

## List of Connect® Virtual Labs

## **Tutorial:**

 Virtual Simulations Tutorial **How Enzymes Function:** •Effect of Temperature •Enzyme Activity •Effect of pH •Effect of Concentration **Osmosis:** •Movement of Water Across a Selectively Permeable Membrane •Tonicity in Red Blood Cells •Tonicity in Elodea Cells •Tonicity in Potato Strips **Skeletal Muscle:** •Shoulder and Elbow Movement Exercise Electrical Stimulation **Nervous System:**  Demonstrate Monosynaptic Reflexes **Diffusion:** •Effect of Concentration on the Rate of Diffusion in a Semisolid •Effect of Density of Media on the Rate of Diffusion •Effect of Molecular Weight of Diffusion in Air •Diffusion Across a Selectively Permeable Membrane **DNA Biology and Technology:**  Isolation of DNA •Gel Electrophoresis **Scientific Method:** Applying the Scientific Method: **Pillbug Preference** Lab Safety •Hand Washing Procedure Personal Safety **Microscopy:** •Operation of a Brightfield Microscope •Oil Immersion •Pond Water Wet Mount **Human Genetics:** •Chromosomal Inheritance •Genetic Inheritance **Metric Measurement:** •Length •Weight •Volume •Temperature **Electromyography:**  Motor Unit Recruitment •Time to Fatigue

**Endocrine System:** Influence of Thyroid Hormone on Temperature Regulation •Effects of Blood Glucose Leve•I **Mendelian Genetics:** •Monohybrid Plant Cross •Fruit Fly Characteristics Monohybrid Fruit Fly Cross •Dihybrid Plant Cross •Dihybrid Fruit Fly Cross •X-Linked Fruit Fly Cross **Respiratory System:**  Mechanism of Breathing Pulmonary Function Tests **Photosynthesis:**  Photosynthetic Pigments •Comparing Green and Blue Light •Determining Rate in White Light •Monitoring Photosynthesis with Carbon Dioxide Uptake **Blood:**  Hematocrit Differential White Cell Count •Hemoglobin Content •Blood Typing **Cardiovascular Physiology:** •Pulse Rate Blood Pressure •Electrocardiography **Digestive System:** •Enzymes and Digestion **Evidence of Evolution:** •Molecular Evidence **Chemical Composition of Cells:** •Test for Starch •Test for Sugars •Digestion of Starch •Emulsification of Lipids Test for Fat Test for Proteins **Cellular Respiration:** •Yeast Fermentation Measuring Energy Production in Plants **Natural Selection:** •Selecting for Antibiotic **Resistant Bacteria**  Natural Selection in Insects **Eye Vision:** •Visual Acuity Test •Astigmatism Test Color Vision Test •Blind Spot Demonstration Photopupillary Reflex

 Accommodation Pupillary Reflex •Convergence Reflex •Dissection of the Eye **Sampling Ecosystems:**  Biological Sampling Comparing Ecosystems **Aseptic Technique:** •Ubiquity of Bacteria •Transfer from Broth to Broth Transfer from Broth to Slant •Transfer from Broth to Agar Plate Staining: •Smear Preparation: Liquid Media •Smear Preparation: Solid Media •Gram Staining Acid Fast Staining •Capsular Staining Spore Staining **Isolation Methods:** •Streak-Plate Method •Pour-Plate Method Subculturing Techniques •Diluting and Plating Procedure •Counting and Calculations •Determination of Growth by Absorbance **Medical Microbiology:**  Identification of Unknown **Bacteria from Patient** Identification of Unknown **Bacteria:** Establish the Identity of Five **Different Bacteria Microbial Growth:** •Oxygen Requirements •Temperature •pH •Osmotic Pressure **Bacterial Genetics:**  DNA Profiling •PCR Bacterial Transformation **Control of Microbrial Growth:** •Ultraviolet Light •Antiseptics/Disinfectants •Antibiotics: Kirby-Bauer **Microscopy:**  Survey of Microorganisms •Kidney Tissue •Microorganisms in Pond Water •Animal and Plant Cells (Human & Onion Epidermal Cells)