

**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