

CARTERVILLE SCHOOL DISTRICT
INTRODUCTION TO PHYSICS CURRICULUM
HIGH SCHOOL
Revised 2009

FIRST QUARTER

Describing the Physical Universe

IL Learning Standards: 11.A.4a-f, 5a-c; 12.D.4a, 5a; 13.B.4a

- What is Physics?
- Distance & Time
- Speed

Laws of Motion

IL Learning Standards: 12.D.4a, 5a, 5b; 12.F.4a

- Newton's First Law
- Acceleration & Newton's Second Law
- Gravity & Freefall
- Graphs of Motion

Conservation Laws

IL Learning Standards: 12.C.4a; 12.D.4a

- Newton's Third Law & Momentum
- Energy & Conservation of Energy
- Collisions

Machines, Work, & Energy

IL Learning Standards: 12.C.4a; 13.B.4a

- Work & Power
- Simple Machines
- Efficiency

Forces in Equilibrium

IL Learning Standards: 12.D.4a, 5a

- The Force Vector
- Forces & Equilibrium
- Friction
- Torque & Rotational Equilibrium

SECOND QUARTER

Systems in Motion

IL Learning Standards: 12.D.4a, 5a

- Motion in Two Dimensions
- Circular Motion
- Centripetal Force, Gravitation, & Satellites
- Center of Mass

Temperature, Energy, & Matter

IL Learning Standards: 12.C.4a

- The Nature of Matter
- Temperature & the Phases of Matter
- What is Heat
- Heat Transfer

Physical Properties of Matter

IL Learning Standards: 12.C.4b, 5b

- Properties of Solids
- Fluids
- The Behavior of Gases

The Atom

IL Learning Standards: 11.A.4f; 12.C.4a-b, 5b

- Atomic Structure
- Electrons & the Periodic Table
- Quantum Theory & the Atom

Changes in Matter

IL Learning Standards: 12.C.5a

- Nuclear Reactions

THIRD QUARTER

Electric Circuits

IL Learning Standards: 11.A.4a-e; 12.D.4b, 5b

- Electric Circuits
- Current & Voltage
- Resistance & Ohm's Law

Electrical Systems

IL Learning Standards: 11.A.4a-e; 12.D.4b, 5b

- Series Circuits
- Parallel Circuits
- Electrical Power, AC & DC Electricity

Electrical Charges & Forces

IL Learning Standards: 11.A.4a-e; 12.D.4b, 5b

- Electric Charge & Current
- Electric Current, Resistance, & Voltage
- Capacitors

Magnetism

IL Learning Standards: 11.A.4a-e; 12.D.4b, 5b

- Properties of Magnets
- The Source of Magnetism
- Earth's Magnetic Field

Electromagnets & Induction

IL Learning Standards: 11.A.4a-e; 12.D.4b, 5b

- Electric Current & Magnetism
- Electric Motors
- Electric Generators & Transformers

FOURTH QUARTER

Waves

IL Learning Standards: 12.C.4a

- Waves
- The Motion of Waves
- Wave Interference & Energy

Sound

IL Learning Standards: 11.A.4a-e; 12.C.4a; 13.B.5e

- Properties of Sound
- Sound Waves
- Sound, Perception, & Music

Light and Color

IL Learning Standards: 12.C.4a

- Properties of Light
- Vision & Color
- Using Color

Optics

IL Learning Standards: 12.C.4a; 13.B.4b, 5e

- Optics & Reflection
- Refraction
- Mirrors, Lenses, & Images

The Physical Nature of Light

IL Learning Standards: 12.C.4a; 13.B.4b

- The Electromagnetic Spectrum
- Interference, Diffraction, & Polarization
- Photons