



# BioBox Labs CURRICULUM

SEPTEMBER 2024-JUNE 2025

**Objectives:** BioBox Labs believes life science is important – it develops our brains by encouraging more nerve cell connections, helps us to think critically, develops curiosity, develops understanding and compassion for the natural world, and gives us an understanding of our own bodies that ultimately promotes health.

**Required Materials:** Biobox Labs Subscription Box (for completing monthly themed experiments)

## Scope & Sequence:

### INTRODUCTION, STARTER BOX

#### The Microscopic World

Get your own microscope and learn to use it

- What is a microscope, and how does it help biologists?
- How do you use a microscope?
- What are cells, and what do they look like?
- Are all cells the same?

### SEPTEMBER

#### Ecosystems: The Cycle of Biology

Build and use a Berlese Funnel

- How can you determine the contents of an ecosystem?
- What tools can help you discover hidden organisms?
- Why are decomposers important?
- Can you create a mini ecosystem?

### OCTOBER

#### The Invertebrate Tour

Dissect a sponge, earthworm, and clam

- How does the sponge collect food?
- Why does a hydra have tentacles?
- What structures are present in a clam?
- How are a flatworm and an earthworm different?

### NOVEMBER

#### DNA: The Blueprints of Life

Collect your own DNA and become a genetics detective

- What does DNA look like, and how is it collected?
- How does DNA create different blueprints for different organisms?
- Where does your DNA come from?
- How can detectives use DNA to solve mysteries?



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### DECEMBER

#### Marine Madness

Raise a Triops and dissect a starfish and squid

- What are diatoms?
- What is the life cycle of triops?
- How do different parts of a sea star's body help its survival?
- Why do squid have siphons?

### JANUARY

#### Fantastic Fermentation

Learn about fermentation while making bread and Kombucha

- What is adenosine triphosphate, or ATP?
- How does temperature affect the fermentation process?
- How do our bodies use fermentation?
- What foods do we make through fermentation, and how are they healthy?

### FEBRUARY

#### The Eye, Our Superhero

Dissect a sheep eye

- What are the structures of the eye?
- How do you see colors?
- What causes blind spots?
- How are insect eyes different from ours?

### MARCH

#### Germs, Understanding the "Culture" of Microbes

Make microbe zoos

- How do microbes spread?
- What makes viruses unique?
- How are fungi and bacteria different?
- What are the impacts of microbes on our world?



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### APRIL

#### Plants and Water

Grow plants in various conditions

- What structures do plants use to circulate water?
- Which of water's properties allows it to move through plants?
- What is transpiration?
- How does acid rain affect plant growth?

### MAY

#### Arthropods, The Biology of Creepy Crawlers

Raise and observe live ladybugs

- How can you identify an arthropod?
- What is a dichotomous key?
- What is the life cycle of a ladybug?
- Why do spiders make their webs?

### JUNE

#### The Kidney, Our Body's Filtration

Make an artificial kidney

- What parts of the body work with the kidney?
- What are the microscopic structures of the kidney?
- How does the kidney filter blood?
- How do doctors use urinalysis?