



About This Course

Biology is the study of life, and life is interwoven through the world all around you—even inside you. This course will help you explore the wondrous world of biology through six lenses:

Unit 1: *The Wonders of Life*

Unit 2: *The Wonders of Botany*

Unit 3: *The Wonders of Marine Biology*

Unit 4: *The Wonders of the Animal Kingdom, Part 1*

Unit 5: *The Wonders of the Animal Kingdom, Part 2*

Unit 6: *The Wonders of the Human Body*

The course has 120 lessons and is intended to fulfill one science credit with lab. You can complete it in a typical nine-month school year if you do four lessons per week. Complete the units in order because they build on each other.

Plan on each lesson taking about 30–60 minutes. Lessons with a lab or activity may take longer. Plan ahead to gather supplies.



Preparing to Use the Course

You will need . . .

- a printed copy of each unit's *High School Biology Workbook*, a total of six workbooks.
- a desktop or laptop computer.
- a free account to access the Good and Beautiful Homeschool app (computer version only) at courses.goodandbeautiful.com.
- a pencil and colored pencils kept on hand.
- a good-quality, standard compound microscope with at least 400x magnification.
- lab supplies listed starting on page vi.
- a way to keep your materials organized (optional), such as a magazine file or a 3-inch three-ring binder.

PARENT OR TEACHER

You will need . . .

- the *High School Biology Tests and Quizzes* booklet.
- the downloadable *High School Biology Answer Key*, which includes answers for all workbook note-taking guides and Lab Reports as well as the answers to quizzes and tests.
- to help your student set up a free account to access the Good and Beautiful Homeschool app (computer version only) at courses.goodandbeautiful.com.
- to help your student gather lab supplies, including a microscope. See the supplies lists starting on page vi.



How to Use the Course

Begin each lesson by opening your workbook to that day's lesson number. Numbered bubbles on each page will tell you what to do and in what order. Each day's lesson will include one or more of the following:

- Reading from a *Wonders* book accessed on the Good and Beautiful Homeschool app (computer version only)
- Filling out notes in the workbook based on the reading
- Watching a lesson video (22 total in the course)
- Completing an activity (19 in the course)
- Completing a lab (11 experiments or scientific demonstrations) and filling out a Lab Report
- Optionally watching the lab video instead of completing it hands-on (ask your parent or teacher which you are to do)

Keep your workbooks, as they include your notes for the quizzes and tests. Keep your quizzes and tests for later study. You may wish to use a large three-ring binder or a magazine file.

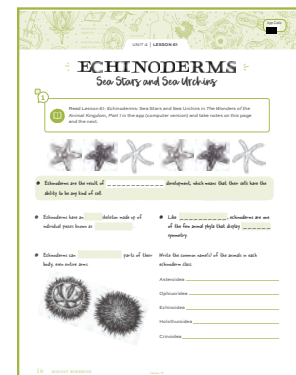
Quizzes and Tests

Each unit of the course contains a mid-unit quiz and a review and test. These cover topics from the unit's lessons, and the questions are drawn directly from the note-taking guides in the workbook. Quizzes and tests are open note, meaning that unless your parent or teacher directs you otherwise, you may use your workbook to help locate and answer each question. The more effort you put into thoroughly and neatly filling out your workbook notes, the better advantage you will have on the quizzes and tests.

The final exam is closed book with no notes allowed.

PARENT OR TEACHER

For a student bound for a STEM career or to make the course more challenging, you may choose to make the unit tests closed note, not allowing the student to look at their notes to take the test. For a greater challenge still, you could make the quizzes closed note, as well. The final exam is closed note. The *Wonders* book will not be utilized in any of the quizzes or tests.





Microscope

A microscope is recommended for use throughout the course. Any good-quality, standard compound microscope with magnification of 400x or greater will do. For tips about how to choose and use a microscope and to find a link to our recommended microscope, view the video “Choosing and Using a Microscope” in Lesson 4. We strongly recommend that you use a microscope to complete the labs hands-on. If this is impossible or if your parent/teacher directs you, you may follow along in the lab videos instead.

Dissection Specimens

Lesson 62 is a dissection lab. You may complete a dissection hands-on or watch a provided video of a dissection. If you plan to do a dissection yourself, you will need to choose from the three options: sea star, clam, or bony fish. Procedures and videos are provided for each. Look for educational science suppliers online to purchase the specimen of your choice and dissection tools. Optionally, you may use a caught fish or a whole fresh fish available from some markets. Make sure a purchased fish is not already gutted.

Lab Safety

Activities and experiments in this course may require sharp objects, heat sources, and potentially harmful substances. Please use caution, follow instructions carefully, and ask an adult for help as needed. Look for and carefully follow caution and warning statements as you complete the labs. Cautions and warnings will be preceded by the symbols shown at right.



Origins and Worldview

The Good and the Beautiful curriculum is written from a nondenominational Christian viewpoint and takes a neutral stance on matters of doctrine that vary among denominations, including such matters as the specifics of the origins of life and age of the earth. This allows all families to use this course and add in their specific beliefs.

Lesson 93 of this course shares various ideas of the origins of life. While you and your family will have your worldview, this course gives information about multiple ideas so that you have some familiarity with the concepts you may encounter throughout life.

Scripture references throughout the course are from the King James Version of the Bible.

PARENT OR TEACHER

Please read the Origins and Worldview section above.

We strongly encourage you to preview Lesson 93 at the end of the Unit 5 *Wonders* book about the origins of life and decide how you would like to approach it. In the workbook for this lesson, your student is encouraged to discuss their thoughts, beliefs, and questions with you. We recommend having your child read a book based on your family’s worldview to extend their learning.



Reproduction

In Unit 6 you will learn about the human body, including the basic facts about sexual reproduction. It includes a few tactfully illustrated diagrams of sexual anatomy. This course gives an overview of the biology of reproduction, but as a science course, it does not cover the aspect of human reproduction being the product of a loving relationship. You may wish to talk more about the topic with your parents.

PARENT OR TEACHER

Please read the Reproduction section at left. Note that this lesson builds on the basics of plant, microbe, and animal reproduction covered earlier in the course.

Grading

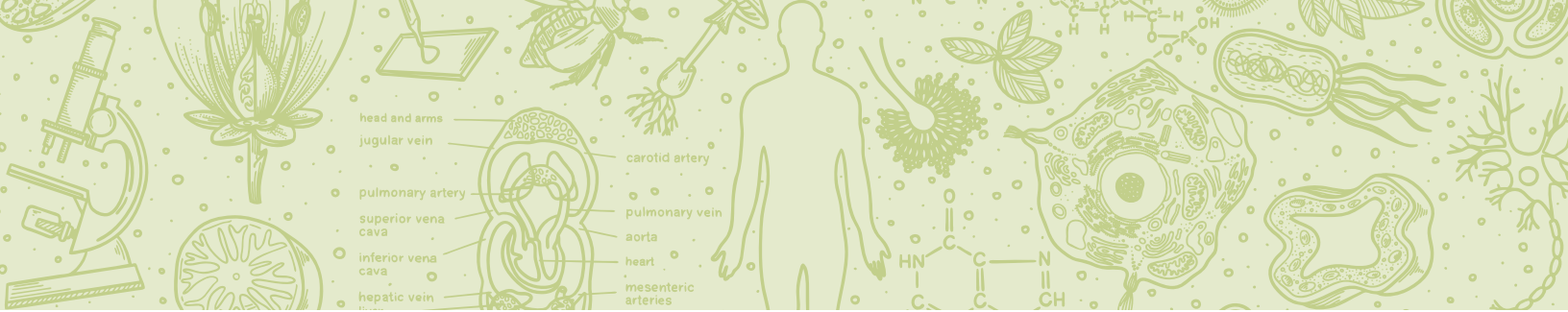
Your parent or teacher will grade your quizzes and tests and record the scores on the Grading Tracker at the front of the *High School Biology Tests and Quizzes* booklet.

PARENT OR TEACHER

You will grade quizzes and tests using the downloadable *High School Biology Answer Key* and record the scores on the grading sheet at the front of the Tests and Quizzes booklet. You do not need to check over all answers in the daily workbook note-taking guides, but you may choose to periodically check to ensure your student is completing the workbook notes thoroughly and neatly, as they will be referring back to the workbook during quizzes and tests, unless you opt for them not to use notes. All answers to workbook questions come directly from the daily *Wonders* book readings. If the student has read the book, they should be able to fill out the notes. There are no trick questions.

You will give points for complete and neat notes for each unit workbook, but you do not need to check the answers. If you do wish to see the answers, they are included in your downloadable *High School Biology Answer Key*. The incentive to fill these out neatly, carefully, and accurately is built into the course; students who put in more effort will do better on quizzes and tests.

Record scores on the Grading Tracker. Note that this is the suggested grading system, but you are free to design your own grading system or scale if desired.



High School Biology Lessons

Unit 1: The Wonders of Life

- 1 The Study of Life ▶
- 2 Is Yeast a Living Organism? 
- 3 The Scientific Method
- 4 The Cell: Small but Mighty  ▶
- 5 Taxonomy: Classifying Life 
- 6 The Major Groupings of Life 
- 7 The Chemistry of Life
- 8 Observing Potato and Liver Enzymes Lab 
- 9 Domains Archaea and Bacteria
- 10 Kingdom Protista 
- 11 Kingdom Fungi
- 12 Unit 1 Test ▶









KEY

Video ▶









Lab 

Activity 

Unit 2: The Wonders of Botany

- 13 Introduction to Botany ▶
- 14 Plant Cells
- 15 Planting Seeds Lab 
- 16 Germination
- 17 Plant Roots
- 18 Plant Stems 
- 19 Identifying Leaves 
- 20 Growth and Movement ▶
- 21 Phototropism Lab 
- 22 Autotrophs and Heterotrophs ▶
- 23 Respiration
- 24 Why Do Leaves Change Color? 
- 25 Plant Reproduction  ▶
- 26 Plant Classification
- 27 Nonvascular Plants
- 28 Vascular Plants
- 29 Gymnosperms
- 30 Angiosperms
- 31 Pollination of Flowers 
- 32 Fertilization and Seed Dispersal 
- 33 Fruits and Vegetables
- 34 Unit 2 Test

Unit 3: The Wonders of Marine Biology

- 35 Introduction to Oceans and Marine Biology ▶
- 36 Introducing the Five Oceans and Whales 
- 37 Properties of Water and Fish Adaptations 
- 38 Seawater and Sea Turtles 
- 39 Marine Cycles and Decomposers
- 40 Motions in the Oceans: Tides, Waves, and Currents 
- 41 Currents and Migration Lab 
- 42 Intertidal Ecosystems
- 43 Estuary and Coastal Wetland Formation
- 44 Coastal Wetlands and Estuarine Communities 
- 45 Topography of the Ocean Basins 
- 46 Coral Reefs ▶
- 47 Polar Seas and Ice
- 48 The Polar Food Chain and Polar Mammals 
- 49 Sunlit Zone
- 50 Twilight Zone ▶
- 51 The Deep Sea
- 52 The Ocean Floor in the Deep Sea
- 53 Ocean Exploration
- 54 Unit 3 Test



Unit 4: The Wonders of the Animal Kingdom, Part 1

- 55 Introduction to Kingdom Animalia ▶
- 56 Porifera: Sponges
- 57 Cnidarians: Anemones, Corals, and Jellyfish
- 58 Mollusca: Snails, Octopuses, and Clams ▶
- 59 Annelida: Segmented Worms 🔍▶
- 60 Arthropoda: Insects, Arachnids, and Crustaceans
- 61 Echinoderms: Sea Stars and Sea Urchins
- 62 Dissection Lab 🔍
- 63 Introduction to Chordata ▶
- 64 Fish: Bony Fish, Eels, Sharks, and Rays 🔍
- 65 Amphibians: Frogs and Toads 🔍
- 66 Amphibians: Newts and Salamanders
- 67 Reptiles: Snakes
- 68 Reptiles: Lizards
- 69 Reptiles: Crocodilians
- 70 Reptiles: Turtles, Terrapins, and Tortoises
- 71 Unit 4 Test

Unit 5: The Wonders of the Animal Kingdom, Part 2

- 72 Introduction to Birds ▶
- 73 Fitted for Flight
- 74 Feeding Strategies
- 75 Nests and Eggs
- 76 Bird Vocalization ▶
- 77 Bird Migration
- 78 Bird Behaviors
- 79 Bird Conservation
- 80 Introduction to Mammals
- 81 Reproductive Strategies of Mammals
- 82 Bats, Echolocation, and Flight ▶
- 83 Rodents, Rabbits, and Endothermy
- 84 Insectivores
- 85 Hoofed Animals
- 86 Elephants, Manatees, and Other Near Ungulates ▶
- 87 Carnivores
- 88 Aquatic Mammal Characteristics
- 89 The Mammal Neocortex
- 90 Conservation
- 91 Ecology ▶
- 92 Trophic Level Pyramid Activity 🔍
- 93 Theories of Origins and Adaptations
- 94 Unit 5 Test

Unit 6: The Wonders of the Human Body

- 95 Introduction to the Human Body ▶
- 96 Cells, Tissues, and Organs
- 97 Asexual Reproduction Through Mitosis 🔍
- 98 Sexual Reproduction and Meiosis
- 99 Skeletal System
- 100 Muscular System
- 101 Central Nervous System ▶
- 102 Peripheral Nervous System
- 103 Nervous System Activity 🔍
- 104 Circulatory System
- 105 Respiratory System
- 106 Digestive System
- 107 Renal System
- 108 Integumentary System
- 109 Immune System
- 110 Endocrine System
- 111 Reproductive System
- 112 Sensory Systems
- 113 Introduction to Genetics
- 114 Heredity and DNA ▶
- 115 Strawberry DNA Lab 🔍
- 116 How DNA Replicates
- 117 Protein Synthesis
- 118 Health and Wellness
- 119 Unit 6 Test ▶
- 120 Final Exam