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Mechanics: Developing a Scheme of Work

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Session description

The linear A level provides opportunity for re-thinking the scheme of work. In this session we will focus on the mechanics content within A level maths. We will look through the mechanics topics and consider features of a SoW such as developing a coherent teaching order, making links with other topics and embedding overarching themes.

Please bring along a copy of your existing SoW for reference.

Warning: This session will not solve all your SoW problems and may leave you with follow-up work to do!

Opening question

A particle is travelling in a straight line with constant acceleration. After 1 second its velocity is 7 ms^{-1} and after 2 seconds its velocity is 11 ms^{-1} .

Find the initial speed and constant acceleration.

A line passes through the points A (1, 7) and B (2, 11).

Find the equation of the line and state the gradient and y-intercept.

AS/A level content

Overarching themes

Mechanics content statements

Mechanics references

Link to Mathematics AS and A level content document (DfE, 2014):

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/516949/GCE_AS_and_A_level_subject_content_for_mathematics_with_appendices.pdf

Task – Part I

On the post-it notes write down all the important aspects of the topic including

- key content students need to learn
- prior knowledge esp. pure topics & AS mechanics
- steps in learning
- resources and ideas for activities inc. practicals, demos, thought experiments, investigations
- opportunities for modelling
- links to other aspects of the curriculum inc. pure
- how you will incorporate technology and the OTs
- assessment

Task – Part II

Start to shape a sequence of lessons

Begin to sort, order, discard, add to the notes to create a structure for the sequence of lessons.

You might want to use the SoW units as a starting point.

Sharing ideas

Do you have any

- ideas for practicals, experiments, etc?
- suggestions of links to other topics?
- use of technology?
- other feedback?

Link to MEI SoW editable units and suggested schedules:

<http://mei.org.uk/2017-sow>

About MEI

- Registered charity committed to improving mathematics education
- Independent UK curriculum development body
- We offer continuing professional development courses, provide specialist tuition for students and work with employers to enhance mathematical skills in the workplace
- We also pioneer the development of innovative teaching and learning resources