## Mechanics

### Measurements
- Gaussian Distribution Machine
- Mass, Length, and Time
- Tinker Toy Vectors

### Motion in Two Directions
- Conical Pendulum
- Parabolic Trajectory of a Water Jet
- Shoot the Monkey
- Simultaneous Fall
- Spinning Block

### Newton's Laws
- **First Law**
  - Hand Smash
- **Second Law**
  - Inertia Ball Breaks String
  - Tablecloth Trick
- **Third Law**
  - Atwood's Machine
  - Fan Cart

### Statics of Rigid Bodies
- Center of Gravity for an Irregular Shape
- Leaning Tower Stability
- Tightrope Walker

### Work and Energy
- Ballistic Pendulum
- Bowling Ball Pendulum
- Loop-the-Loop
- V Shaped Ball Track

### Linear Momentum and Collisions
- Air Track Collisions
- Conservation of Momentum Carts
- Fire Extinguisher Cart
- Newton's Cradle

### Rotational Dynamics
- Adjustable Rotational Inertia
- Bicycle Wheel and Rotating Stool
- Bicycle Wheel Gyroscope
  - Euler's Disk
  - Faster than g
- Hoop and Disk Race
- Rolling Spool
- Tinker Toy Rotator
- Whirligig

### Properties of Matter
- Bravais Lattice Models
- Happy and Unhappy Balls

### Oscillations
- Coupled Pendulum
- Double Pendulum
- Driven and Damped Torsional Pendulum
  - Driven Mass on a Spring
  - Hooke's Law
- Normal Modes on an Air Track
- Self-Synchronizing Metronomes
- Simple Pendulum
- Oscillating Ring
- Pendulum and Turntable