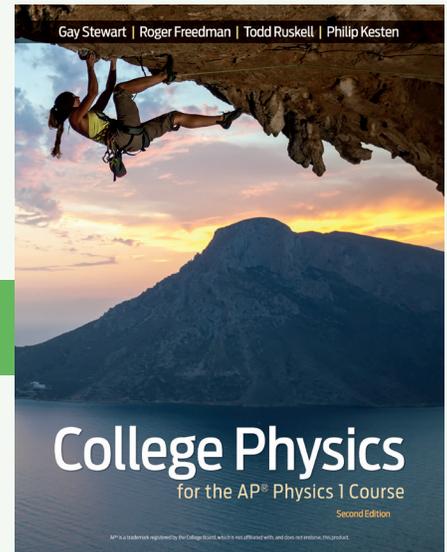


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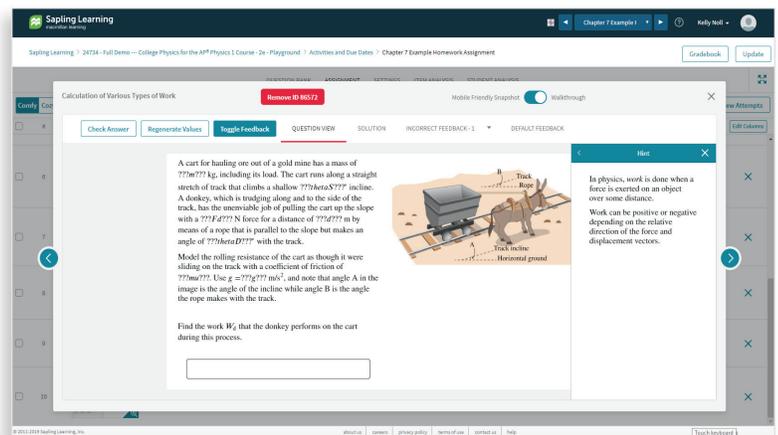
FOR COLLEGE PHYSICS FOR THE AP[®] PHYSICS 1 COURSE

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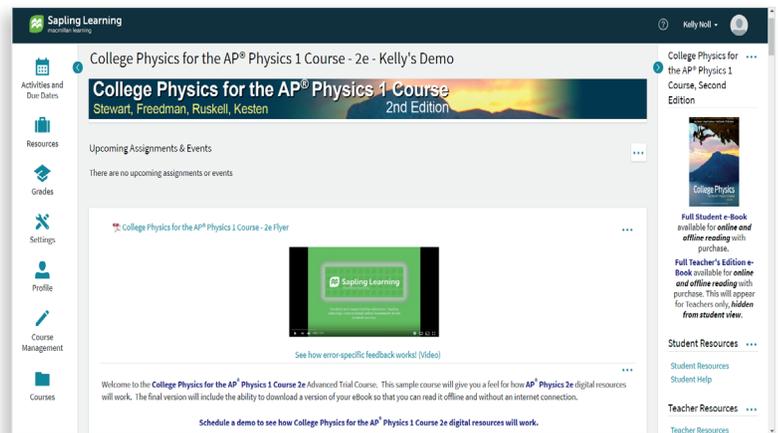
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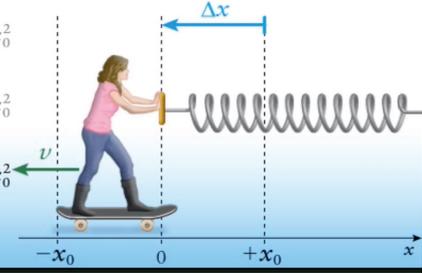
Resources include **FlipIt Videos**. FlipIt is a class preparation system backed and proven to be effective by published research. It is the ideal tool for anybody looking for active learning or simply seeking a way to better prepare students for class.

Work done by the Spring Force

$$W_{\text{spring}} = -\left(\frac{1}{2} kx_f^2 - \frac{1}{2} kx_i^2\right)$$

$$W_{-x_0 \rightarrow 0} = -\left(0 - \frac{1}{2} kx_0^2\right) = +\frac{1}{2} kx_0^2$$

$$W_{0 \rightarrow x_0} = -\left(\frac{1}{2} kx_0^2 - 0\right) = -\frac{1}{2} kx_0^2$$

$$W_{x_0 \rightarrow 0} = -\left(0 - \frac{1}{2} kx_0^2\right) = +\frac{1}{2} kx_0^2$$


The **SaplingPlus e-book** is fully accessible on all devices both online and offline, as well as on mobile. With intuitive navigation you can create bookmarks, take notes & highlights, and more. With Windows, Mac, iOS, Android, and Kindle apps, text can be read aloud. **Study better!**

eBOOK NOTEBOOK 278

AP® EXAM TIP

There is not a symbol called weight on the AP® equation sheet, but the force of gravity between two objects with mass is given, and then is used in the definition of the gravitational field. The force of gravity near the surface of Earth is weight. While weight is not defined on the equation sheet, a symbol representing weight may be defined for you in AP® problems. Always carefully note the definition of all symbols introduced in a problem statement, and be sure to carefully define any symbols you introduce.

We saw in Chapters 4 and 5 that it's important to keep track of what object exerts a given force and on what object that force is exerted. It's equally important to keep track of both the object that exerts a force and the object on which the force does work (and they are the same observational!). For example, in Figure 7.2, the object exerting a force is the man, and the object on which the force is exerted and on which work is done is the crate. Just like a force must be exerted by something external to the object or the system, work is done on an object or system by an external force. Work is the first way we will explore how to transfer energy.

We know that the unit of force is the newton and the unit of distance is the meter. The SI unit of energy, $1 \text{ J} = (1 \text{ N})(1 \text{ m})$, is the newton-meter, or Nm. This unit is also called the joule (J), named after the nineteenth-century English physicist James Joule, who did fundamental research on the relationship between motion and work. From Equation 7.1,

$$1 \text{ J} = (1 \text{ N})(1 \text{ m})$$

You do 1 J of work when you exert a 1-N push on an object in the direction it is moving as it moves through a distance of 1 m.

WATCH OUT!

An easy-to-use **gradebook** provides a clear window on performance for the whole class, for individual students, and individual assignments to help you give each student the support he or she needs.

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Grader report

VIEW CATEGORIES AND ITEMS SCALES LETTERS IMPORT EXPORT SETTINGS MY PREFERENCES

Grade Report Overview Report User Report

→ assignment not started (more information)
 → assignment in progress (more information)
 blue ✓ (with "✓") completed (more information)
 blue ✗ (with "✗") always remaining but past due (more information)

Separate groups All participants Show All

First name / Last name	Category	The...								Category	Score
		Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8		
Hagen, David	-	0.0	-	-	-	-	-	-	-	37.0	4.6
Rachael Betts	-	42.5	-	-	-	-	-	-	-	39.0	10.2
Andy Bitter	-	0.0	-	-	-	-	-	-	-	40.0	5.0
Jess Caperty	-	45.0	-	-	-	-	-	-	-	55.0	13.0
Amanda Westbrook	-	48.5	-	-	-	-	-	-	-	40.2	11.1
Luke Garbach	-	-	-	-	-	-	-	-	-	70.0	17.0

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