

# PHYSICS SCOPE AND SEQUENCE

**Textbook: Holt Physics**

## Semester 1:

### **Unit 1: The Science of Physics**

(Fields of Physics, scientific method, SI units, Dimensional analysis, scientific notation)

### **Unit 2: Motion in One Direction**

(Position –time graphs, velocity, acceleration, velocity-time graphs, displacement, distance, free fall, gravity)

### **Unit 3: Two Dimensional Motion & Vectors**

(Scalars, vectors, add & subtract vectors, vector direction, resolve vectors into x & y components, projectile motion)

### **Unit 4: Forces**

(Forces, Newton's 1<sup>st</sup> Law, Newton's 2<sup>nd</sup> Law, Newton's 3<sup>rd</sup> Law, friction, coefficient of static and kinetic friction)

### **Unit 5: Energy**

(Types of Energy, energy conversions, work, kinetic energy, gravitational potential energy, elastic potential energy, conservation of energy, power)

## Semester 2:

### **Unit 6: Momentum & Collisions**

(Momentum, impulse, conservation of momentum, elastic and inelastic collisions)

### **Unit 7: Circular Motion & Gravity**

(Centripetal acceleration, law of gravitation, earth-moon interactions, weight, mass, centripetal motion)

### **Unit 8: Electrostatics**

(Coulomb's law, electric forces, electric charges, charge distribution, acquisition of charge, electric field)

### **Unit 9: Circuits**

(Parallel & series circuits, circuit diagrams, current, potential, resistance, Ohm's Law, electric power)

### **Unit 10: Waves**

(Mechanical waves, electromagnetic spectrum, parts of waves, sound, light, reflection, refraction, wave interference)