

AP Physics 1 Summer Work

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The summer work for AP Physics 1 requires students to prepare for the course by learning the concepts and mathematical skills to complete the first sections of the course on motion. Students will create Khan Academy accounts using a personal email in order to track their progress through the curriculum. Feel free to download the Kahn Academy App to your mobile devices as well. Students will provide evidence of completion of the AP Physics 1 sections on motion (1-D Kinematics and 2-D Kinematics) by completing the following tasks. Students should expect to complete a quiz on these topics in the first two weeks of the course.

Khan Academy – AP Physics 1: <https://www.khanacademy.org/science/ap-physics-1>
Make sure you complete the “AP Physics 1” curriculum and not the “Physics” curriculum on Khan Academy. The “AP Physics 1” material on Khan Academy has been approved by the AP CollegeBoard.

- Complete all of the content within the first two sections of the AP Physics 1 curriculum as listed on the Khan Academy webpage for AP Physics 1: One-Dimensional Motion and Two-Dimensional Motion.
- Once you have completed all of the content of a section by passing the section’s unit test, take a screen shot of your completion. Store the screenshots of the completion of each section and be prepared to submit these screenshots at the beginning of the school year to provide evidence of your completion of the AP Physics 1 Summer Work.

Optional Online Resources:

Physics Simulations

- PhET Simulations: <https://phet.colorado.edu/en/simulations/category/physics>
- PhET Motion Simulations: <https://phet.colorado.edu/en/simulations/category/physics/motion>
- CK-12 Physics Simulations: <https://interactives.ck12.org/simulations/physics.html>

Online Course-related Resources:

- AP Physics 1 webpage (Equation Sheet, Course Overview, Course Description, etc): <https://apstudent.collegeboard.org/apcourse/ap-physics-1>
- Free Online College Physics Textbook (This is not the course textbook): <https://cnx.org/contents/jQSmhtXo@16.1:6pB5TgBD@4/Connection-for-AP-Courses>

Online Math Tools:

- Wolfram Alpha: <http://www.wolframalpha.com/>
- Desmos (Online Graphing Calculator): <https://www.desmos.com/>
- GeoGebra: <https://www.geogebra.org/>

Fun/Interesting Physics-related Material:

- The Scale of the Universe: <http://scaleofuniverse.com/>
- 3D Solar System Simulator: <https://theskylive.com/3dsolarsystem?obj=&h=04&m=55&date=1991-10-14>
- Gravity Simulator: <http://www.testtubegames.com/gravity.html>
- The Universe in a Nutshell: <https://www.youtube.com/watch?v=0NbBjNiw4tk>
- OK GO – Rube Goldberg Machine: <https://www.youtube.com/watch?v=qybUFnY7Y8w>
- OK GO – Micro Gravity: <https://www.youtube.com/watch?v=LWGJA9i18Co>
- Direct Measurement Physics Videos: <https://serc.carleton.edu/dmvideos/videos.html>
- National Physical Laboratory (The 7 Base SI Units Playlist): https://www.youtube.com/watch?v=2M_WT92Kq_s&list=PLBB61840785ED0B1D
- The American Kilogram: https://www.youtube.com/watch?v=SmSJXC6_qQ8&index=17&list=PLYFZ01WWAXI2gWf5d9-Y9g75a-kUcTXJo
- Magnets and Marbles – Rube Goldberg Machine: <https://www.youtube.com/watch?v=QQ9gs-5IRKc>