AP Physics 1 Summer Homework

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

**1. Strengthen Math Foundations**

AP Physics requires solid algebra and trigonometry skills. Focus on:

* Rearranging equations
* Solving systems of equations
* Using sine, cosine, and tangent
* Understanding graphs and slopes

**2. Understand Core Physics Concepts**

Start with the big ideas:

* Motion (kinematics)
* Forces and Newton’s Laws
* Energy and work
* Momentum and collisions
* Waves and sound (for AP Physics 1)

**3. Practice Graph Interpretation**

Physics often uses graphs to represent motion, forces, and energy. Learn to:

* Interpret position vs. time and velocity vs. time graphs
* Calculate slopes and areas under curves
* Recognize linear vs. nonlinear relationships

**4. Learn to Draw and Analyze Free-Body Diagrams**

These are essential for solving force problems. Practice:

* Identifying all forces acting on an object
* Drawing vectors to scale
* Applying Newton’s Second Law

**5. Review Units and Dimensional Analysis**

Get comfortable with:

* SI units and prefixes
* Converting between units
* Checking equations for dimensional consistency

**6. Explore Real-World Physics**

Watch videos or read articles about:

* How physics explains sports, music, or roller coasters
* Engineering applications
* Space and astrophysics

**7. Solve Conceptual and Quantitative Problems**

Use resources like:

* College Board’s AP Classroom
* Khan Academy
* AP Physics prep books (e.g., Princeton Review, 5 Steps to a 5)

**8. Conduct Simple At-Home Experiments**

Try:

* Measuring acceleration with a phone
* Building a simple pendulum
* Exploring conservation of momentum with toy cars

**9. Familiarize Yourself with the AP Exam Format**

Understand:

* The types of questions (MCQs and FRQs)
* How to show work clearly
* Scoring rubrics and common mistakes

**10. Preview the Curriculum**

Skim through an AP Physics textbook or syllabus to:

* Get a sense of the topics
* Identify areas you’re excited or nervous about
* Create a rough study plan