

General Biology Lab Course

Scope and Sequence Chart

LAB TITLE	OBJECTIVE	OVERVIEW	SCIENCE PROCESSES
<p style="text-align: center;">LAB 1 Elk</p>	<ol style="list-style-type: none"> 1. Identify the classification of elk and describe their characteristics. 2. Identify the habitat requirements for the elk. 3. Describe how elk herds are managed. 	<p>Students learn about the natural history of elk and investigate management techniques used by wildlife biologists in managing and maintaining elk herds throughout the western U.S.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>
<p style="text-align: center;">LAB 2 SI Units</p>	<ol style="list-style-type: none"> 1. Describe the SI system of measurement. 2. Identify common SI units. 3. Develop skill in measuring and expressing measurement in SI units. 	<p>Students review the SI system of measurement by getting practice in measuring assorted items and expressing these measurements in SI units.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>
<p style="text-align: center;">LAB 3 The Microscope</p>	<ol style="list-style-type: none"> 1. Identify the parts of a microscope 2. Explain how to care and use a microscope. 3. Produce a scientific diagram. 	<p>Students learn to identify the parts of a microscope and describe their function. They learn how to care for and use a microscope. Students use a microscope to make a scientific diagram.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>
<p style="text-align: center;">LAB 4 Cell Structure and Processes</p>	<ol style="list-style-type: none"> 1. Demonstrate the technique in preparing a wet mount slide. 2. Identify the basic cell structures and their processes. 	<p>Students gain experience in preparing microscope slides for observation. Students observe a variety of cells identifying structures and the processes taking place.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>
<p style="text-align: center;">LAB 5 Photosynthesis</p>	<ol style="list-style-type: none"> 1. Describe photosynthesis. 2. Determine by experimentation the optimum conditions for photosynthesis. 3. Describe the colors that give a leaf its color. 	<p>Students learn about the process of photosynthesis and the optimum conditions for photosynthesis. Students use chromatography to identify leaf pigments.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>

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Scope and Sequence Chart (Cont.)

LAB TITLE	OBJECTIVE	OVERVIEW	SCIENCE PROCESSES
<p style="text-align: center;">LAB 6 DNA Spooling</p>	<ol style="list-style-type: none"> 1. Describe the function of DNA. 2. Identify the structure of DNA molecule. 3. Construct a model of DNA 	<p>Students learn about the structure and function of DNA by extracting DNA from a variety of cells. Finally students construct a model of the DNA molecule.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>
<p style="text-align: center;">LAB 7 Cell Division/Design-A-Kid</p>	<ol style="list-style-type: none"> 1. Identify the stages of mitosis. 2. Differentiate between mitosis and meiosis. 3. Describe genetic inheritance in humans. 	<p>Students study mitosis and meiosis and the related processes of each. Student use their knowledge of human genetics in a simulation that selects characteristics of a child.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>
<p style="text-align: center;">LAB 8 Quart Jar Ecosystem</p>	<ol style="list-style-type: none"> 1. Define ecosystem. 2. Identify the components of a healthy ecosystem. 3. Construct a working ecosystem. 	<p>Students investigate the topic of ecosystems learning to recognize the components of healthy ecosystems. Students construct a quart jar pond ecosystem.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>
<p style="text-align: center;">LAB 9 Taxonomy/Dichotomous Keys</p>	<ol style="list-style-type: none"> 1. Identify the levels of biological classification. 2. Explain binomial nomenclature. 3. Demonstrate an ability to use a dichotomous key. 	<p>Students review biological classification and use a dichotomous key to identify and classify representative animals.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>
<p style="text-align: center;">LAB 10 Kingdom Protista</p>	<ol style="list-style-type: none"> 1. Identify the characteristics of Protista. 2. Describe the characteristics of the major phyla of Protista. 3. Recognize examples of Protista. 	<p>Students study several living and prepared examples of protists and make scientific diagrams of selected species.</p>	<p>Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments</p>

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Scope and Sequence Chart (Cont.)

LAB TITLE	OBJECTIVE	OVERVIEW	SCIENCE SKILL
LAB 11 Kingdom Fungi	<ol style="list-style-type: none"> 1. Identify the characteristics of Fungi. 2. Describe the characteristics of the major phyla of Fungi. 3. Recognize examples of Fungi. 	Students study several living and prepared examples of fungi and make scientific diagrams of selected species.	Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments
LAB 12 Flowers, Fruit, Seeds	<ol style="list-style-type: none"> 1. Identify the parts of a flower and their function. 2. Classify fruit as to type. 3. Identify the parts of a seed. 	Students dissect a flower to learn about its structure and function then look at a variety of fruit to learn how they form. Students examine a seed to learn its structure and function.	Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments
LAB 13 Invertebrates	<ol style="list-style-type: none"> 1. Define invertebrate. 2. Describe the characteristics of several invertebrate phyla. 3. Describe characteristics of <i>Hydra</i>. 4. Compare and contrast flat worms and annelids. 	Students examine living specimens of several invertebrate phyla and learn about their structure and natural history. Student use an identification key to determine the phyla to which selected specimens belong.	Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments
LAB 14 Arthropods	<ol style="list-style-type: none"> 1. Describe the characteristics of arthropods. 2. Investigate isopods and their behavior. 3. Describe insect metamorphosis. 	Students study selected arthropods focusing on their unique characteristics and life history. Students investigate the behavior of isopods.	Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments
LAB 15 Nervous System	<ol style="list-style-type: none"> 1. Identify the major parts of the nervous system. 2. Distinguish between the central and autonomic nervous system. 3. Describe the structure of the brain. 	Students examine the human nervous system focusing on its anatomy/physiology. Students dissect a sheep brain to learn the brain structure and function.	Observing, communicating, inferring, identifying/controlling variables, formulating/testing hypotheses, interpreting data, formulating models, designing experiments