularly biology. Christians approach nature from a different perspective, one that is either ignored or specifically opposed in most current texts; thus, Christian schools have a need for more balanced textbooks that examine a variety of understandings of nature, including the biblical perspective.

Scripture Spotlights show students the connections between unit topics and the Word of God in the Bible, and explicit biblical connections (e.g., the Great Flood as an example of a population bottleneck) also help students use their faith to understand what they learn.

Educational Standards
This first edition of ByDesign Biology aligns with the SDA high school curriculum standards as well as the Next Generation Science Standards (NGSS). These standards acknowledge that inquiry is central to science learning. The NGSS recommend that science education be built around three dimensions of learning: science and engineering practices, crosscutting concepts, and disciplinary core ideas.
Curriculum Design

The ByDesign Biology program materials feature a new interior design and layout that actively engages all students in the study of science and weaves together a faith-based curriculum. The layout is teacher-friendly and includes suggestions and materials for assessment, differentiation of instruction, and incorporation of technology.

This customized Christian based program includes 27 chapters that offer teachers the flexibility to select the chapters they plan to teach within an eBook. The program provides all the lab resources you will need for you and your students.

ByDesign Biology presents the two contrasting worldviews of Darwinism and biblical creationism, allowing students to learn the history and merits of each approach to the understanding of life on Earth. Included are concepts to help deal with philosophical issues that arise when you study faith and science together. The content for student and teacher provides a sound basis for what we believe, and why, regarding origins.

Component Overview

**Student Edition**
Available as a hybrid Student Edition (print and eBook with 6-year license)
Case bound (4-color cover and 4 color interior) with an estimated 744 pages.

**Teacher Edition**
Available as an eBook with an estimated 932 pages.
Student Lab Resources (digital) with an estimated 322 pages.
Teacher Lab Resources (digital) with an estimated 416 pages.

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**Teaching Tip**

**Chapter 6**

- **How did Mendel’s experiments provide evidence of how traits vary and get their traits from their parents. This would give us a sound basis for what we believe, and why, regarding origins.

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**Chapter 11**

- **Punnett Squares and Probability**

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**Chapter 18**

- **How much more remarkable. Students might describe individuals as abnormal.

---

**Chapter 25**

- **A small plant. If you were going to study genetics, what would be the best way to choose a model organism?**

---

**Chapter 32**

- **Wrinkled Green White Constricted Yellow Terminal Short**

---

**Chapter 40**

- **Mendel’s choice of peas was fortuitous. He had access to many true-breeding strains that were the ease of growing peas, their short lifespan, their manageable size, and easy control of reproduction. Pea flowers enclose the male and female material. However, it is easy to open the keel, remove the anther (male part) of a pea flower, and pollinate the stigma (part of the female carpel) in what manner such experiment is conducted.**

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**Chapter 47**

- **Mendel’s Peas**

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**Chapter 54**

- **A small plant. If you were going to study genetics, what would be the best way to choose a model organism?**

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**Chapter 61**

- **Wrinkled Green White Constricted Yellow Terminal Short**

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**Chapter 68**

- **Mendel’s choice of peas was fortuitous. He had access to many true-breeding strains that were the ease of growing peas, their short lifespan, their manageable size, and easy control of reproduction. Pea flowers enclose the male and female material. However, it is easy to open the keel, remove the anther (male part) of a pea flower, and pollinate the stigma (part of the female carpel) in what manner such experiment is conducted.**

---

**Chapter 75**

- **Mendel’s Peas**

---

**Chapter 82**

- **A small plant. If you were going to study genetics, what would be the best way to choose a model organism?**

---

**Chapter 89**

- **Wrinkled Green White Constricted Yellow Terminal Short**

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**Chapter 96**

- **Mendel’s choice of peas was fortuitous. He had access to many true-breeding strains that were the ease of growing peas, their short lifespan, their manageable size, and easy control of reproduction. Pea flowers enclose the male and female material. However, it is easy to open the keel, remove the anther (male part) of a pea flower, and pollinate the stigma (part of the female carpel) in what manner such experiment is conducted.**
Teacher Lab Resources and the Student Lab Resources.

*Printed manuals are available by request for the labs.

The structure of each unit is designed with the principles of inquiry in mind, and the labs accompanying each unit allow students to put their learning into action.

Lab Resources*

The Student Lab Resources are a resource for teachers to provide to each student. Teachers select labs based on the chapter and lesson they are using with their instruction. Labs are organized by chapter and lesson.

The Teacher Lab Resource contains instructions for conducting the inquiry labs as well as additional instruction and answers to the questions that appear in the labs.

*Printed manuals are available by request for the Teacher Lab Resources and the Student Lab Resources.

### Student Lab Resources

**LAB 11–2a**

**Simulating a Monohybrid Cross**

**Objective**

Demonstrate how to use Punnett squares to explain monohybrid inheritance.

**Procedure**

1. In this lab, you will investigate the simplest kind of genetic cross studied naturally surrounded by a structure called the keel.

2. Plants could not fertilize the flowers because the stamens and carpels are from another strain onto the carpels when they ripened. Pollen from other the stamens from unripe flowers and later fertilize them by brushing pollen another advantage is the structure of pea flowers. Mendel could remove organisms to study because they are easy to grow, they have visible traits characteristics and then analyzed the results. Garden peas were good Mendel used the abbey garden to breed peas with different visible generation to another, comes in part from the work of Gregor Mendel, abbot of the Abbey of St. Thomas in what is now the Czech Republic.

3. Mendel's experiments involved theoretical predictions more closely.

4. Ratios, but as the size of the sample increases, the ratios approach the theoretical predictions more closely. Mendel's experiments involved ratios, but as the size of the sample increases, the ratios approach the theoretical predictions more closely.

### Teaching Notes

- Students cannot distinguish between the beans by feel.
- Have enough bags and beans (red and white) for each student group to complete the lab.

### In Advance

- If one parent is homozygous for the recessive trait (aa), the offspring have a 25/50/25 chance of inheriting the genotype and phenotype of either parent. Only about 25% will show the recessive trait, while 50% will exhibit the dominant trait, and 25% will exhibit neither. Mendel's experiments involved theoretical predictions more closely.
- Ratios, but as the size of the sample increases, the ratios approach the theoretical predictions more closely.

5. What is the genotype of all the F1 generation? (Record in the F2 generation data table in the F1 cell.)

6. What is the phenotype of all offspring from the F1 generation? (Record in the F2 generation data table in the F1 cell.)

7. What is the genotype of a plant with terminal flowers? (Record in the F2 generation data table as parents.)

8. What allele will be present in every gamete produced by a plant that is homozygous for axial flowers? (Record in the F2 generation data table as parents.)

9. What allele will be present in every gamete produced by a plant that is homozygous for axial flowers? (Record in the F2 generation data table as parents.)

10. Parent Axial (A) Terminal (a)

<table>
<thead>
<tr>
<th>Parent Axial (A)</th>
<th>Parent Terminal (a)</th>
<th>F1 Generation Data</th>
<th>F2 Generation Data</th>
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</thead>
<tbody>
<tr>
<td>Axial (A)</td>
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<td>Axial (A)</td>
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<tr>
<td>Terminal (a)</td>
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</tbody>
</table>

The Punnett square gives us the predicted genotypes and phenotypes of the F1 generation.

<table>
<thead>
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</tbody>
</table>

11. What is the phenotype of all offspring from the F1 generation? (Record in the F2 generation data table in the F1 cell.)

12. What is the genotype of all the F1 generation? (Record in the F2 generation data table in the F1 cell.)

13. What is the phenotype of all offspring from the F1 generation? (Record in the F2 generation data table in the F1 cell.)

14. What is the genotype of a plant with terminal flowers? (Record in the F2 generation data table as parents.)

15. What allele will be present in every gamete produced by a plant that is homozygous for axial flowers? (Record in the F2 generation data table as parents.)

16. What allele will be present in every gamete produced by a plant that is homozygous for axial flowers? (Record in the F2 generation data table as parents.)
eBooks
The eBooks offer teachers and students access to high-quality content that can be viewed in either single- or double-page mode and can be enlarged for easier viewing. eBook functionality allows students to take notes and highlight key concepts. Links from the table of contents provide quick access to chapters, lessons, glossary definitions, and supporting labs developed to enhance the inquiry experience.

Flourish is an online platform that provides you with all the materials for ByDesign Biology in a digital format. Everything is available all day, every day through online access so that you can plan at school or at home and your students can learn wherever they are. The student textbook, your teacher edition, and all lab resources needed to complete a lesson are readily accessible at the point of use.

Table of Contents*
The ByDesign Biology program consists of 27 chapters covering a wide range of essential biology topics, giving teachers and students insight into ecosystems, cell structure and function, genetics, taxonomy, and human biology.

With its clear diagrams, beautiful images, and various extension and review activities, students will be amazed by what they will learn about God’s Creation and the scientific principles that help them understand it.

Introduction
Chapter 1 Foundations of Biology
Lesson 1 Worldviews
Lesson 2 Science
Lesson 3 Life

Chapter 2 Biology Connections
Lesson 1 Connections to Language and Art
Lesson 2 Connections to History
Lesson 3 Connections to Other Sciences
Lesson 4 Divisions of Biology

* Aligns with the SDA high school curriculum standards and the Next Generation Science Standards (NGSS)
At its core, genetics is about coded information stored in amazingly long strands of DNA. Genetics is also about how that information is transmitted, retrieved, and used to make proteins and other structures that ultimately determine what an organism’s body is capable of being.
Darwinian evolutionism forces similarities into a universal common ancestry, yet the biblical worldview looks at the diversity of biology as origin by design.

The human body is amazing. Its sophisticated organization allows us to experience the world around us and gives us the ability to think, create, and respond in ways that no other creature can.
Educators and students will benefit from this customized, faith-based biology curriculum.

For more information about bringing ByDesign Biology to your classroom, call 1-800-542-6657 or visit rpd.kendallhunt.com

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