

Sample Use of PhET Activities for High School

<http://phet.colorado.edu>

Physics

Mechanics

Unit 1: **Introduction to Motion**

Activity: Moving Man

Game: Estimation

Unit 2: **More on motion**

Activity: Vector Addition

Activity: Projectile Motion

Unit 3: **Forces and the Laws of Motion**

Activities: Forces in 1 Dimension

1 Predicting speed and directions changes

2 Relating graphs and free body diagrams

Activities: The Ramp

1 Using Free Body Diagrams

2 Quantitative Activity

Activity: Maze Game

1 Using Vector Representations to Move through a Maze

Activity: Curve Fitting: How well does the curve describe the data?

Demo: Friction

Unit 4: **Work, Energy, Momentum and Collisions**

Activities: Masses & Springs:

1 Homework activity

2 Conservation of Energy

Activities: Energy Skate Park

1 Intro to Conservation of Mechanical Energy *

2 Relating Graphs, Position and Speed (no time graphs)*

3 Calculating Speed and Height (no time graphs) *

4 Calculations with Conservation of Mechanical Energy Using Time Graphs

Unit 5: **Circular Motion**

Activity: Ladybug Revolution

Activity: Maze Game

2 Vector Controls for Circular Motion

Electricity & Magnetism

Unit 1: **Heat and Thermodynamics**

Demo: Friction

Activity: Microwaves and Gas Properties for understanding KMT

Activity: States of Matter

Activity: The Greenhouse Effect

Unit 2: **Waves: Introduction to light and sound**

Activity: Waves on a String

Activity: Sound

Activities: Fourier: Making Waves

1 Wave Representation

2 Superposition of Waves

Activity: Geometric Optics

Games: Fourier has a game tab

Unit 3: **Electric and Magnetic Forces and Fields**

Activity: Introduction to Electric Fields: uses both Electric Field Hockey Charges and Fields

Activity: Faraday's Electromagnet Lab

1 Introduction to Magnets

Games: Electric Field Hockey

Demo: Balloons & Static Electricity and John Travoltage

Unit 4: **Current, Resistance, Circuits, and Circuit Elements**

Demo: Introduction to Electric Fields:

Charges and Fields

Activity: Circuit Construction CCK and equipment set:

1 Some Properties of electric circuits using equipment and CCK

2 Series and Parallel Circuits using equipment and CCK

3 Combo Circuits using equipment and CCK

Unit 5: **Induction, Alternating Current, Modern Electronics**

Activity: Faraday's Electromagnet Lab

2 Induction

Demos: Conductivity, Semiconductors, Photoelectric effect

Hint: Scroll to *Teaching Ideas* section of individual simulation page to find sample activities.

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Chemistry Activities *

Introduction to Atoms, Molecules and Ions

Salts & Solubility
Activity 1: Introduction to Salts
Microwaves
Friction
Gas Properties: Review of KMT demo

Formulas, Composition, Measuring chemicals, Stoichiometry

Reactions and Rates
Activity 1: Introduction to Reactions

Chemical Reactions and Solution

Stoichiometry
Salts & Solubility
Activity 2: Solubility

Gases

Gas Properties
Activity 1: Introduction to Gases
Activity 1a: Pressure Demonstration
Activity 2: Understanding Physical Properties of Gases
Activity 3: Using Laws and Theories to Explain Gas Behavior

Thermochemistry

Reactions and Rates
Activity 2: Introduction to Reaction Kinetics

Atomic structure, Periodicity and General Bonding

Alpha decay
Microwaves
Blackbody
Models of Hydrogen Atom, Rutherford Scattering
Neon Lights

Photoelectric effect
Nuclear Fission
Greenhouse

Liquids and Solids

States of Matter

Chemical Kinetics and Equilibrium

Reaction and Rates
Activity 3: Energy Graphs and Reactions
Activity 4: College Version for Tab 3 -- Kinetics
Salts & Solubility
Activity 3: Solution Equilibrium and Ksp

Acids, Bases and Electrolytes

pH Scale

Math Activities

(not sorted by topics)

Arithmetic
Curve Fitting
Equation Grapher
Estimation
Forces in 1 Dimension
Fourier: Making Waves
Gas Properties
Ladybug Revolution
Masses & Springs
Maze Game
Motion in 2D
My Solar System
Pendulum Lab
Plinko Probability
Projectile Motion
Ohm's Law
The Ramp
Torque
Vector Addition
Waves on a String

* Scroll to *Teaching Ideas* section of individual simulation page to find activities designed specifically for that simulation.