Collapse all

Biology, Part 1

ATTENTION

Grading at the end of the semester can take 7 school days!
Submit your **last assignment two weeks** before your school's semester ends.

Laboratory Science

This is a laboratory science course; all assignments are mandatory. Each unit will have a written assignment plus a lab. You need to complete each lab as directed and submit your lab write-up, plus complete the written assignment.

You do NOT have to purchase a lab kit; things you will need for the labs are common household items. NO specialist equipment is required. Here is a **List of Supplies** that you will NEED for the course.

In order to ensure that students are gaining the proper learning experience from our lab course, Biology labs require the following:

1. All labs must be turned in using the documents provided on each lab page. These are found at the bottom of each lab page. These documents MUST be converted to pdfs before submission.
2. Photos of your labs are required in order to receive a grade. (All photos need to be in .jpeg format.) Labs that do not have proper photo evidence will not receive any partial credit. At least one of your photos must contain a photo with you and your lab materials or you in the process of the lab. You should have a variety of photos to show that the lab was completed as required by the procedure. Note: If your photos are too large to fit in your document, please attach them as separate submissions.
3. When providing a diagram or drawing for labs, they need to be hand drawn, not computer generated.
4. In order to keep within the SVHS Academic Integrity Policy, photos, diagrams or drawings taken from the internet or generated by AI are NOT allowed for any lab.

How to Write a Lab Report

Watch the video; it will explain how to write and lab report and help you understand some important concepts when doing your labs.

How to Take This Course

Complete all the quizzes and the assignment in each unit. Once the quizzes for a unit are complete, you will have access to the unit test. We recommend you complete the unit assignment before you attempt the unit test; the assignment will help you prepare. You will have access to the final after you have been enrolled in the course for at least 30 days and when all unit tests are completed, and your assignments are graded.

Allow a minimum of 3-4 school days for an assignment to be graded, longer at the end of a semester. Read the full course instructions to understand how the course is weighted.

Course Instructions

How This Course Works & Suggested Timeline

Submitting Your Assignments

Ask The Teacher

Meet your teacher for this course and ask a question.

Need help with the course? We offer online tutoring; find more details about it here.

MANDATORY QUIZ
Completion

You are required to take this quiz before you start the course. To prepare, read the course instructions and the "submitting your assignments" document, watch the video on the how this course works page and review the suggested timeline.

Learning Objectives & Standards Met By This Course

Unit 1: The Study of Life

In this unit, you will:

- Learn what biology is and how it connects to real-world challenges in health, technology, and the environment.
- Identify what makes something alive by exploring traits like energy use, growth, reproduction, and adaptation.
- Practice the steps of scientific inquiry—asking questions, forming hypotheses, designing experiments, and analyzing results.
- Understand the difference between independent, dependent, and controlled variables, and evaluate how experiments are set up.
- Use data and graphs to draw conclusions and explain how science helps solve everyday problems.

1.1 What is Biology?

Quiz 1.1
Completion

1.2 Science is for Everyone

Quiz 1.2
Completion

1.3 Scientific Inquiry

Quiz 1.3
Completion

1.4 The Experiment!

Quiz 1.4
Completion

1.5 Characteristics of Life

Quiz 1.5
Completion

1.6 Prelab: Exploring the Study of Life - Photosynthesis and Experimental Design

Quiz 1.6
Completion

Unit 1 Lab #1: Photosynthesis Virtual Lab (Plant Growth)
Completion

Unit 1 Lab #2: Experimental Design with Radish Seeds
Completion

Unit 1 Test

Not available unless: The activity **Quiz 1.1** is marked complete ... Show more

Unit 2: Chemistry of Life

In this unit, you will:

- Explore how the structure of atoms—especially carbon—allows living things to build complex molecules.
- Discover what makes water so special and why life couldn't exist without it.
- Learn about the four main types of biological macromolecules (carbohydrates, lipids, proteins, and nucleic acids) and how they help cells function.
- Understand how enzymes speed up chemical reactions in the body and what affects how well they work.
- Design and carry out lab investigations to test the properties of water and observe enzyme activity in real time.

2.1 Chemistry Meets Biology

Quiz 2.1
Completion

2.2 Why Water Makes Life Flow

Quiz 2.2
Completion

2.3 Molecules That Matter: The Foundation of Life

Quiz 2.3
Completion

2.4 Enzymes: Speeding Up Life's Chemistry

Quiz 2.4
Completion

2.5 Prelab: Exploring the Chemistry of Life - Water and Enzymes in Action

Quiz 2.5
Completion

Unit 2 Lab #1: Properties of Water
Completion

Unit 2 Lab #2: Enzyme Experiments: Catalase in Action
Completion

Unit 2 Test

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Unit 3: The Basic Unit of Life

In this unit, you will:

- Explore how microscopes opened the door to modern biology and helped scientists understand cells as the basic unit of life.
- Learn the parts of eukaryotic cells and explain how structures like the nucleus, mitochondria, and chloroplasts support life functions.
- Understand how cells maintain balance through processes like diffusion, osmosis, and active transport.
- Describe how and why cells grow, divide, and reproduce through processes like mitosis.
- Investigate how plants capture energy from sunlight through photosynthesis and turn it into chemical energy.
- Explore how your cells break down food to release usable energy through cellular respiration.
- Design and conduct experiments to observe osmosis in cells and measure photosynthesis using real-time data.

3.1 From Microscopes to Modern Biology

Quiz 3.1
Completion

3.2 Eukaryotic Cell Structure

Quiz 3.2
Completion

3.3 Cellular Transport: Keeping the Balance of Life

Quiz 3.3
Completion

3.4 Cell Growth and Reproduction

Quiz 3.4
Completion

3.5 Photosynthesis: Turning Light into Life

Quiz 3.5
Completion

3.6 Cellular Respiration: How Your Cells Power Your Life

Quiz 3.6
Completion

3.7 Prelab: Exploring Cellular Processes - Osmosis and Photosynthesis

Quiz 3.7
Completion

Unit 3 Lab #1: Photosynthesis Lab: Spinach Leaf Disk Assay
Completion

Unit 3 Lab #2: Osmosis in Action: Egg-sploring Cellular Water Balance
Completion

Unit 3 Test

Not available unless: The activity **Quiz 3.1** is marked complete ... Show more

Unit 4: DNA and Genes

In this unit, you will:

- Learn how DNA stores genetic information and why it's called the molecule of heredity.
- Explore how DNA is copied during replication to prepare for cell division.
- Follow the process of protein synthesis, from DNA to RNA to the final protein product.
- Understand how mutations and genetic changes can affect traits, health, and evolution.
- Investigate how biotechnology is used in fields like medicine, agriculture, and forensics.
- Use hands-on labs to model DNA replication and extract DNA from real cells.

4.1 DNA: The Molecule of Heredity

Quiz 4.1
Completion

4.2 DNA Replication: Copying Life's Instructions

Quiz 4.2
Completion

4.3 Protein Synthesis: DNA to RNA to Protein!

Quiz 4.3
Completion

4.4 Genetic Changes

Quiz 4.4
Completion

4.5 Biotechnology: Science That Shapes Our Future

Quiz 4.5
Completion

4.6 Prelab: Exploring the Blueprint of Life - Replication and Genes

Quiz 4.6
Completion

Unit 4 Lab #1: Replication Revolution: A Hands-On Activity
Completion

Unit 4 Lab #2: Genes in a Jar: DNA Extraction
Completion

Unit 4 Test

Not available unless: The activity **Quiz 4.1** is marked complete ... Show more

Unit 5: Heredity

In this unit, you will:

- Learn how Gregor Mendel's work with pea plants laid the foundation for understanding heredity.
- Explore how meiosis creates gametes and leads to genetic diversity in offspring.
- Use Punnett squares to predict the probability of inherited traits.
- Discover how some traits don't follow simple Mendelian rules, including incomplete dominance and codominance.
- Investigate patterns of human inheritance and learn how traits are passed through generations.
- Complete hands-on labs to simulate inheritance, build genetic characters, and test your prediction skills.

5.1 Mendelian Genetics: The Foundations of Heredity

Quiz 5.1
Completion

5.2 Meiosis: The Key to Genetic Diversity and Reproduction

Quiz 5.2
Completion

5.3 Predicting Traits: The Math and Patterns of Heredity

Quiz 5.3
Completion

5.4 When Heredity Follows Different Rules

Quiz 5.4
Completion

5.5 Inherited Human Traits

Quiz 5.5
Completion

5.6 Prelab: Exploring the Odds of Inheritance - Genetics and Punnett Squares

Quiz 5.6
Completion

Unit 5 Lab #1: Coin Flip Genetics: Create Your Character
Completion

Unit 5 Lab #2: Punnett Prediction Toss
Completion

Unit 5 Test

Not available unless: The activity **Quiz 5.1** is marked complete ... Show more

Unit 6: The Human Body

In this unit, you will:

- Learn how the human body maintains internal balance through homeostasis.
- Explore how the skeletal, muscular, and integumentary systems work together to support and move the body.
- Understand how the digestive and excretory systems process nutrients and remove waste.
- Investigate the nervous system's role in sensing the environment and controlling body functions.
- Examine how the respiratory and circulatory systems deliver oxygen and nutrients to cells.
- Discover how the endocrine and reproductive systems regulate growth, hormones, and development.
- Understand how the immune system protects the body from disease.
- Conduct hands-on labs to measure heart rate and test reaction times to see how body systems respond to changes.

6.1 The Human Body and Homeostasis

Quiz 6.1
Completion

6.2 Protection, Support and Locomotion

Quiz 6.2
Completion

6.3 The Digestive and Excretory System

Quiz 6.3
Completion

6.4 The Nervous System

Quiz 6.4
Completion

6.5 Respiration and Circulation

Quiz 6.5
Completion

6.6 Endocrine, Reproduction and Development

Quiz 6.6
Completion

6.7 Immunity from Disease

Quiz 6.7
Completion

6.8 Prelab: Exploring Human Responses - Heart Rate and Reflexes

Quiz 6.8
Completion

Unit 6 Lab #1: The Beat Goes On: Heart Rate Lab
Completion

Unit 6 Lab #2: Think Fast... or Not: Reflex Test
Completion

Unit 6 Test

Not available unless: The activity **Quiz 6.1** is marked complete ... Show more

Final Exam

Once you have completed all of the unit tests and all of your assignments have been graded, the final exam will become visible.

Warning: You have only ONE attempt at the final. Are you ready to take the final? We highly recommend you take the practice final first, and if you are weak in any area, review the relevant course material again. You have unlimited attempts at the practice final; it will help you to prepare.

Remember, if you want to improve your grade in this course, you need to do that BEFORE you take the final exam.

Good Luck!!

Practice Final

Course Completion & Requesting a Transcript

Warning - If you are waiting for a resubmitted assignment to be graded, do NOT generate any course completion record until the teacher has graded it.

Transcript - Send a transcript to your school to report the credits you earned. A transcript will list all the courses you have taken with us, including those still in progress.

Course Certificate - This link cannot be accessed until you have completed the final. Upon satisfying this requirement, the link will become active.

Feedback - Before you go, we would appreciate your opinion on the course; please take 1 minute to complete the feedback form. We hope you enjoyed this course!

Course Feedback

Thank you for taking this course! Let us know what you think about it.

Request a Transcript

Notify your school that you have completed your course. Send them a transcript by email or mail. A transcript will list all the courses you have completed and those in progress.

Certificate of Completion

Not available unless: The activity **Final Exam** is marked complete