Physics 4C: Electricity & Magnetism

Week 1: Electric Charge and Field

VAN DE GRAAFF
PITH BALLS
CHARGE TRANSFER RODS AND FUR/CLOTH
ELECTROSCOPE

Week 2: Gauss's Law

GAUSS'S LAW WITH 55 GALLON DRUM

Week 3: Electric Potential and Capacitance

ExB TUBE (use only E part)
ALUMINUM FOIL CAPACITOR
BIG CAPACITOR
CAPACITANCE BETWEEN SPHERES
PLATE CAPACITOR
LEYDEN JAR
JACOB'S LADDER

Week 4: Current and Resistance

CHEMICAL BATTERY

Week 5: Circuits

SERIES AND PARALLEL CIRCUITS (OHM'S LAW)
RC TIME CONSTANT

Week 6: Magnetic Fields, currents

2D MAGNETIC FIELD VIEWER
3D MAGNETIC FIELD VIEWER
FERROFLUID
ExB TUBE (with bar magnet & with coil)
FORCE BETWEEN PARALLEL WIRES

Week 7: Faraday's Law

ALUMINUM RINGS ON AC COIL
SWINGING PLATES IN MAGNETIC FIELD (GIANT VERSION)
MAGNET IN METAL TUBE
MAGNET WITH COIL

Week 8: Alternating Currents

MOTOR AND GENERATOR
LRC CIRCUIT
CURIE'S LAW: CANADIAN QUARTERS

Week 9: Maxwell's Equations

SLINKY
WAVE MACHINE

Week 10: Electromagnetic Waves

SPECTRA TUBE WITH DIFFRACTION GRATING