

**LS-HHMI Outreach Curriculum Project Information**

<b>Title</b>	<List the name of each file you have created for your project.>
<b>Resource Type</b>	Lesson Plan <input type="checkbox"/> Classroom Activity <input checked="" type="checkbox"/> Laboratory Activity <input type="checkbox"/> Homework Assignment <input type="checkbox"/> Bioinformatics <input type="checkbox"/> Other <input type="checkbox"/> <Specify>
<b>Description</b>	Presented here is a multiweek scavenger hunt that has students searching for biological examples of concepts taught in class and then posting their examples on a blog. Students submit a final count of their submissions to facilitate grading and an excel spreadsheet is available to simplify scoring.
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<b>Objective</b>			
<b>Key Concepts</b>	This overarching principle of this project is the taxonomy of local organisms.		
<b>Student Prep</b>	There is a significant amount of terminology presented in this assignment. Many of the terms will require the student looking up definitions prior to considering examples of the terms. The students will also need to know the operation of their digital cameras and how to transfer images from memory storage devices to their computers and then from their computers into a blog.		
<b>Materials</b>	A digital camera (many of the students will have phones which will accomplish this) Means to transfer images to the blog		
<b>Grade and Level(s)</b>	My Advanced Placement students perform this but I believe it would be appropriate for Honors students also.		
<b>Teacher Prep Time</b>	About 1 hour to photocopy materials and set up the blog.	<b>Class Time</b>	As I assign this to a future class prior to the start of the summer, I use no class time.
<b>National Standards</b>	<p>12CLS3.2 The great diversity of organisms is the result of more than 3.5 billion years of evolution that has filled every available niche with life forms.</p> <p>12CLS3.5 Biological classifications are based on how organisms are related. Organisms are classified into hierarchy of groups and subgroups based on similarities which reflect their evolutionary relationships. Species is the most fundamental unit of classification.</p> <p>12CLS4.2 Energy flows through ecosystems in one direction, from photosynthetic organisms to herbivores to carnivores and decomposers.</p> <p>12CLS4.3 Organisms both cooperate and compete in ecosystems. The interrelationships and interdependencies of these organisms may generate ecosystems that are stable for hundreds or thousands of years.</p> <p>12CLS4.4 Living organisms have the capacity to produce populations of infinite size, but environments and resources are finite. This fundamental tension has profound effects on the interactions between organisms.</p> <p>12CLS6.1 Multicellular animals have nervous systems that generate behavior. Nervous systems are formed from specialized cells that conduct signals rapidly through the long cell extensions that make up nerves. The nerve cells communicate with each other by secreting specific excitatory and inhibitory molecules. In sense organs, specialized cells detect light, sound, and specific chemicals and enable animals to monitor what is going on in the world around them.</p> <p>12CLS6.3 Like other aspects of an organism's biology, behaviors have evolved through natural selection. Behaviors often have an adaptive logic when viewed in terms of evolutionary principles.</p>		
<b>State Standards</b>	<p>Massachusetts:</p> <p>1.2 Describe the basic molecular structures and primary functions of the four major categories of organic molecules (carbohydrates, lipids, proteins, nucleic acids).</p> <p>5.2 Describe species as reproductively distinct groups of organisms. Recognize that species are further classified into a hierarchical taxonomic system (kingdom, phylum, class, order, family, genus, species) based on morphological, behavioral, and molecular similarities. Describe the role that geographic isolation can play in speciation.</p> <p>5.3 Explain how evolution through natural selection can result in changes in biodiversity through the increase or decrease of genetic diversity within a population.</p> <p>6.3 Use a food web to identify and distinguish producers, consumers, and decomposers, and explain the transfer of energy through trophic levels. Describe how relationships among organisms (predation, parasitism, competition, commensalism, mutualism) add to the complexity of biological communities.</p> <p>6.4 Explain how water, carbon, and nitrogen cycle between abiotic resources and organic matter in an ecosystem, and how oxygen cycles through photosynthesis and respiration.</p>		
<b>Sources</b>			

<b>References</b>	
<b>Assessment</b>	I have provided a single page that the students will check off to indicate the items that they're turning in and a Microsoft Excel file that allows the teacher to efficiently grade the projects.