

# FRANKLIN-SIMPSON HIGH SCHOOL

**Course Name:** APES      **Unit Name:** Ecology/Living World

## **Objectives:**

### The Living World

#### A. Ecosystem Structure

(Biological populations and communities; ecological niches; interactions among species; keystone species; species diversity and edge effects; major terrestrial and aquatic biomes)

#### B. Energy Flow

(Photosynthesis and cellular respiration; food webs and trophic levels; ecological pyramids)

#### C. Ecosystem Diversity

(Biodiversity; natural selection; evolution; ecosystem services)

#### D. Natural Ecosystem Change

(Climate shifts; species movement; ecological succession)

#### E. Natural Biogeochemical Cycles

(Carbon, nitrogen, phosphorus, sulfur, water, conservation of matter)

## **Purpose of the Unit:**

To understand cycles in nature; food webs, the hydrologic cycle, and the ways macronutrients can cycle.

To understand the dynamics behind population growth and the factors that drive growth.

To understand the characteristics of different terrestrial and aquatic biomes and the forces that drive the weather and climate in each biome.

To understand biodiversity and evolution.

## **Prerequisites:**

Previous units, Chemistry, and Biology

## Daily Lesson Guide

Day	Lesson Content and Objectives	Focus Questions	Critical Thinking (High Yield / Literacy /LTF/etc.)	Engagement	Assessment and/or Accommodations
<b>1</b> T 10/9	-What is Ecology and what are ecosystems -Discuss trophic levels, food chains, and food webs -Answer first 2 check points Ch 3	List the basic components of an ecosystem and explain how energy flows through them.	Application	Learning with others, novelty/variety	Bell Ringer, discuss check boxes
<b>2</b> W 10/10	-Assign groups cycles to teach to the class	Describe how carbon, nitrogen, water, and phosphorus cycle within ecosystems.	Synthesis	Choice, working with others, sense of audience	Bell ringer, monitor work, grade final product
<b>3</b> R 10/11	-Finish cycle assignments, teach to the class -Answer Ch 3 Check Points -Check Key Terms	Describe how carbon, nitrogen, water, and phosphorus cycle within ecosystems.	Synthesis	Choice, working with others, sense of audience	Bell ringer, grade final product
<b>4</b> F 10/12	Discuss ecosystem disturbances, and how humans depend and harm them -Check Ch 3 MC	Explain how ecosystems respond to natural and anthropogenic disturbances, and how humans depend on ecosystems	Comprehension	Authenticity, using outside sources	Bell ringer, check check-points, clicker quiz over ch 3

<b>5</b> M 10/15	-Answer 1 <sup>st</sup> check point Ch 4 - Demo on atmospheric circulation and coriolis effect.	Explain the forces that drive global circulation patterns and how those patterns determine weather and climate.	Comprehension	Clear Modeled Expectations	Bell ringer, check points
<b>6</b> T 10/16	-Answer 2 <sup>nd</sup> Check point Ch 4 -Check Key Terms - Discussion on Biodiversity -Math Practice on calculating biodiversity	Explain the concept of biodiversity and how it is measured. Describe the ways in which evolution can occur.	Application	Personal Response/ Clear Modeled Expectations	Bell ringer, work turned in
<b>7</b> W 10/17	Eco-column build day	Build a sustainable ecosystem.	Synthesis	Hands on/real world / authenticity	Bell ringer, on-going project
<b>8</b> R 10/18	-Answer 3 <sup>rd</sup> Check point - Foldables on Terrestrial Biomes	Describe the major terrestrial biomes.	Application	Foldable	Bell ringer, check work
<b>9</b> F 10/19	-Check Ch 4 MC -Note Cards on Aquatic Biomes	Describe the major aquatic biomes.	Application	Notes	Bell ringer, check work
<b>10</b> M 10/22	Ecocolumn Day	Explain how environmental change affects speciation and extinction.	Synthesis	Working with others, Authenticity	Bell ringer, discuss learning target

<b>11</b> T 10/23	-Practice FRQ on extinction and speciation.	Explain the concept of an ecological niche.	Synthesis	Working with others, Authenticity	Bell ringer, self assess FRQ
<b>12</b> W 10/24	-Jig saw on density dependent and independent factors on population size -Check Key Terms and Ch 4 MC	List the levels of complexity found in the natural world. Contrast the ways in which density-dependent and density-independent factors affect population size.	Analysis	Jig Saw, Learning with others	Bell ringer, monitor work, clicker questions over chapter 4
<b>13</b> R 10/25	-K and R strategist games, and survivorship curves on white boards	Explain growth modes, reproductive strategies, survivorship curves, and metapopulations	Application	Learning with others, novelty/variety	Bell ringer, monitor work
<b>14</b> F 10/26	-Use a biome to create a foodweb to discuss the importance of a keystone species there.	Describe species interactions and the roles of keystone species.	Application	Non linguistic representation	Bell ringer, check work
<b>15</b> M 10/29	Ecocolumn Day	Discuss the process of ecological succession.	Synthesis	Hands on/real world / authenticity	Bell ringer, clicker questions over chapter 5
<b>16</b> T	-Practice FRQ on topic	Explain how latitude, time, area,	Synthesis	Personal Response/ Clear Modeled Expectations	Bell ringer, student self assess

10/30		and distance affect the species richness of a community.			
<b>17</b> W 10/31	Review Day		Analysis	Review	Bell ringer, address issues throughout review
<b>18</b> R 11/1	MC Day		Evaluation	Summative Test	Bell ringer
<b>19</b> F 11/2	FRQ Day		Evaluation	Summative Test	Bell ringer