

# Physics Essential Experiences Kit

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CLASSROOM MATERIALS KIT LIST

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## MOTION PLOTS

### Materials Included in Kit *(for 10 groups of students)*

- Graphing paper, 100 sheets
  - Masking tape,  $\frac{3}{4}$ ", 2 rolls
  - Metric, tape measure, 10
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## FORCES AND MOTION

### Materials Included in Kit *(for 10 groups of students)*

- Cart (Hall's carriage), 10
  - Pine board (car stopper), 10
  - Plastic bag, 10
  - Pulley with table clamp, 10
  - String ball, 1
  - Washers, 150
- 

## INVESTIGATE GRAVITY USING PENDULUMS

### Materials Included in Kit *(for 10 groups of students)*

- Clothespin, 25
  - Protractor, 10
  - Steel ball,  $\frac{3}{4}$ "-diameter, drilled, 10
  - Steel ball, 1"-diameter, drilled, 10
  - String, roll, 1
- 

## MODEL THE ORBITAL MOTION OF PLANETS

### Materials Included in Kit *(for 10 groups of students)*

- Handle tube, 10
  - Paper clips, 100
  - Rubber stopper, two-hole, 10
  - String, 20 yd
  - Washers, 200
-

# ELECTRIC CHARGES AND COULOMB'S LAW

## Materials Included in Kit *(for 10 groups of students)*

- Aluminum foil, 12" × 12" Sheet
  - Fishing line, monofilament, 1 box
  - Pith balls, 36
  - Plastic straws, 50
  - Tape, transparent, matte finish, 2
  - Wool friction pads, 10
- 

## ELECTRIC FIELDS

## Materials Included in Kit *(for 8 groups of students)*

- Conductive paper, 8½" × 11", 10
  - Conductive silver ink pen, 2
  - Corks, 100
  - Pushpins, aluminum, 20
  - Pushpins, plastic, 100
- 

## MAGNETIC FORCE AND SEPARATION DISTANCE

## Materials Included in Kit *(for 8 groups of students)*

- Blue magnetic marbles, 8
  - Compasses, 8
  - Iron filings, 100 g
  - Neodymium magnets, 16
  - Paper clips, 100
  - Petri dishes, 8
  - Plastic containers, large, 8
  - Plastic containers, small, 8
  - PVC tubes, 8
  - String, 331 m
- 

## ELECTROMAGNETS AND MAGNETISM

## Materials Included in Kit *(for 8 groups of students)*

- Aluminum rod, 8
  - Brass rod, 8
  - Compasses, 8
  - Copper rod, 8
  - Cups, polystyrene, 8
  - Index cards, pkg. 100
  - Iron nails, 10
  - Magnet wire, 22 gauge, 125 ft
  - Neodymium magnets, 10
  - Paper clips, box of 100
  - Sandpaper, 9" x 11" sheet
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## PHYSICAL PROPERTIES OF SOLID MATERIALS

### Materials Included in Kit *(for 10 groups of students)*

- Aluminum granules, Al, 10 g
  - Hexane, C<sub>6</sub>H<sub>14</sub>, 100 mL
  - Silicon dioxide (sand), SiO<sub>2</sub>, 5 g
  - Sodium chloride (salt), NaCl, 5 g
  - Stearic acid, C<sub>18</sub>H<sub>36</sub>O<sub>2</sub>, 5 g
  - Sucrose (sugar), C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>, 5 g
  - Aluminum evaporating dish, 100
  - Test tubes, small, 50
  - Weighing dishes, 60
- 

## STRUCTURES AND PROPERTIES OF POLYMERS

### Materials Included in Kit *(for 10 groups of students)*

- Calcium chloride solution, CaCl<sub>2</sub>, 1%, 500 mL
  - Copper(II) chloride solution, CuCl<sub>2</sub>, 0.5 M, 500 mL
  - Sodium alginate, powder, 4 g
  - Sodium chloride solution, NaCl, saturated, 500 mL
  - Beral-type pipet, 20
  - Glue, white, 8 oz., 2 bottles
  - Petri dishes, disposable, 20
- 

## THE IMPACT OF POSITION ON ENERGY

### Materials Included in Kit *(for 10 groups of students)*

- Ball bearing,  $\frac{3}{4}$  in., 10
  - Floral foam, 4" x 3" x 2", 10
- 

## BUILD A ROLLER COASTER

### Materials Included in Kit *(for 10 groups of students)*

- Foam pipe insulation, 60 ft
  - Knife, plastic, 10
  - Marbles, glass, 10
  - Masking tape, 2 rolls
  - Sandpaper, 2 sheets
  - Steel ball, 10
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# MOMENTUM AND IMPULSE DURING COLLISIONS

## Materials Included in Kit *(for 10 groups of students)*

- Balls, red, 15
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## EGG SUPPLY DROP

## Materials Included in Kit *(for 15 groups of students)*

- Eggs, plastic, 15
  - Paper clips, 100
  - Plastic bags, 15
  - String, ball of 1/6 lb.
  - Tissue paper, 48 sheets
  - Washer,  $\frac{3}{4}$  in., 30
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## KINETIC ENERGY

## Materials Included in Kit *(for 10 groups of students)*

- Food dye
  - Polystyrene cups, 16 oz., 50
  - Wax pencils, 4
- 

## CONVECTION, CONDUCTION, AND RADIATION

## Materials Included in Kit *(for 6 groups of students)*

- Conductometer, 2
  - Convection tube, 2
  - Food dye
  - Radiation cans (2 silver, 2 black)
  - Wax
-

## BUILD AN EFFICIENT TRAVEL MUG

### Materials Included in Kit *(for 10 groups of students)*

- Aluminum shot, 500 g
  - Copper shot, 500 g
  - Cardboard
  - Expanded polystyrene cups, 50
  - Paper cups, 30
  - Plastic cups, clear, 30
- 

## BUILD A BATTERY

### Materials Included in Kit *(for 15 groups of students)*

- Aluminum foil, roll
  - Sodium chloride solution, saturated, 500 mL
  - Black connection wire with alligator clips, 15
  - Charcoal, 500 g
  - Chromatography paper
  - Paper clips, box of 100
  - Red connection wire with alligator clips, 15
- 

## NATURAL RESOURCE MANAGEMENT

### Materials Required

- Spreadsheet program
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## MECHANICAL WAVES

### Materials Included in Kit *(for 8 groups of students)*

- Nylon string, 3 ft
  - String, wave motion rope, thin ball
  - Spring toy, 8
-

# INTERFERENCE OF SOUND WAVES

## Materials Included in Kit *(for 8 groups of students)*

- Funnels, polypropylene, 16
  - Tubing connectors, Y-shaped, glass, 16
  - Tubing, latex, 6 m
  - Tuning fork, 426 Hz, 4
  - Tuning fork, 512 Hz, 4
- 

# PARTICLE NATURE OF LIGHT

## Materials Included in Kit *(for 6 groups of students)*

- Cuvettes,  $\frac{1}{2}$ ", 6
  - Phosphorescent strip, 10  $\frac{1}{2}$ " x 1"
  - Photon demonstrator card, 6
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# ELECTROMAGNETIC RADIATION AND MATTER

## Materials Included in Kit *(for 6 groups of students)*

- Electroscope, 6
  - Rubber rod, 6
  - Sandpaper, 9" x 11"
  - Wool, 6" x 6", 6
  - Zinc foil, 3" x 3", 6
- 

# BINARY LOGIC

## Materials Included in Kit *(for 10 groups of students)*

- Breadboards, 10
  - Switches, 20
  - Clear LED, red, 10
  - Resistors, 100  $\Omega$ , 10
  - Battery holders, D, single, 10
  - PVC-insulated wire, 100 ft
- 

# CONVERTING ELECTRICAL SIGNALS TO SOUND

## Materials Included in Kit *(for 8 groups of students)*

- Alligator clips, 16
  - Cups, plastic, 50
  - Headphone-jack plug, 8
  - Magnet wire, 4 oz
  - Magnets, neodymium, 16
  - Radio (to be shared by class)
  - Sandpaper, 9 in x 11 in
  - Speaker wire, 22 AWG, 10 ft
-

# SUBATOMIC PARTICLES

## Materials Included in Kit *(for 10 groups of students)*

- Foam Counters, pkg/10, 10
  - Marbles, magnetic, blue, 20
  - Marbles, magnetic, red, 20
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# NUCLEAR REACTIONS AND CRITICAL MASS

## Materials Included in Kit *(for 10 groups of students)*

- Dice, 6-sided, pkg/10, 20
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# PLATE TECTONICS AND SEAFLOOR SPREADING

## Materials Included in Kit *(for 10 groups of students)*

- Basalt, 30
  - Granite, 30
  - Pangea continental plate, 10
  - Ocean base, 10
  - Ocean crust, purple, 10
  - Ocean crust, red, 10
  - Ocean crust, yellow, 10
- 

# SUNLIGHT INTENSITY AND SOLAR FLARES

## Materials Included in Kit *(for 8 groups of students)*

- Solar mini panels, 1 V, 400 mA, 8
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# THE EXPANSION OF THE UNIVERSE

## **Materials Included in Kit** *(for 10 groups of students)*

- Balloon, round, 20
  - Clothespin, wooden, 25
  - Tape measure, metric, 10
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