Honors Physics Summer Work

To get prepared for Honors Physics, I recommend you focus on these tasks over the summer.

**1. Master Algebra and Trigonometry**

Physics relies heavily on math. Focus on:

* Solving equations
* Manipulating formulas
* Trigonometric identities and functions
* Graphing and interpreting functions

**2. Review Basic Kinematics**

Start with:

* Position, velocity, and acceleration
* Motion graphs
* Equations of motion (especially for constant acceleration)

**3. Learn Vector Operations**

Vectors are foundational in physics. Practice:

* Vector addition and subtraction
* Components and unit vectors
* Dot and cross products (if covered in your course)

**4. Study Newton’s Laws**

Understand:

* The three laws of motion
* Free-body diagrams
* Net force and equilibrium

**5. Practice Dimensional Analysis**

Get comfortable converting units and checking equations for consistency using:

* SI units
* Prefixes (kilo-, milli-, etc.)
* Conversion factors

**6. Explore Real-World Applications**

Watch videos or read about how physics applies to:

* Sports
* Space travel
* Engineering
* Everyday phenomena (e.g., why seatbelts work)

**7. Build Problem-Solving Skills**

Work through:

* Conceptual questions
* Word problems
* Multi-step calculations

Use resources like Khan Academy, HyperPhysics, or AP Physics prep books.

**8. Conduct Simple Experiments**

Try hands-on learning with:

* Pendulums
* Ramps and rolling objects
* Measuring acceleration with a smartphone app

**9. Learn to Use a Scientific Calculator**

Make sure you’re fluent with:

* Trig functions
* Scientific notation
* Storing and recalling variables

**10. Read Ahead in a Physics Textbook/Khan Academy**

Skim the first few chapters of a Physics textbook online (there are several free ones at OpenStax.org.