

Biology Lab Intensive

8 - 12th grade (5 full days)

Why take this:

You want to prepare for your Biology class

You want to reinforce Biology concepts before/ during or after taking Biology

You want to get the required laboratory (Homeschool students) out of the way before the school year starts, allowing students to devote more time to Biology lecture course work.

Who should take this:

Those who enjoy laboratory science and want to understand fun and challenging biology concepts.

Students who want a robust guided laboratory experience.

You want to gain practical and extra laboratory skills to put on your resume prior to applying for science internships.

Seniors needing to fulfill a Biology lab requirement prior to graduation.

Students wanting an edge prior to taking general, honors-level or AP High School/College General Biology.

Students of homeschool families who do not want to have to purchase and then have to dispose of biology lab materials.

What's included:

Apron

Lab Manual for 18-20 labs and lab report sheets

All lab Materials

What's the cost?

\$500

Time frame:

9:00 am - 4:00 pm, Mon-Friday

Location:

Camp Springs Community Church

Clinton, MD

What to bring:

A pen

Ruler

Calculator

Colored pencils

Lunch

Water

What's covered:

Laboratory Safety
Recording Data, Writing lab reports & graphing
Computational skills and Data Analysis
Instrumentation
Making stock chemicals
DNA extraction
Gel Electrophoresis
Bacteriology
Blood typing Antigen & Antibodies
Genetics of blood typing
Circulatory & Respiratory Systems
In depth Heart Function/Dissection/Disorder Analysis
Forensics
Kidney/ Pancreas Function & Blood glucose disorders
Muscular/Skeletal system
Brain Dissection and Neural Conduction
Ovary, Rat and Fetal Pig Dissections

Sample labs:

Cheek Cell DNA extraction and analysis using gel electrophoresis
Control of Blood Glucose

Sample Schedule:**Day 1**

Lab report and notebook format
Microscopy
Preparing microscope slides
Serial Dilutions
Making Stock Solutions
Pipette Use Instruction
Practice loading electrophoresis gels
Bacteriology (petri dish loading)
Properties of Water

Day 2

The cell - Organelles, membrane transport, osmosis/diffusion
DNA and Genetics
DNA extraction
Electrophoresis practice
Making Electrophoresis Gels

gels and visualize
DNA fragment significance
Diffusion and Osmosis

Day 3

Electrophoresis and DNA fragment length determination
Blood Typing (using simulated blood)
Blood typing and genetics
Blood as a diagnostic tool

Day 4

Nervous System & brain dissection
Circulatory System-
 Heart function/ Circulation disorders
 Blood pressure and Pulse Oxometry
 Heart Dissection
 Sheep Pluck Dissection
Respiratory System
 Disorders
 Spirometry
 Max V_{O2}
Digestive System Tissue identification
 Stomach Anatomy
 Pancreas
 Diagnosis diabetes- simulated blood and urine

Day 5

Excretory System
 Kidney Function
 Kidney Dissection
 Kidney and blood filtration - simulated blood and Urinalysis strips
 filtration
Skeletal/Muscular System
 Grip strength/ planes of movement/injury prevention
Full Dissection
 Fetal Pig
 Rat
 Sheep Uterus