

Spring Calculations Lab



Hopefully you discovered that mass is the important factor in the frequency of a spring-mass system. The book states that the period (T) for one cycle of a mass-spring system follows this formula: $T = 2\pi \sqrt{\frac{m}{k}}$. k is the spring constant of the spring. Some springs are harder to pull than others, so different springs will have different spring constants. You can discover for yourself if that formula is valuable by solving this equation for the spring constant:

1. Measure accurately the period (T) of one of the spring-mass systems.
(Probably measuring the time for 10 periods is more accurate than trying to measure one period)
2. Solve the equation above for k symbolically. Evaluate the equation using the value of the mass you are using (in Kg) and the period you measured.
3. Then using the calculated spring constant, predict the period using the other mass and the original equation for the period (T).
4. If the spring constant calculated from the first mass allows you to predict the period using the other mass, then you may be able to convince someone else that the equation has value.

Write-up Instructions

This write-up should have 3 paragraphs

1. Conclusion- What do you think are the key points of this lab?
2. Clear procedures- so someone else could repeat your experiment.
3. Discussion of theoretical equation vs experimental calculations.