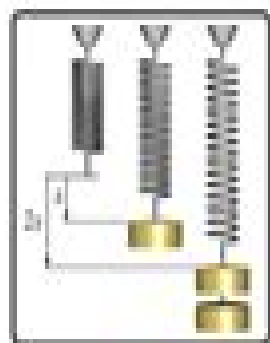


Hooke's Law



Testing Hooke's Law

The relationship between the force applied to a spring and the extension is described by Hooke's Law.

We can test this by using a spring, a ruler and a set of weights. We can measure the force applied to the spring and the extension. We can then plot a graph of force against extension.

If the spring is within its elastic limit, the graph will be a straight line through the origin. This shows that the force is directly proportional to the extension. If the spring is outside its elastic limit, the graph will be a curve.

Graphs of force against extension are used to find the spring constant of a spring. The spring constant is a measure of the stiffness of a spring.

We can also use a graph of force against extension to find the work done in stretching a spring. The area under the graph is equal to the work done.

Work Done and the Spring Constant

Work done is the energy transferred when a force is applied to an object and it moves through a distance.

We can find the work done in stretching a spring by plotting a graph of force against extension. The area under the graph is equal to the work done.



The work done in stretching the spring is equal to the area under the graph. In this case, the work done is 1.25 J.

- 1. The work done in stretching the spring is 1.25 J.
- 2. The spring constant is 10 N/m.
- 3. The extension of the spring is 0.25 m.

Work Done and the Spring Constant

Work done is the energy transferred when a force is applied to an object and it moves through a distance.

Force (N)	Extension (m)
0	0
1	0.1
2	0.2
3	0.3
4	0.4
5	0.5

The work done in stretching the spring is 1.25 J.

Work Done and the Spring Constant

The work done in stretching the spring is 1.25 J.

The work done in stretching the spring is 1.25 J.

The work done in stretching the spring is 1.25 J.

1.25 J

PhET
Online Lab

PhET Simulation

Work Done and the Spring Constant

The work done in stretching the spring is 1.25 J.

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The work done in stretching the spring is 1.25 J.

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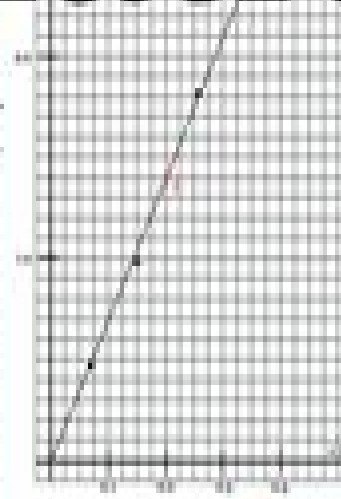
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1.25 J



1.25 J

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Guo Zhong-heng

A red circular graphic with a gradient, appearing as a semi-circle or a partial circle, located to the right of the name bar.

Hooke's Law Phet Lab:

The Physics of Music Gordon P. Ramsey, 2024-06-18 This textbook is designed to help students and professionals understand the intimate connection between music and physics. The reader does not need prior background in music or physics as the concepts necessary for understanding this connection are developed from scratch using nothing more sophisticated than basic algebra which is reviewed for the reader. The focus is on connecting physics to the creation of music and its effect on humans. The reader will learn about the basic structure of music in relation to acoustics concepts, different musical instrument groups, how the room affects sound, and how sound travels from instruments to human ears to evoke an emotional reaction. Replete with exercises to hone students' understanding, this book is ideal for a course on the physics of music and will appeal to STEM students as well as students, professionals, and enthusiasts in any field related to music and sound engineering.

Hooke's Law and Trees Billie J. Bradshaw, 2007 **Investigation of Hooke's Law for Small Strains** Howard Pollock Doole, 1922 *On Hooke's Law and Its Generalization* Guo Zhong-heng, 1983

Unveiling the Magic of Words: A Report on "**Hookes Law Phet Lab**"

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