

**The Video Encyclopedia of Physics Demonstrations**

**Complete List of Demonstrations Organized by PIRA  
Demonstration Classification Scheme Number with  
Reference to Disc and Chapter Number**

## **BIBLIOGRAPHY OF PIRA NUMBERS BY CATEGORY:**

### **Mechanics:**

- 1A Measurement
- 1C Motion in One Dimension
- 1D Motion in Two Dimensions
- 1E Relative Motion
- 1F Newton's First Law
- 1G Newton's Second Law
- 1H Newton's Third Law
- 1J Statistics of Rigid Bodies
- 1K Applications of Newton's Laws
- 1L Gravity
- 1M Work and Energy
- 1N Linear Momentum
- 1Q Rotational Dynamics
- 1R Properties of Matter

### **Fluid Mechanics:**

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- 2B Statics of Fluids
- 2C Dynamics of Fluids

### **Oscillations and Waves:**

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- 3B Wave Motion
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### **Electricity and Magnetism**

- 5A Electrostatics
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- 5C Capacitance
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- 5E Electromotive Force and Current
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- 5J Inductance
- 5K Electromagnetic Induction
- 5L AC Circuits
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### **Optics:**

- 6A Geometrical Optics
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- 6F Color
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- 6J The Eye
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- 7B Atomic Physics
- 7D Nuclear Physics
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- 8B Stellar Astronomy
- 8C Cosmology

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## 1: MECHANICS

### 1A Measurement

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1A40.10	Demo 01-07	3-D Vector Components
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1A40.31	Demo 01-02	Vector Addition (Parallelogram)
1A40.33	Demo 01-03	Vector Addition (Head to to Tail)
1A40.70	Demo 01-05	Vector Dot Product
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1A50.10	Demo 05-12	Radian Disc
1A60.30	Demo 08-07	2:1 Scaling
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### 1C Motion in One Dimension

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1C10.25	Demo 01-08	Constant Velocity
1C20.10	Demo 01-14	Guinea and Feather
1C20.20	Demo 01-12	String and Weights Drop
1C20.30	Demo 01-11	Constant Acceleration
1C20.41	Demo 01-10	Rolling Ball Incline
1C30.55	Demo 01-13	Reaction Time Falling Meter Stick

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1D15.41	Demo 02-09	Sliding Weights and Triangle
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1D50.20	Demo 05-17	Ball on Cord
1D50.26	Demo 05-19	Plane on String
1D50.30	Demo 05-20	Roundup
1D50.40	Demo 05-21	Whirling Bucket of Water
1D50.45	Demo 05-18	Coin on Coat Hanger
1D50.70	Demo 05-24	Spinning Chain
1D52.10	Demo 05-22	Centrifuge Hoops
1D52.20	Demo 13-17	Paraboloid of Revolution
1D52.21	Demo 13-18	Rotating Water Troughs
1D52.35	Demo 05-23	Water and Mercury Centrifuge
1D52.61	Demo 05-25	Rotating Rubber Wheel
1D55.10	Demo 05-14	Circle with Gap
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1D55.30	Demo 05-15	Rotating Disc with Erasers
1D60.10	Demo 02-03	Vertical Gun on Car
1D60.16	Demo 02-04	Vertical Gun on Accelerated Car
1D60.20	Demo 02-01	Shooter/Dropper
1D60.30	Demo 02-02	Monkey Gun
1D60.40	Demo 02-06	Range Gun
1D60.55	Demo 02-05	Air Table Parabolas

### 1E Relative Motion

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1E20.10	Demo 06-13	Foucault Pendulum
1E30.28	Demo 06-14	Coriolis Effect

### 1F Newton's First Law

1F10.11	Demo 08-24	Inertia Balance
1F10.25	Demo 02-14	Foam Rock
1F20.10	Demo 02-13	Inertia Ball
1F20.30	Demo 02-15	Tablecloth Jerk
1F20.35	Demo 02-16	Eggs and Pizza Pan
1F20.50	Demo 02-12	Shifted Air Track Inertia
1F30.21	Demo 13-14	Water Hammer
1F30.50	Demo 02-17	Pencil and Plywood

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1G10.16	Demo 01-17	Acceleration with Spring
1G10.40	Demo 01-16	Atwood's Machine
1G20.10	Demo 01-19	Candle in Dropped Jar
1G20.45	Demo 01-18	Dropped Slinky
1G20.70	Demo 02-11	Local Vertical with Acceleration
1G20.76	Demo 13-16	Accelerometers

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1H10.20	Demo 02-21	Fan Car with Sail
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1J10.20	Demo 04-15	Meter Stick on Fingers
1J11.11	Demo 03-26	Toppling Cylinders
1J11.50	Demo 03-24	Double Cone on Incline
1J20.11	Demo 03-19	Stability
1J20.45	Demo 03-23	Crown on Rope
1J20.51	Demo 03-22	Chair on Pedestal
1J20.55	Demo 04-19	Broom Stand
1J30.10	Demo 04-03	Load on Removable Incline
1J30.25	Demo 04-02	Clothesline
1J30.40	Demo 04-08	Horizontal Boom
1J30.50	Demo 04-01	Force Board
1J30.60	Demo 02-10	Sailing Upwind
1J30.75	Demo 04-21	Egg Crusher
1J40.10	Demo 04-10	Torque Bar
1J40.15	Demo 04-12	Torque Wrench
1J40.20	Demo 04-14	Balancing Meter Stick
1J40.21	Demo 04-11	Hinge Board
1J40.25	Demo 04-13	Torque Wheel
1J40.40	Demo 04-16	Bridge and Truck
1J40.50	Demo 04-17	Roberval Balance
1J40.75	Demo 04-09	Arm Model

### 1K Applications of Newton's Laws

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1K10.30	Demo 06-07	Spool with Wrapped Ribbon
1K10.50	Demo 03-25	Loaded Disc
1K20.10	Demo 03-05	Surface Dependence of Friction
1K20.15	Demo 03-04	Weight Dependence of Friction
1K20.20	Demo 03-03	Area Dependence of Friction
1K20.30	Demo 03-02	Static vs. Sliding Friction
1K20.40	Demo 03-06	Stability of Rolling Car
1K20.90	Demo 03-01	Air Track Friction
1K30.10	Demo 04-20	Bed of Nails

### 1L Gravity

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### 1M Work and Energy

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1M20.01	Demo 04-06	Simple Machines
1M20.11	Demo 04-04	Pulley Advantage
1M20.15	Demo 04-05	Pulley and Scales
1M20.40	Demo 04-07	Levers
1M40.10	Demo 03-14	Bowling Ball Pendulum
1M40.15	Demo 03-13	Galileo's Pendulum
1M40.20	Demo 06-09	Loop the Loop
1M40.25	Demo 03-12	Energy Well Track
1M40.33	Demo 03-15	Triple Track
1M40.41	Demo 05-11	Ballistic Pendulum
1M40.50	Demo 06-08	Maxwell's Yoyo
1M40.63	Demo 03-10	X-Squared Spring Energy Dependence
1M40.64	Demo 03-08	Spring Pong Gun
1M40.67	Demo 03-09	Spring Jumper
1M40.91	Demo 03-11	High Bounce Paradox
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1N10.30	Demo 05-10	Pile Driver with Foam Rubber
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1N20.15	Demo 02-20	Car on Rolling Board
1N20.20	Demo 02-19	Reaction Gliders Momentum Conservation
1N22.10	Demo 02-24	Fire Extinguisher Rocket
1N22.20	Demo 02-23	Water Rocket
1N22.33	Demo 02-22	CO <sub>2</sub> Rocket
1N30.10	Demo 05-01	Colliding Balls
1N30.30	Demo 05-03	Elastic and Inelastic Collisions
1N30.33	Demo 05-02	Equal and Unequal Mass Collisions

1N30.60	Demo 05-05	High Bounce
1N40.20	Demo 05-06	Air Table Collisions (Equal Mass)
1N40.21	Demo 05-07	Air Table Collisions (Unequal Mass)
1N40.22	Demo 05-08	Air Table Collisions (Inelastic)

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1Q10.31	Demo 06-04	Rolling Bodies on Incline
1Q20.10	Demo 06-01	Angular Acceleration Machine
1Q20.20	Demo 06-02	Bike Wheel Angular Acceleration
1Q20.30	Demo 06-05	Spool on Incline
1Q20.35	Demo 06-06	Bike Wheel on Incline
1Q20.50	Demo 06-11	Hinged Stick and Ball
1Q20.55	Demo 06-10	Penny Drop Stick
1Q30.25	Demo 07-09	Satellite Derotator
1Q40.10	Demo 07-04	Rotating Stool with Weights
1Q40.15	Demo 07-05	Rotating Stool and Long Bar
1Q40.23	Demo 05-26	Centrifugal Governor
1Q40.30	Demo 07-06	Rotating Stool and Bicycle Wheel
1Q40.40	Demo 07-02	Train on Circular Track
1Q40.45	Demo 07-08	Wheel and Brake
1Q40.50	Demo 07-03	Tail Wags Dog
1Q40.70	Demo 07-01	Marbles and Funnel
1Q40.80	Demo 15-07	Hero's Engine
1Q40.82	Demo 06-03	Air Rotator with Deflectors
1Q50.20	Demo 07-11	Gyroscope with Adjustable Weights
1Q50.22	Demo 07-12	Bike Wheel on Gimbals
1Q50.23	Demo 07-10	Bike Wheel Precession
1Q50.25	Demo 07-13	Double Bike Wheel
1Q50.30	Demo 07-14	Motorized Gyroscope
1Q50.35	Demo 07-07	Gyroscopic Stability
1Q50.72	Demo 07-18	Ship Stabilizer
1Q60.30	Demo 07-17	Tippy Top
1Q60.35	Demo 07-16	Football Spin
1Q60.40	Demo 07-20	Stable and Unstable Axes of Rotation
1Q60.51	Demo 07-19	Spinning Rod and Hoop on Wire
1Q60.80	Demo 07-15	Static/Dynamic Balance

### 1R Properties of Matter

1R10.10	Demo 08-01	Hooke's Law
1R10.30	Demo 08-02	Springs in Series and Parallel
1R20.11	Demo 08-04	Elastic Limits
1R20.15	Demo 08-05	Young's Modulus
1R20.20	Demo 08-06	Bending Beams
1R20.60	Demo 08-08	Bologna Bottle
1R30.40	Demo 08-03	Torsion Rod

1R40.10 Demo 05-04 Coefficient of Restitution  
1R50.20 Demo 16-15 Crystal Models  
1R50.40 Demo 16-16 Faults in Crystals

## 2: FLUID MECHANICS

### 2A Surface Tension

2A10.10 Demo 13-21 Soap Film Pull-up  
2A10.21 Demo 13-20 Floating Metal Sheet  
2A10.33 Demo 13-19 Surface Tension Disc  
2A10.37 Demo 11-13 Adhesion Plates  
2A10.50 Demo 13-23 Two Soap Bubbles  
2A15.10 Demo 13-24 Minimum Energy Thread  
2A15.20 Demo 13-22 Soap Film Shapes  
2A20.10 Demo 13-26 Capillary Tubes  
2A20.35 Demo 13-25 Capillary Action

### 2B Statics of Fluids

2B20.10 Demo 12-04 Pressure Independent of Direction  
2B20.15 Demo 12-02 Pressure vs. Depth  
2B20.16 Demo 12-03 Pressure vs. Depth in Water and Alcohol  
2B20.34 Demo 12-08 Hydrostatic Paradox  
2B20.40 Demo 12-01 Same Level Tubes  
2B20.60 Demo 12-07 Hydraulic Press  
2B20.65 Demo 11-17 Air Pressure Lift  
2B20.71 Demo 12-05 Water/Air Compression  
2B30.20 Demo 11-16 Barrel Crush  
2B30.25 Demo 11-14 Crush Can  
2B30.30 Demo 11-12 Magdeburg Hemispheres  
2B30.50 Demo 11-19 Rubber Sheet Lifting Chair  
2B30.60 Demo 11-18 Inertia Shingles  
2B30.70 Demo 11-15 Vacuum Bazooka  
2B35.15 Demo 11-10 Mercury Barometer in Vacuum  
2B35.40 Demo 11-11 Aneroid Barometer in Vacuum  
2B40.14 Demo 12-11 Buoyant Force  
2B40.18 Demo 12-13 Board and Weights Float  
2B40.20 Demo 12-12 Archimedes' Principle  
2B40.25 Demo 12-17 Battleship in Bathtub  
2B40.30 Demo 12-22 Cartesian Diver  
2B40.43 Demo 12-20 Helium Balloon in Glass Jar  
2B40.44 Demo 12-21 Helium Balloon in Liquid Nitrogen  
2B40.45 Demo 12-10 Weight of Air  
2B40.53 Demo 12-06 Water and Mercury U-tube  
2B40.54 Demo 12-18 Buoyancy in Various Liquids  
2B40.56 Demo 12-19 Floating Square Bar  
2B40.59 Demo 12-15 Density Ball  
2B40.60 Demo 12-09 Hydrometer  
2B40.61 Demo 12-14 Different Density Wood  
2B60.20 Demo 13-10 Siphon

### 2C Dynamics of Fluids

2C10.10 Demo 13-15 Toricelli's Tank  
2C10.20 Demo 13-12 Uniform Pressure Drop  
2C10.26 Demo 13-11 Syringe Water Velocity  
2C20.10 Demo 13-13 Bernoulli's Principle  
2C20.25 Demo 13-01 Pitot Tube  
2C20.30 Demo 13-04 Floating Ball in Air Jet  
2C20.40 Demo 13-05 Suspended Plate in Air Jet  
2C20.45 Demo 13-06 Suspended Parallel Cards  
2C20.60 Demo 13-03 Curve Balls  
2C20.80 Demo 13-02 Flettner Rotor  
2C30.25 Demo 14-06 Oil Viscosity  
2C30.50 Demo 14-02 Viscous Drag  
2C30.55 Demo 14-03 Ball Drop  
2C30.65 Demo 14-01 Air Friction  
2C50.15 Demo 13-07 Vortex Cannon  
2C50.30 Demo 13-09 Tornado Tube  
2C60.20 Demo 12-16 Density Balls in Beans  
2C60.35 Demo 15-19 Slime Ball

## 3: OSCILLATIONS AND WAVES

### 3A Oscillations

3A10.14 Demo 08-15 4:1 Pendula  
3A10.17 Demo 08-14 Different Mass Pendula  
3A10.30 Demo 08-13 Torsion Pendulum  
3A10.40 Demo 08-19 Variable Angle Pendulum  
3A15.20 Demo 08-18 Physical Pendulum  
3A15.40 Demo 08-16 Hoops and Arcs  
3A15-50 Demo 06-12 Center of Percussion  
3A20.10 Demo 08-11 Mass on Spring  
3A20.35 Demo 08-12 Air Track Simple Harmonic Motion  
3A40.10 Demo 08-20 Circular Motion vs. Spring and Weight  
3A40.20 Demo 08-21 Circular Motion vs. Pendulum  
3A40.41 Demo 08-10 Tuning Fork with Light  
3A40.65 Demo 08-22 Phase Shift  
3A60.31 Demo 09-02 Resonant Driven Pendula  
3A60.35 Demo 09-01 Bowling Ball Pendulum Resonance  
3A60.43 Demo 09-03 Driven Spring and Weight  
3A60.50 Demo 09-05 Reed Tachometer  
3A70.10 Demo 09-08 Wilberforce Pendulum  
3A70.27 Demo 09-07 Coupled Pendula  
3A80.20 Demo 08-26 Lissajous Figures  
3A95.33 Demo 08-17 Pendulum with Large Amplitude  
3A95.38 Demo 08-23 Periodic Non-Simple Harmonic Motion  
3A95.70 Demo 09-04 Pump Pendulum

### 3B Wave Motion

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3B10.15	Demo 09-11	Tension Dependence of Wave Speed
3B10.16	Demo 09-13	Wave Speed
3B10.25	Demo 09-10	Pulse on Moving Chain
3B10.30	Demo 09-12	Torsional Waves
3B10.75	Demo 08-25	Pendulum Waves
3B20.10	Demo 09-15	Longitudinal Slinky Waves
3B20.30	Demo 09-14	Longitudinal Wave Model
3B22.10	Demo 09-27	Three Tensions Standing Waves
3B22.15	Demo 09-28	Rubber Tube Standing Waves
3B22.30	Demo 09-26	Standing Waves
3B22.50	Demo 09-25	Slinky Standing Waves
3B22.60	Demo 09-24	Longitudinal Standing Waves
3B25.10	Demo 09-19	Wave Coupling
3B25.20	Demo 09-17	Reflection of Waves
3B25.25	Demo 09-18	Spring Wave Reflection
3B25.35	Demo 10-17	Acoustic Coupling
3B27.15	Demo 09-16	Wave Superposition
3B30.30	Demo 10-09	Siren in Vacuum
3B30.50	Demo 10-14	Sound in Helium
3B30.55	Demo 10-13	Sound Velocity at Different Temperatures
3B35.60	Demo 09-20	Refraction of Water Waves
3B40.10	Demo 10-21	Doppler Effect
3B50.10	Demo 09-21	Single Slit Diffraction of Water Waves
3B50.25	Demo 09-22	Double Slit Interference of Water Waves
3B50.40	Demo 09-23	Moire Pattern
3B55.10	Demo 10-20	Two Speaker Interference
3B60.10	Demo 10-18	Tuning Fork Beats
3B60.20	Demo 10-19	Beats with Speaker and Oscilloscope

### 3C Acoustics

3C20.30	Demo 10-10	Siren Disc
3C20.40	Demo 10-11	Gear and Card
3C50.10	Demo 10-15	Fourier Synthesizer
3C55.55	Demo 11-08	Tuning Forks on Resonant Boxes
3C55.80	Demo 10-16	Vocal Formants

### 3D Instruments

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3D20.21	Demo 10-02	Guitar and Scope
3D30.15	Demo 11-01	Resonance Tube with Piston
3D30.20	Demo 11-04	Resonance Tube
3D30.40	Demo 11-09	Helmholtz Resonators
3D30.60	Demo 11-03	Kundt's Tube
3D30.70	Demo 11-07	Singing Pipes
3D32.10	Demo 11-02	Resonance Tubes (Three Lengths)

3D32.15	Demo 11-06	Slide Whistle
3D32.25	Demo 11-05	Open and Closed End Pipes
3D40.10	Demo 10-07	Xylophone Bars
3D40.11	Demo 10-05	Rectangular Bar Oscillations
3D40.12	Demo 10-06	High Frequency Metal Bars
3D40.20	Demo 10-08	Singing Rods
3D40.30	Demo 09-30	Chladni Plates
3D40.40	Demo 09-29	Drumhead
3D40.55	Demo 09-06	Glass Breaking with Sound
3D46.16	Demo 10-03	Tuning Forks
3D46.22	Demo 10-04	Adjustable Tuning Fork

## 4: THERMODYNAMICS

### 4A Thermal Properties of Matter

4A10.50	Demo 24-17	Liquid Crystal Sheets
4A20.10	Demo 14-13	Thermal Expansion of Water
4A20.30	Demo 14-14	Negative Expansion Coefficient of Water
4A30.10	Demo 14-08	Bimetallic Strip
4A30.11	Demo 14-09	Thermostat Model
4A30.22	Demo 14-11	Thermal Expansion
4A30.30	Demo 14-10	Pin Breaker
4A30.60	Demo 14-07	Thermal Expansion of Wire
4A40.15	Demo 08-09	Elasticity at Low Temperatures
4A40.40	Demo 14-05	Viscosity of Alcohol at Low Temperatures

### 4B Heat and the First Law

4B10.10	Demo 14-17	Specific Heat
4B10.30	Demo 14-18	Specific Heat with Rods and Wax
4B10.40	Demo 14-27	Convection Currents
4B30.12	Demo 14-21	Thermal Conductivity
4B40.10	Demo 22-04	Heat Focusing
4B40.30	Demo 14-25	Radiation Cube
4B40.40	Demo 14-24	Two Can Radiation
4B50.10	Demo 14-26	Insulation (Dewar Flask)
4B50.20	Demo 14-19	Boiling Water in a Paper Cup
4B50.25	Demo 14-20	Water Balloon Heat Capacity
4B50.30	Demo 14-22	Leidenfrost Phenomenon
4B60.11	Demo 15-02	Mechanical Equivalent of Heat
4B60.55	Demo 15-01	Drill and Dowel
4B60.70	Demo 15-08	Cork Popper
4B70.10	Demo 15-05	Fire Syringe
4B70.25	Demo 15-04	Adiabatic Expansion

### 4C Change of State

4C20.20	Demo 15-15	Ice Bomb
4C20.30	Demo 15-16	Regelation
4C20.45	Demo 15-03	CO <sub>2</sub> Expansion Cooling
4C30.10	Demo 15-10	Boil Water Under Reduced Pressure

4C30.30 Demo 15-17 Helium and CO<sub>2</sub> Balloons in Liquid Nitrogen  
 4C30.35 Demo 15-09 Liquid Nitrogen in Balloon  
 4C31.10 Demo 15-12 Drinking Bird  
 4C31.10 Demo 15-14 Cryophorus  
 4C31.20 Demo 15-13 Freezing by Boiling  
 4C40.10 Demo 15-18 Sublimation of CO<sub>2</sub>  
 4C50.10 Demo 15-11 CO<sub>2</sub> Critical Point

#### 4D Kinetic Theory

4D10.10 Demo 16-07 Brownian Motion  
 4D10.20 Demo 16-08 Brownian Motion Simulation  
 4D20.10 Demo 14-23 Radiometer  
 4D30.21 Demo 16-05 Equipartition of Energy Simulation  
 4D30.22 Demo 16-04 Pressure vs. Volume Simulation  
 4D30.23 Demo 16-13 Free Expansion Simulation  
 4D30.24 Demo 16-03 Temperature Increase Simulation  
 4D30.40 Demo 16-06 Mercury Kinetic Energy  
 4D30.60 Demo 14-04 Gas Viscosity Change with Temperature  
 4D50.20 Demo 16-09 Diffusion  
 4D50.45 Demo 16-11 Bromine Diffusion  
 4D50.80 Demo 16-10 Diffusion Simulation

#### 4E Gas Law

4E10.11 Demo 14-12 Thermal Expansion of Air  
 4E20.15 Demo 16-01 Pressure vs. Volume  
 4E30.10 Demo 16-02 Pressure vs. Temperature

#### 4F Entropy and the Second Law

4F10.10 Demo 13-08 Un-mixing  
 4F10.40 Demo 14-15 Dust Explosion  
 4F30.10 Demo 15-06 Stirling Engine

### 5: ELECTRICITY AND MAGNETISM

#### 5A Electrostatics

5A10.10 Demo 16-21 Electrostatic Rods  
 5A10.20 Demo 17-03 Electrophorus  
 5A10.37 Demo 16-22 Electrostatic Rod and Cloth  
 5A20.25 Demo 16-23 Electrostatic Ping-Pong Deflection  
 5A30.15 Demo 16-25 Conductors and Insulators  
 5A40.10 Demo 17-01 Electrostatic Induction  
 5A40.30 Demo 17-06 Wooden Needle  
 5A40.35 Demo 17-02 Metal Rod Attraction  
 5A40.70 Demo 17-05 Kelvin Water Dropper  
 5A50.10 Demo 17-04 Induction Generator  
 5A50.31 Demo 17-07 Van de Graaff Generator

#### 5B Electric Fields and Potential

5B10.15 Demo 17-08 Van de Graaff with Streamers

5B10.30 Demo 16-24 Electrostatic Ping-Pong Balls  
 5B10.40 Demo 17-10 Electric Field  
 5B20.10 Demo 17-15 Faraday Ice Pail  
 5B20.30 Demo 17-14 Faraday Cage  
 5B20.35 Demo 21-17 Radio in Faraday Cage  
 5B30.30 Demo 17-11 Lightning Rod  
 5B30.35 Demo 17-09 Van de Graaff and Wand  
 5B30.40 Demo 17-13 Point and Candle  
 5B30.50 Demo 17-12 Pinwheel  
 5B30.60 Demo 17-16 Smoke Precipitation

#### 5C Capacitance

5C10.20 Demo 18-19 Parallel Plate Capacitor  
 5C10.21 Demo 18-22 Battery and Separable Capacitor  
 5C10.35 Demo 18-21 Rotary Capacitor  
 5C20.10 Demo 18-20 Parallel Plate Capacitor Dielectrics  
 5C20.20 Demo 18-24 Force on a Dielectric  
 5C20.30 Demo 18-25 Dissectible Capacitor  
 5C30.10 Demo 18-18 Leyden Jars on Toepler Holtz  
 5C30.15 Demo 18-26 Grounded Leyden Jar  
 5C30.20 Demo 18-23 Exploding Capacitor  
 5C30.42 Demo 18-27 Series/Parallel Capacitors

#### 5D Resistance

5D10.20 Demo 17-18 Resistance Wires  
 5D10.40 Demo 17-22 Electron Motion Model  
 5D20.10 Demo 17-21 Cooled Wire  
 5D20.20 Demo 17-20 Heated Wire  
 5D20.30 Demo 18-09 Carbon and Tungsten Lamps  
 5D20.50 Demo 16-17 Thermister  
 5D30.10 Demo 18-13 Conductivity of Solutions  
 5D40.10 Demo 25-08 Jacob's Ladder  
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## 6: OPTICS

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6A10.11	Demo 21-20	Angles of Incidence and Reflection
6A10.18	Demo 21-18	Microwave Reflection
6A10.20	Demo 21-19	Diffuse/Specular Reflection
6A10.30	Demo 21-24	Corner Reflector
6A10.37	Demo 21-22	Parity Reversal in a Mirror
6A10.40	Demo 21-23	Hinged Mirrors
6A10.45	Demo 21-25	Barbershop Mirrors
6A10.60	Demo 21-21	Location of Image
6A10.65	Demo 21-26	Mirror Box
6A20.10	Demo 22-01	Concave and Convex Mirrors
6A20.20	Demo 22-02	Spherical Aberration in a Mirror
6A20.31	Demo 22-05	Large Concave Mirror
6A20.60	Demo 22-03	Energy at a Focal Point
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6A42.12	Demo 22-06	Reflection/Refraction from Plastic Block
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6A60.20	Demo 22-18	Ray Tracing with Lenses
6A60.35	Demo 22-17	Lens Magnification
6A61.20	Demo 21-09	Pinhole Camera
6A65.21	Demo 22-22	Chromatic Aberration
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### 6B Photometry

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6C10.12	Demo 23-03	Single Slit Diffraction (Cornell Slides)
6C10.50	Demo 23-01	Microwave Diffraction

6C20.10	Demo 23-05	Poisson's Bright Spot
6C20.15	Demo 23-08	Knife Edge Diffraction
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### 6D Interference

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### 6H Polarization

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6H35.50	Demo 24-13	Photoelastic Stress Figures
6H35.55	Demo 24-09	Optical Activity in Cellophane Tape
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### 6J The Eye

6J10.81	Demo 23-09	Resolving Power
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### 6Q Modern Optics

6Q10.10	Demo 23-21	Holograms
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## **MODERN PHYSICS**

### **7A Quantum Effects**

- 7A10.10 Demo 24-19 Photoelectric Effect in Zinc
- 7A10.40 Demo 24-21 Solar Cells
- 7A15.10 Demo 24-24 Millikan Oil Drop
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### **7B Atomic Physics**

- 7B10.10 Demo 25-01 Emission Spectra
- 7B11.17 Demo 25-07 Flame Salts
- 7B11.25 Demo 25-02 Spectral Absorption by Sodium Vapor
- 7B13.05 Demo 25-09 Triboluminescence
- 7B13.50 Demo 25-11 Fluorescence
- 7B13.55 Demo 25-10 Luminescence
- 7B30.20 Demo 25-12 Franck-Hertz Effect
- 7B35.40 Demo 25-04 Electron Discharge Tube with Cross
- 7B35.50 demo 17-17 Electron Discharge Tube with Wheel
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### **7D Nuclear Physics**

- 7D10.20 Demo 25-16 Half-Life
- 7D10.60 Demo 25-14 Nuclear Shielding
- 7D10.80 Demo 25-17 Cosmic Rays
- 7D20.10 Demo 25-15 Mousetrap Chain Reaction
- 7D50.20 Demo 25-13 Rutherford Scattering

## **9: EQUIPMENT**

### **9B Electronic**

- 9B17.25 Demo 10-12 Cutaway Speaker