

SCIENCE CURRICULUM SUMMARY

The purpose of the Science Curriculum Summary is to present an overview of the Physics I curriculum. Parents are the intended audience of the Science Curriculum.

Unifying Themes
<ul style="list-style-type: none"> •Problem solving skills •Appropriate use of models •Laboratory skills •Describe patterns of change •Describe similar patterns

Math Review
<ul style="list-style-type: none"> •Systems of measurement •Algebra •Trigonometry •Data gathering •Data analysis

1-D Kinematics
<ul style="list-style-type: none"> •Description of motion •Prediction of an object’s displacement, velocity and acceleration •Graphing an object’s displacement, velocity and acceleration (motion graphs) •Using motion graphs to predict an object’s properties •Problem solving with one and two unknowns

2-D Kinematics
<ul style="list-style-type: none"> •Vector addition and subtraction •Navigation •Projectile motion •Problem solving with one and two unknowns

Dynamics
<ul style="list-style-type: none"> •Description of forces •Newton’s three laws of motion •Relationship between force and acceleration •Problem solving with one and two unknowns •Connected objects problems •Description of friction •Problem solving with one and two unknowns •Description of circular motion •Relationships between force, velocity and acceleration •Problem solving with one and two unknowns (up to and including banked curves without friction) •Description of gravity as a centripetal force •Problem solving with one and two unknowns

Inquiry and Design
<ul style="list-style-type: none">•Quantitative and qualitative skills based on observations•Scientific process skills•Theories and laws•Inferences and predictions using scientific information•Tools and technology of Physics•Scientific inquiry to solve problems

Energy
<ul style="list-style-type: none">•Description of energy•Forms of energy•Conservation of energy•Problem solving with one and two unknowns•Description of work•Relationships between force and displacement•Problem solving with one and two unknowns•Description of power•Relationships between power, work and time•Problem solving with one and two unknowns

Momentum
<ul style="list-style-type: none">•Description of momentum•Conservation of momentum•Problem solving with one and two unknowns•Description of elastic and inelastic collisions•Problems solving with two unknowns•Description of impulse•Graphical interpretation of impulse•Problem solving with one unknown

Rotational Kinematics and Dynamics (H)
<ul style="list-style-type: none">•Angular Quantities (displacement, velocity, acceleration)•Angular kinematics•Moment of Inertia•Torque and Newton's Second Law•Rotational Kinetic Energy•Angular Momentum

Simple Harmonic Motion (H)
<ul style="list-style-type: none">•Periodic Nature of Displacement, Velocity, and Acceleration as a function of time•Period and Frequency of a simple harmonic oscillator•Pendulums