

# Syllabus

## PLAR Prep – Biology Applied Pathway



**3 Units:** 13 lessons

**Estimated time:** 13-18 hours

**OALCF Levels:** A1.2, A1.3, A2.2, A2.3, A3

**Suggested Milestones:** 3, 4, 5, 6 or 7, 10, 11, 12 or 13, 14

### Course Overview

This course prepares learners to write the Biology tasks on the Applied Science PLAR Assessment. In this course, you will study the biology of the human body, from cells to systems. You will learn about the impact of humans on Earth's ecosystems.

### Unit 1: Ecology (6 lessons, 1 document)

#### What is an Ecosystem?

(23 slide tutorial, and mastery test)

In this lesson, you will biotic and abiotic parts of an Ecosystem. You will review the human impact on our ecosystems.

#### Cycles of an Ecosystem

(25 slide tutorial, and mastery test)

In this lesson, you will study the major biogeochemical cycles of an ecosystem. You'll learn about the water cycle, the carbon cycle, the nitrogen cycle, and the phosphorus cycle, all of which enable matter to be recycled on Earth.

#### Food Webs

(30 slide tutorial, and mastery test)

In this lesson, you will study a food web that explains how matter and energy cycles through the organisms in the ecosystem. You'll study 3 types of organisms based on what they eat: producers, consumers and decomposers.

#### Resource Availability

(30 slide tutorial, and mastery test)

In this lesson, you will analyze the cause-and-effect relationships between the availability of resources and the growth of organisms in an ecosystem.

### **Interpreting Tables and Graphs** (PDF document)

#### **The Human Population**

(42 slide tutorial, and mastery test)

In this lesson, you will study how the growing number of humans and their use of natural resources affect Earth's systems. You will practice reading graphs and calculate data on human's food and water needs and how they impact their ecosystem.

#### **Biodiversity and Population Size**

(27 slide tutorial, and mastery test)

In this lesson, you will learn about biodiversity and how changes in populations and communities can affect an ecosystem as a whole. You will make a line graph and analyze trends in the data.

## **Unit 2: Cells (4 lessons, video)**

#### **The Parts of a Cell**

(26 slide tutorial, and mastery test)

In this lesson, you will study how the parts of a cell contribute to its function and how animal and plant cells differ.

#### **The Growth and Development of Organisms**

(36 slide tutorial, and mastery test)

In this lesson, you will use life cycle models to compare and contrast the growth and development of different organisms.

#### **Types of Reproduction**

(37 slide tutorial, and mastery test)

In this lesson, you will develop models to describe the similarities and differences between asexual and sexual reproduction.

### **Regulating the Cell Cycle**

(21 slide tutorial, and mastery test)

In this lesson, you will study how the cell cycle is controlled and regulated in a cell. You will study the results of uncontrolled cell growth, such as cancer.

**Video – Metastasis (2:11 minutes)**

## **Unit 3: Tissues, Organs and Systems (3 lessons)**

### **Tissues, Organs and Systems**

(41 slide tutorial, and mastery test)

In this lesson, you will study tissues, organs, and systems of the human body. You will learn about different types of tissue and their role in supporting vital organs.

### **The Respiratory and Circulatory Systems**

(44 slide tutorial, and mastery test)

In this lesson, you will study the circulatory and respiratory systems work together to provide oxygen to the body.

### **The Integumentary, Immune, Lymph, and Endocrine Systems**

(48 slide tutorial, and mastery test)

In this lesson, you will learn how the integumentary, immune, lymph, and endocrine systems regulate the body and maintain homeostasis. You will study how an underactive immune system can cause a broad range of diseases, like cancer and viral infections and a hyperactive system can lead to autoimmune disorders or allergies.