

Labdisc Curriculum Sample Activities

Middle/High School Biology

EXPERIMENT	DESCRIPTION	LABDISC	MINI
Do Seeds Metabolize?	Measuring carbon dioxide production in seeds before and during germination		
Mammalian Diving Reflex	Decreasing the heart rate when submerged in cold water to preserve body heat		
City Microclimate	Measuring temperature and humidity in green areas and around urban areas		
Acid Rain	Determining the pH of acid rain and understanding the effects of it		
Beer-Lambert Law	Measuring percentage transmittance of solutions at different concentrations		
Sweat Production	Measuring temperature and humidity changes relative to perspiration		
Our Heart Rate	Measuring our heart rate at rest and after physical activity		
Temperature Variation Between Night and Day	Measuring thermal oscillation and luminosity during a full day		
Photosynthesis	Measuring air pressure inside an active photosynthetic system		
Photosynthesis—Dissolved Oxygen	Measuring dissolved oxygen inside an active photosynthetic system		

Middle/High School Chemistry

EXPERIMENT	DESCRIPTION	LABDISC	MINI
Titration	Using the technique of acid-base titration to find the concentration of a strong acid		
Endo/Exothermic Reactions	Performing different measurements to examine which reactions release or consume heat		
Specific Heat	Heating different liquids to the same temperature (70 degrees celcius) and comparing their individual cooling curves		
Water Phase Changes	Analyze temperature changes in water as a result of a physical state transition		
Boyle's Law	Measuring air pressure in a closed container while verifying the relationship between air pressure and volume		
Liquid Conductivity	Studying the relationship between dissolved ions and the conductivity of a saline water solution		
Beer-Lambert Law	Measuring percentage transmittance of solutions at different concentrations		
Candle Flame	Measuring the temperature of a flame according to the "three zones model"		
How Acidic Are the Things We Drink?	Measuring the pH of different beverages		
How Does Atmospheric Pressure Vary?	Measuring atmospheric pressure at different levels above sea level		

Middle/High School Environmental Studies

EXPERIMENT	DESCRIPTION	LABDISC	MINI
Exploring Our Environment	14 hands-on environmental science experiments		
Water Quality	Measuring and comparing the turbidity of different water sources and the effect on aquatic life		
UV and Sunblock	Measuring and comparing the levels of ultraviolet radiation through different types of filters		
Cloud Detection	Measuring infrared temperature from the environment to characterize the current weather		
Greenhouse Effect	Using a greenhouse to model the effects of the atmosphere on Earth's temperature		
Liquid Conductivity	Studying the relationship between dissolved ions and the conductivity of a saline water solution		
Acid Rain	Determining the pH of acid rain and understanding the effects of it		
Variation of Light Intensity	Measuring the light intensity of different light sources		
City Microclimate	Measuring environmental temperature and humidity in green areas and around urban areas		
Photosynthesis	Measuring air pressure inside an active photosynthetic system		
Photosynthesis—Dissolved Oxygen	Measuring dissolved oxygen inside an active photosynthetic system		
Temperature Variation Between Night and Day	Measuring thermal oscillation and luminosity during a full day		

Middle/High School Physics

EXPERIMENT	DESCRIPTION	LABDISC	MINI
Earth's Magnetic Field	Measuring the Earth's magnetic field at a given location		
Newton's Second Law	Studying the behavior of a propelled car		
Elastic Pendulum	Observing changes in the elastic force exerted by a spring acting as a pendulum		
Biot-Savart Law	Studying the magnetic field intensity variations around an inducting coil		
Hooke's Law	Studying the elongation produced in springs		
Ohm's Law	Exploring Ohm's law in parallel and series circuits		
Change in Momentum	Demonstrating the conservation of momentum		
Speed of Movement	Measuring the speed of a moving object in different situations		
Free Fall	Observing and analyzing the free fall motion of a bouncing ping pong ball		
Lenz's Law	Verifying Lenz's law by measuring the electric current flowing through a coil created by an external magnetic field		
Boyle's Law	Measuring air pressure in a closed container while verifying the relations between air pressure and volume		
Sound Waves	Recording sound waves and sound wave interference		
Variation of Light Intensity	Measuring the light intensity of different light sources		
Friction	Investigating static and kinetic friction of a body on different surfaces		

Grades 3–5 Experiments for the Mini (NGSS-correlated)

EXPERIMENT	DESCRIPTION	LABDISC	MINI
Air Pressure	Measure the air pressure inside a plastic bottle		
All Charged Up	Compare the voltage and current output of different sized batteries		
Conductors and Insulators	Measure the amount of electrical current flowing through different types of circuits		
Coping with a Warm Environment	Measure environmental temperature and humidity		
Feel the Beat	Record heart rate before and after exercise using an ear clip sensor		
Make Your Own Battery	Measure the electricity produced by four different types of homemade batteries		
Right on Target	Record heart rate before and after exercise using an ear clip sensor		
Sources of Heat Other Than Sunlight	Measure heat created by mechanical and electrical sources		
Temperatures Around Us	Measure environmental temperatures from a variety of locations around the school		
The Sun's Effects	Measure the temperatures of 10 different locations around the school yard		
Weather and Climate	Measure daily weather conditions including temperature, humidity, air pressure, and precipitation		
What's the Weather Like Today?	Measure daily weather conditions including temperature, humidity, air pressure, and precipitation		
What's the pHuss	Measure the pH of a variety of substances		
A Walk in the Park	Measure ambient temperature and humidity to see how the presence of "green space" effects these parameters		

Project-Based Learning

EXPERIMENT	DESCRIPTION	LABDISC	MINI
Project GLOBE	Build a student weather station at your school and use the Labdisc to collect ongoing data about the weather conditions in your area		
Project Nest Box	Collect data on light, humidity, sound, and temperature both inside and outside nesting boxes to find out what features make a birdhouse ideal		
Turn Down the Noise	Measure the impact of noise pollution in your community and share this information with community leaders to help make your school and community a better and healthier place		
What's It Like Out There	Include a Labdisc GenSci or Labdisc Enviro as part of the payload of a high-altitude, near-space weather balloon to record temperature, air pressure, sound, and GPS location during the balloon's ascent and descent		

Elementary School

EXPERIMENT	DESCRIPTION	LABDISC	MINI
Light Absorbance	Check and compare the light absorbance of different pairs of sunglasses		
Our Heart Rate	Recording heart rate before and after exercise		
A Walk in the Park	Recording temperature changes at a city's busy intersection and in a nearby park or garden		
Night and Day	Examine temperature and light changes over a full day		
How Loud is Sound?	Measure the decay of sound level over distance		
The Temperature Around Us	Recording the temperatures of different substances		
What is Distance?	Examine the relationship between speed, time, and distance, and explore graphs of distance versus time		