

## Lab: Damped Oscillations, Part One

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You have been asked to design a metronome for a famous pianist, and you have decided to use a spring with a small mass attached, which will bounce up and down with the beat. Now, this metronome will only be useful if the *period* (or the time it takes for one full cycle) of an oscillation stays the same over a long enough time interval (at least for a three minute tune). When you let the spring oscillate for a long period of time, you observe that the amplitude gradually gets smaller. What about the period?



**Question:** Does the period of a spring stay the same over time?

This week you will focus on **data-collecting**. Next week, we will do a lot more with your data and try to answer some more questions about your metronome, so use your time wisely and take as much data as time allows.

### Timetable

<b>I. Introduction:</b>	<b>10 min</b>	<b>Whole class</b>
<b>II. Brainstorming and Planning:</b>	<b>10 min</b>	<b>Groups of 4</b>
<b>III. Carrying out the Experiment:</b>	<b>40 min</b>	<b>Groups of 4</b>
<b>IV. Class Discussion:</b>	<b>30 min</b>	<b>Whole Class</b>
<b>V. Evaluate and Reconsider:</b>	<b>15 min</b>	<b>Groups of 4</b>