

PHY108 Demo Calendar

Chapter	Topics	Demos
Introduction		Large Tesla coil Superconductivity
CH21	Electric charge	Rods, fur and electroscope Pith balls van de Graaff generator Vernier charge sensor with Faraday pail Pasco Coulomb balance Conductor, semiconductor, insulator samples
CH22	Electric fields	Electric fields demo with hand crank generator
CH23	Gauss' law	Faraday cage and radio Small Tesla coil with Faraday cage, fluorescent tube and light bulb, syringe
CH24	Electric potential	Digital multimeter, battery, metal spheres, aluminum block with holes
Review week		
CH25	Capacitance	Various capacitors Computer motherboard Parallel plate capacitor and dielectric plates with multimeter Metal sphere Ethanol vapor explosion 0.33 Farad capacitor, 6 V battery, light bulb (charge and discharge separate) Discharge 30 uF capacitor with a screw driver (charged to 6 V) 10 uF capacitors in series and in parallel
CH26	Current and resistance	Various resistors Computer motherboard Silicon wafer Digital multimeter, battery, light bulb Resistive wire demo Resistor in liquid nitrogen LED light in liquid nitrogen Superconductivity
CH27	Circuits	Digital multimeter, battery, series and parallel light bulbs 4.7 k Ω resistor, 1 k Ω pot on Vernier circuit board with digital multimeter 0.33 Farad capacitor, 6 V battery and light bulb with Vernier voltage probe
CH28	Magnetic fields	Magnets and compasses Vernier magnetic field sensor 3D Magnetic field demonstrator Magnetic field viewing film Electron beam tube with magnet Tektronix CRT oscilloscope on cart Computer monitor on cart Magnetic force on a current carrying wire Electric motor demo Electric fan motor Stepper motor Homopolar motor with AA battery and wire loop Ferrofluid Slinky (for helical motion)
CH29	Magnetic fields due to currents	Magnetic field around a current carrying wire Electromagnet Magnetic field inside a solenoid and a toroid Slinky (to show solenoid and toroid)
CH30	Induction and inductance	Various inductors Computer motherboard Inductor on Vernier circuit board with LC meter 3 solenoids connected to ammeter with magnet Solenoid inside larger solenoid connected to ammeter, with hand crank generator Induction coils with light bulb Lenz's law Metal detector Flying rings
CH31	Electromagnetic oscillations and alternating current	Vernier circuit board and voltage probes (for resonance, phase shift between L & C) Hand crank generator with lamp Electric fan motor as AC generator AC RL circuit with iron core AC RLC circuit with iron rod Transformer (run at 100 Hz)
CH32	Maxwell's equations; magnetism of matter	Parallel plate capacitor demo Microwave demo Magnetron Compasses Paramagnetism of liquid oxygen Electromagnet Computer hard drive The electric pickle