

Odysseyware®

SUPPLY LIST

Physics



Table of Contents

UNIT 1: KINEMATICS.....	1
UNIT 2: DYNAMICS	2
UNIT 3: WORK AND ENERGY	3
UNIT 4: INTRODUCTION TO WAVES	4
UNIT 5: LIGHT	5
UNIT 7: STATIC ELECTRICITY	5
UNIT 8: ELECTRIC CURRENTS.....	6
UNIT 9: MAGNETISM.....	6
UNIT 10: ATOMIC AND NUCLEAR PHYSICS	6
UNIT 11: REVIEW	7

UNIT 1: KINEMATICS

Assignment	Summary	Video Demo	Supplies
Experiment: Making a Soda Straw Balance	In this lesson, you will experiment with using materials from around the house to make a fairly accurate instrument.	Yes	<ul style="list-style-type: none"> • 1 screw • 1 paper straw • 2 microscope slides • 1 needle • 1 ruler <ul style="list-style-type: none"> • 1 razor blade or scissors • 1 small wood block • 1 tongue depressor • 1 clothespin • paper
Experiment: Making a Simple Model of the Solar System	Construct a solar model to scale, using given measurements.	No	<ul style="list-style-type: none"> • 1 roll of adding machine tape • 1 ruler or meter stick <ul style="list-style-type: none"> • a pen or pencil
*Project: Tutorial for Making a Scatter Plot Using an Electronic Spreadsheet Program	In this project you will be designing a scatter plot (a type of line graph) based on information given to you in a data table.	No	<ul style="list-style-type: none"> • Microsoft Excel
Experiment: Determining Reaction Time	In this experiment, you will determine your reaction time for catching a free-falling object	No	<ul style="list-style-type: none"> • a partner • metric ruler or meter stick
Project: Virtual Lab – Projectiles	Write a brief essay discussing the issues that would need to be accounted for with a projectile with that type of range.	V-Lab	<ul style="list-style-type: none"> • N/A
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 2: DYNAMICS

Assignment	Summary	Video Demo	Supplies	
*Report: Isaac Newton	Prepare a report on the life of Sir Isaac Newton, his accomplishments, discoveries, books written, and honors received.	No	<ul style="list-style-type: none"> research resources 	
Project: Virtual Lab — Newton's Laws	Write a brief essay describing how Newton's Laws explain how a rocket in space can move objects.	V-Lab	N/A	
Project: Virtual Lab — Circular Motion	Many roller coasters today have loops, either as stand-alone loops or as parts of corkscrews. In stand-alone loops, the loops are teardrop shaped and not one complete circle. Write a brief essay as to why you think they are constructed that way	V-Lab	N/A	
Experiment: Circular Motion	<p>Try this investigation of uniform circular motion.</p> <p>Test how well theory fits results as predicted by equations for centripetal motion</p> <p>Make and interpret graphs</p> <p>Make valid conclusions concerning the data</p>	Yes	<ul style="list-style-type: none"> glass or plastic tube (the barrel of a used stick pen can be used for this part) string 	<ul style="list-style-type: none"> 2 stoppers alligator clip paper clip 10 washers stopwatch
Project: Virtual Lab — Conservation of Momentum	One of the great upcoming sports in the Olympics is the sport of curling. Write a brief essay on the uses of momentum collisions in curling.	V-Lab	N/A	
*Experiment: Collisions	<p>Try this investigation into the conservation of momentum in an explosion.</p> <p>Plan and implement an investigative procedure to verify the validity of the conservation of momentum laws</p> <p>Analyze data and present findings for peer review</p> <p>Research and compare to previous findings using similar mechanisms</p> <p>Communicate results</p>	No	<ul style="list-style-type: none"> 2 carts (one with a spring) 2 clamps table, 1 1/2 m. long 	<ul style="list-style-type: none"> 2 boards meter stick assorted standard masses
*Report: Solar System	The development of a model for our earth-sun-planet system spanned more than two thousand years. Briefly outline the chronological development of the theory and dates of the men who proposed the models of the system. Also prepare an 800-word detailed report of the life and times of Johannes Kepler and the steps taken that led him to each of his planetary laws of motion.	No	<ul style="list-style-type: none"> research resources 	

*Experiment: Kepler's Law	Try this investigation of Kepler's Second Law. Make measurements (cm) with precision using the data provided Analyze and evaluate to determine the validity of Kepler's Second Law Communicate findings	No	<ul style="list-style-type: none"> sharp pencil small ruler
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 3: WORK AND ENERGY

Assignment	Summary	Video Demo	Supplies
*Report: Nuclear Energy	Arguments for and against nuclear energy are frequently in the headlines. Research both sides of the question and present an unbiased report of 500 words on the pros and cons of nuclear power plants	No	<ul style="list-style-type: none"> research resources
Project: Virtual Lab — Simple Machines	Write a brief essay explaining why the efficiency of a complex machine decreases as more simple machines are used.	V-Lab	N/A
Experiment: Simple Machines	In this investigation you will use a lever as a simple machine and calculate its mechanical advantage and efficiency.	Yes	<ul style="list-style-type: none"> meter stick weights string
Project: Virtual Lab — Projectiles	In this vLab you used a complex machine to launch a projectile with the ultimate goal of hitting a target. Assume you built a really big machine that could launch the projectile a "significant" distance; for instance, several hundred miles. Write a brief essay discussing the issues that would need to be accounted for with a projectile with that type of range.	V-Lab	N/A
*Experiment: Latent Heat	In this investigation you will determine an experimental value for the latent heat of fusion of water.	No	<ul style="list-style-type: none"> aluminum calorimeter (or an aluminum tumbler and a Styrofoam cup) paper towel crushed ice Celsius thermometer analytical balance cardboard lid
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 4: INTRODUCTION TO WAVES

Assignment	Summary	Video Demo	Supplies	
Experiment: Wave Speeds	In this experiment you will investigate the effect of the medium on the speed of a wave.	No	<ul style="list-style-type: none"> Slinky® meter stick 	<ul style="list-style-type: none"> stopwatch or sweep second hand
*Experiment: Pulses	In this experiment you will investigate the effect of the medium on the speed of a wave.	No	<ul style="list-style-type: none"> Slinky® 	
Experiment: Waves	In this investigation you will observe the reflection of waves from a barrier in a ripple tank.	Yes	<ul style="list-style-type: none"> ripple tank with dampers high intensity light source white paper protractor 	<ul style="list-style-type: none"> electrical wave generator paraffin blocks thick wooden dowel
*Experiment: Bending Waves	Try this investigation to observe the bending of waves across the boundary between "different media" by using a submerged glass plate in the ripple tank to change the depth of the water.	No	<ul style="list-style-type: none"> ripple tank light source white paper wave generator 	<ul style="list-style-type: none"> glass plate washers paraffin blocks
Project: Virtual Lab — Sound	From your experience in this lab on building your own musical instrument, write a brief essay on the purpose of these "boxes". Include a brief description of a xylophone and what it uses for the purpose of the box.	V-Lab		N/A
Project: Virtual Lab — Doppler Effect	Write a brief essay describing how the Doppler effect explains why some stars are "blue shifted" and others are "red shifted."	V-Lab		N/A
*Experiment: Doppler Effect	In this investigation you will observe the Doppler effect with water waves.	No	<ul style="list-style-type: none"> ripple tank light source 	<ul style="list-style-type: none"> white paper wave generator
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A		N/A

UNIT 5: LIGHT

Assignment	Summary	Video Demo	Supplies	
Experiment: Light Angles	In this investigation you will study the angles that light makes as it is incident on a mirror.	Yes	<ul style="list-style-type: none"> small purse-sized rectangular or square mirror pencil flashlight 	<ul style="list-style-type: none"> sheet of paper ruler protractor ball bearing
*Experiment: Water Refraction	In this investigation you will examine the refraction of light through water.	No	<ul style="list-style-type: none"> semicircular plastic dish ruler protractor 	<ul style="list-style-type: none"> 15 pins sheet of graph paper corrugated cardboard
Experiment: Convergence	In this investigation you will observe convergence of waves, using a ripple tank.	Yes	<ul style="list-style-type: none"> ripple tank rubber hose 	<ul style="list-style-type: none"> wooden dowel light source
Project: Virtual Lab — Light	Write a brief essay describing at least three ways the “Brownie” was made easier to use for the average citizen.	V-Lab	N/A	
*Experiment: Light Observations	In this investigation you will observe light through a single narrow slit and measure the width of the slit and the frequency of light.	No	<ul style="list-style-type: none"> razor blade lamp red filter blue filter 	<ul style="list-style-type: none"> meter stick stand liquid graphite 2 glass slides
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A	

UNIT 7: STATIC ELECTRICITY

Assignment	Summary	Video Demo	Supplies	
*Experiment: Static Electricity	In this classic experiment you will actually witness the transfer of electrons from one object to another for yourself.	No	<ul style="list-style-type: none"> glass wand hard rubber wand silk cloth stand 	<ul style="list-style-type: none"> pith ball silk thread wool cloth (or cat's fur)
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A	

UNIT 8: ELECTRIC CURRENTS

Assignment	Summary	Video Demo	Supplies
*Project: Research and Report	The men on this list contributed to the development of electrical theory. Write a report integrating their contributions in a historical perspective.	No	<ul style="list-style-type: none"> research resources
Project: Virtual Labs — Circuits	Write a brief essay describing the minimum requirements for any electric circuit.	V-Lab	<ul style="list-style-type: none"> research resources
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 9: MAGNETISM

Assignment	Summary	Video Demo	Supplies
*Experiment: Magnetic Fields	In this experiment, you will discover magnetic fields using iron filings and bar magnets.	No	<ul style="list-style-type: none"> 2 bar magnets 3 sheets of stiff cardboard iron filings
*Experiment: Induced Magnetic Fields	Try this investigation to determine the shape of the magnetic field around a long, straight wire.	No	<ul style="list-style-type: none"> copper wire, about 1 m long wire cutter or 8-inch scissors small porcelain lamp socket and bulb drycell compass
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 10: ATOMIC AND NUCLEAR PHYSICS

Assignment	Summary	Video Demo	Supplies
Report: Early Atomic Physics	Look up the following men: Ernest Rutherford, J. J. Thomson, and Neils Bohr. Type a 500-word report on the men and their contributions to atomic theory.	No	<ul style="list-style-type: none"> research resources
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 11: REVIEW

Assignment	Summary	Video Demo	Supplies
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

* indicates an alternative assignment