

# Life Science Dissection

## Course Description

In this captivating, hands-on course, 7<sup>th</sup>-12<sup>th</sup> grade students will explore the fascinating realm of microscopy, uncovering hidden worlds invisible to the naked eye. Through practical exercises, they will master the operation of compound microscopes, learn various microscopy techniques, examine prepared specimens, and gain proficiency in specimen preparation. Whether observing plant cells, animal tissues, bacteria, or textiles, students will cultivate a keen eye for detail and an appreciation of the unseen wonders around them.

## Prerequisites

No extensive prior knowledge is required.

## Course Objective

By the end of this course, students will be equipped with fundamental knowledge and practical skills in dissection, enabling them to explore and understand the intricate details of the biological world, thereby fostering a deeper appreciation for science and biological organisms, and promoting critical thinking in the biological sciences.

## Learning Outcomes

By the end of this course students should be able to:

- Identify and describe anatomical structures of various organisms.
- Perform dissection techniques with proficiency, using appropriate tools and methods.
- Compare and contrast anatomical features across different species.
- Engage in scientific inquiry, including formulating questions, developing models, and constructing explanations based on evidence.
- Collaborate effectively with peers on dissection projects and share findings.
- Discuss ethical considerations related to dissection and the use of specimens.

## Modules (Phyla):

- Annelida (Earthworm)
- Arthropoda (Crayfish, Grasshopper)
- Chordata (Leopard frog, Perch, Rat, Shark, Snake)
- Cnidaria (Jellyfish)
- Echinodermata (Starfish)

- Mollusca (Clam, Squid)

## NGSS Standards Alignment

### Next Generation Science Standards

| Science and Engineering Practices                    |   |
|--|---|
| Asking questions and defining problems               | X |
| Developing and using models                          |   |
| Planning and carrying out investigations             | X |
| Analyzing and interpreting data                      | X |
| Using mathematics and computational thinking         |   |
| Constructing explanations and designing solutions    | X |
| Engaging in argument from evidence                   | X |
| Obtaining, evaluating, and communicating information | X |

| Crosscutting Concepts           |   |
|---------------------------------|---|
| Patterns                        | X |
| Cause and effect                |   |
| Scale, proportion, and quantity |   |
| Systems and system models       | X |
| Energy and matter               |   |
| Structure and function          | X |
| Stability and change            |   |

| Disciplinary Core Ideas  |   |
|--|---|
| LS1: From Molecules to Organisms: Structures and Processes: Understanding the hierarchical structure of tissues, organs, and organ systems.  | X |
| LS4: Biological Evolution: Unity and Diversity: Comparing anatomical features to understand evolutionary relationships.<br><i>Note: Evolutionary relationships will not be discussed in this course.</i> | X |