

Goals

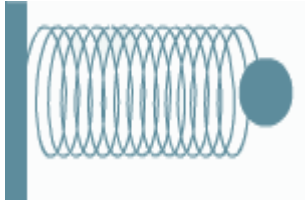
By the end of this unit, students:

- understand the concepts and techniques in applications of calculus and statistical inference
- apply reasoning skills and solve problems in applications of calculus and statistical inference
- communicate their arguments and strategies when solving problems
- construct proofs of results
- interpret mathematical and statistical information and ascertain the reasonableness of their solutions to problems.

This week:

Modelling motion:

- examine momentum, force, resultant force, action and reaction (constant and non-constant force)
- understand motion of a body under concurrent forces
- consider and solve problems involving motion in a straight line with both constant and non-constant acceleration, including simple harmonic motion and the use of expressions $\frac{dv}{dt}$, $v \frac{dv}{dx}$ and $\frac{d(\frac{1}{2}v^2)}{dx}$ for acceleration.



Source: <https://bit.ly/3dtKUOL>

Theoretical Components

Read the notes and study the examples.
(Classroom/S2/WK12)

Further notes/examples:

- <https://bit.ly/3dsB4N2>
- <https://bit.ly/3IRcsk6>
- <https://bit.ly/3j390B1>
- <https://bit.ly/2TbHpmR>

Video Examples:

- <https://bit.ly/37adTpz>
- <https://bit.ly/31bxD8A>

Khan's Academy: <https://bit.ly/3IVzzdj>

Practical Components

Exercises: available in Google Classroom/S2/WK12

Investigation

None this week.

Experiment the effects of changing the parameters on SHM:

<https://www.desmos.com/calculator/l2drxpbzqi>

QFO

Quiz/Forum/Other

Keep checking G/Classroom for more resources.