Springs PhET Lab - Periodic Motion and Hooke's Law



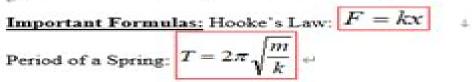
Introduction:

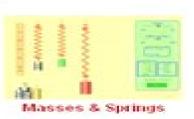
To stretch a spring, a force must be applied. Hooke's Law gives us the formula for how much force we need to apply to stretch or compress a spring. The spring constant "k" is the variable we use to express how stiff a spring is. A spring with

a large spring constant requires a large force to compress it. A car's springs have very large spring constants.

➤ Does the spring in a ballpoint pen have a large or small spring constant? _Large_

When a mass is attached to a spring vertically, as in the diagram above, the force that extends the spring is the mass's weight. The greater the weight (force, F) applied to the spring, the larger the spring's extension displacement (x).





<u>Procedure:</u> Play with the Sims \rightarrow Motion \rightarrow Masses and Springs Ran North Use "Intro" \leftarrow Part I: Determine the spring constant of spring #1 \leftarrow

Hang a 50g mass from the first spring and measure the displacement (x) in meters. Change the mass and repeat. Fill out the table below:

| | Mass used (kg) | Weight, $W = F(N)$ | Displacement, x (m) | Spring 1's spring constant | , ke- |
|---|----------------------|--------------------|---------------------|----------------------------|-------|
| T | .050 kg↔ | +2 | +2 | 43 | 4- |
| | .100 kg.⇔ | +2 | +2 | +2 | + |
| | .250 kg [⊕] | +2 | +2 | +2 | - |

| Displacement, x (m) | Weight, W (N) | Mass used, m (kg) ↔ | |
|---------------------|---------------------|---|--|
| 43 | 43 | Pink = | 7 |
| 43 | 43 | Cyan = € ³ | 7 |
| +2 | 42 | Gold = +3 | 7 |
| | Displacement, x (m) | Displacement, x (m) Weight, W (N) +2 +2 +2 +2 +2 +2 +2 +2 +2 +2 +2 +2 +2 + | e ² Pink = e ³ Pink = e ³ Cyan = e ³ |

Now hang a 100g mass from spring 1. Using the buttons on the right, determine the acceleration of gravity on Jupiter. (Hint...use k and x to find F...then use F and m to find a. Recall

$$W = mg$$
 or $F = ma$

Phet Lab Answers Hookes Law

Lei Shi

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Proceedings of the 7th Annual International Seminar on Transformative Education and Educational Leadership, AISTEEL 2022, 20 September 2022, Medan, North Sumatera Province, Indonesia Bornok Sinaga, Rahmad Husein, Juniastel Rajagukguk, 2022-12-06 Proceedings of the 7th Annual International Seminar on Transformative Education and Educational Leadership AISTEEL 2022 contains several papers that have presented at the seminar with theme Technology and Innovation in Educational Transformation This seminar was held on 20 September 2022 and organized by Postgraduate School Univesitas Negeri Medan and become a routine agenda annually The 7th AISTEEL was realized this year with various presenters lecturers researchers and students from universities both in and out of Indonesia The 7th AISTEEL presents 4 distinguished keynote speakers from Universitas Negeri Medan Indonesia Murdoch University Australia Curtin University Perth Australia University Malaya Malaysia Monash University Australia and Tampere University of Applied Sciences Finland In addition presenters of parallel sessions come from various Government and Private Universities Institutions Academy and Schools Some of them are those who have sat and will sit in the oral defence examination. The plenary speakers have been present topics covering multi disciplines They have contributed many inspiring inputs on current trending educational research topics all over the world The expectation is that all potential lecturers and students have shared their research findings for improving their teaching process and quality and leadership There are 162 papers passed through rigorous reviews process and accepted by the committee All of papers reflect the conference scopes by follow Teachers Education Model in Future Education and Research Global Issue Transformative Learning and Educational Leadership Mathematics Science and Nursing Education Social Language and Cultural Education Vocational Education and Educational Technology Economics Business and Management Education Curriculum Research and Development Innovative Educational Practices and Effective Technology in the Classroom Educational Policy and Administration Education **Collected Papers of Carl Wieman** C. E. Wieman, 2008 Carl Wieman's contributions have had a major impact on defining the field of atomic physics as it exists today His ground breaking research has included precision laser spectroscopy using lasers and atoms to provide important table top tests of theories of elementary particle physics the development of techniques to cool and trap atoms using laser light particularly in inventing much simpler less expensive ways to do this the understanding of how atoms interact with one another and light at ultracold temperatures and the creation of the first BoseOCoEinstein condensation in a dilute gas and the study of the properties of this condensate In recent years he has also turned his attention to physics education and new methods and research in that area This indispensable volume presents his collected papers with annotations from the author tracing his fascinating research path and providing valuable insight about the significance of the works Sample Chapter's Introduction 197 KB Contents Precision Measurement and Parity Nonconservation Laser Cooling and Trapping BoseOCoEinstein Condensation Science Education Development of Research Technology Readership Graduates

postgraduates and researchers in atomic physics laser physics and general physics Teaching Science Online Dietmar Kennepohl, 2023-07-03 With the increasing focus on science education growing attention is being paid to how science is taught Educators in science and science related disciplines are recognizing that distance delivery opens up new opportunities for delivering information providing interactivity collaborative opportunities and feedback as well as for increasing access for students This book presents the guidance of expert science educators from the US and from around the globe They describe key concepts delivery modes and emerging technologies and offer models of practice The book places particular emphasis on experimentation lab and field work as they are fundamentally part of the education in most scientific disciplines Chapters include Discipline methodology and teaching strategies in the specific areas of physics biology chemistry and earth sciences An overview of the important and appropriate learning technologies ICTs for each major science Best practices for establishing and maintaining a successful course online Insights and tips for handling practical components like laboratories and field work Coverage of breaking topics including MOOCs learning analytics open educational resources and m learning Strategies for engaging your students online Hooke's Law and Trees Billie J. Bradshaw, 2007 <u>Investigation</u> of Hooke's Law for Small Strains Howard Pollock Doole,1922

Phet Lab Answers Hookes Law Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has be more apparent than ever. Its ability to stir emotions, provoke thought, and instigate transformation is really remarkable. This extraordinary book, aptly titled "**Phet Lab Answers Hookes Law**," compiled by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound affect our existence. Throughout this critique, we shall delve into the book is central themes, evaluate its unique writing style, and assess its overall influence on its readership.

 $\underline{https://crm.avenza.com/files/browse/default.aspx/nelson\%20math\%20focus\%206\%20workbook\%20answers.pdf}$

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