

## Conceptual Physics Curriculum Map

| Unit                     | Topics Covered  | NGSS Standards (HS-PS) | Key Skills & Activities                                 |
|--------------------------|---|------------------------|---|
| <b>Intro to Physics</b>  | Experimental procedures, measurement basics, simple graphing, observation skills      | SEPs                   | Hands-on measurement practice, graph interpretation     |
| <b>Motion in 1D</b>      | Speed, velocity, acceleration, qualitative motion analysis, simple kinematics         | HS-PS2-1               | Motion demonstrations, graphing activities              |
| <b>Newton's Laws</b>     | Forces, friction, action-reaction, basic free-body diagrams                           | HS-PS2-1, HS-PS2-2     | Interactive force demos, Mousetrap Car Project          |
| <b>Fluids</b>            | Buoyancy, pressure, Pascal's & Bernoulli's principles, density, Archimedes' principle | HS-PS2-1               | Water displacement activities, buoyancy experiments     |
| <b>Momentum</b>          | Basic energy conservation, momentum, impulse-momentum concept, collisions             | HS-PS3-1               | Hands-on demonstrations, Egg Drop Project               |
| <b>Work &amp; Energy</b> | Work, kinetic & potential energy, mechanical advantage, efficiency, simple machines   | HS-PS3-1, HS-PS3-2     | Problem-solving, interactive demos                      |
| <b>Thermal Energy</b>    | Heat transfer, conduction, convection, radiation, simple calorimetry                  | HS-PS3-4               | Heat transfer activities, simple calorimetry labs       |
| <b>Waves</b>             | Sound, resonance, light reflection, refraction, diffraction, color perception         | HS-PS4-1               | Sound resonance demos, color mixing activities          |
| <b>Electric Circuits</b> | Simple circuits, current, voltage, resistance, magnetism, static electricity          | HS-PS2-5               | Hands-on circuit building, Electric House Build Project |