

## Suggested activity

Topic: Oscillation of a Spring

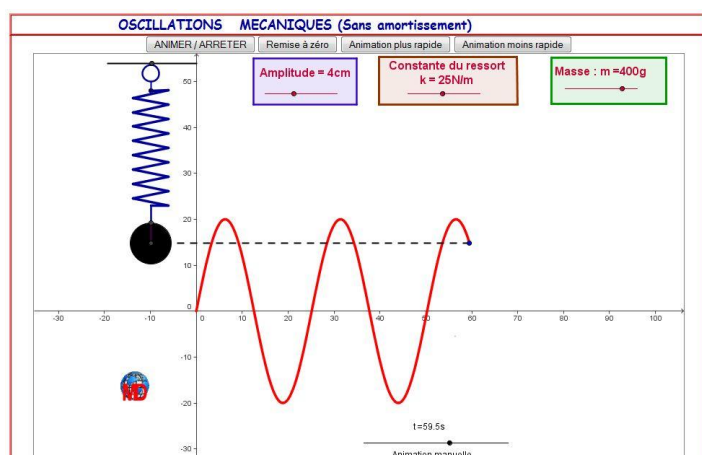
Level: Secondary V

Branch of mathematics: Algebra (periodic functions)

Option: Technical and Scientific

### SOFTWARE-BASED SIMULATION

In this activity, students must accurately determine or represent the relationship between the position of a mass suspended on a spring and the amount of time elapsed from the moment of displacement. Helical, or coil, springs are commonly used in automobile suspension systems. Their geometry and the variety of materials available can make them highly compact. In addition, a shock absorber can easily be incorporated into the spring. Certain characteristics of springs can be studied using a simple vertical apparatus: by securing one end of the spring and suspending a mass from the other end, we can observe the mass oscillating.



[Online][<http://dmentrard.free.fr/GEOGEBRA/Sciences/Physique/Ondes/Oscillation.html>]

### DEVELOPMENT OF THE COMPETENCIES

Students use mathematical reasoning when they are asked to accurately determine the relationship between the position of a mass suspended on a spring and the amount of time elapsed from the moment of displacement. They identify various relationships based on their understanding of dependency relationships and the concept of function.

Students communicate by using mathematical language when they interpret or produce symbolic expressions (equations or functions) used to model the relationship between the position of a mass suspended on a spring and the amount of time elapsed from the moment of displacement. They use everyday language, symbols, graphs and tables of values to represent this relationship.