Moving from 2D to 3D

Nevil Hopley

From What to How

Moving from 2D to 3D

Nevil Hopley

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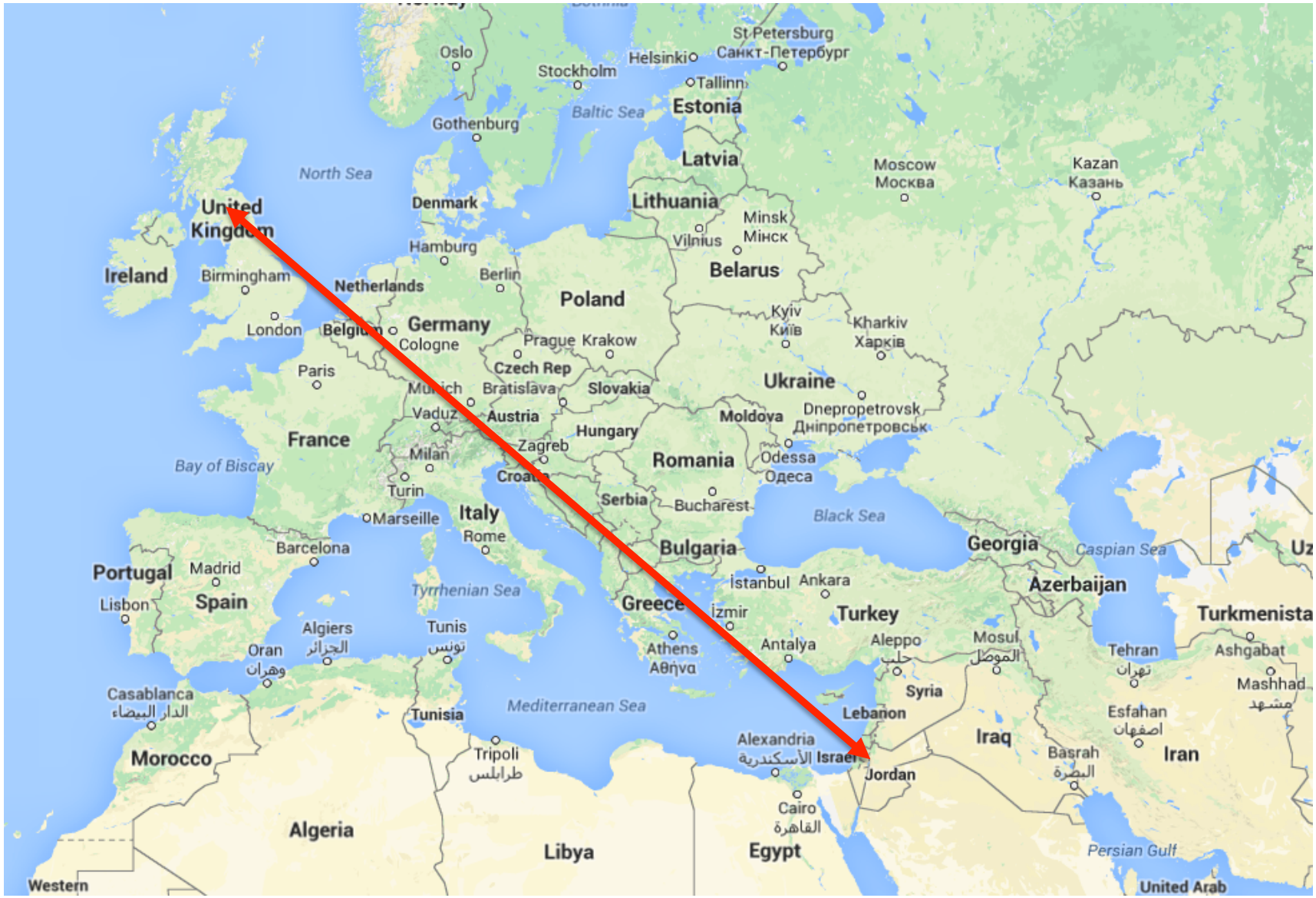
Mathematics Teacher

Head of Mathematics Department

www.calculatorsoftware.co.uk/nspire

Journey: 2496 miles (4015km)



This talk will have a….

A Beginning

The options for today

A Middle

Following up your chosen option

An End

Where’s the lesson plan?

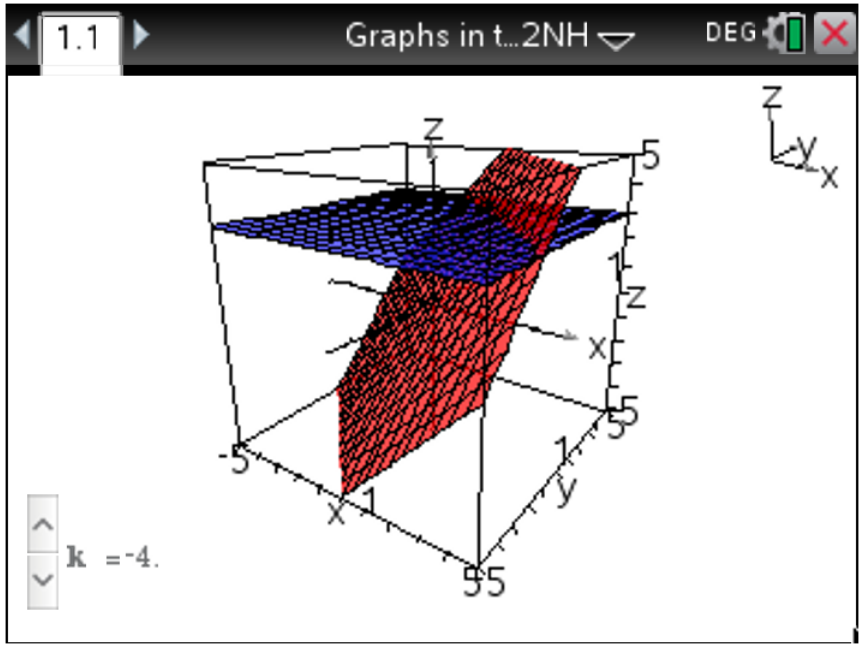
And you can download all that you see today from

www.calculatorsoftware.co.uk/nspire

Why do students find 3D harder than 2D?

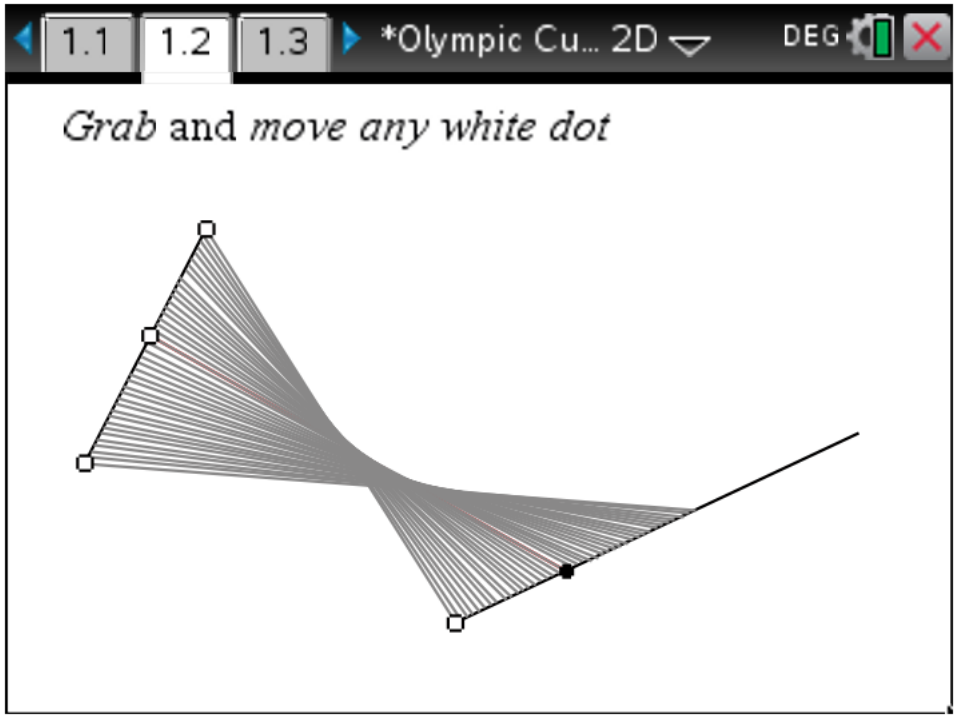
Talk to your neighbour about why you think students find three dimensional work hard.

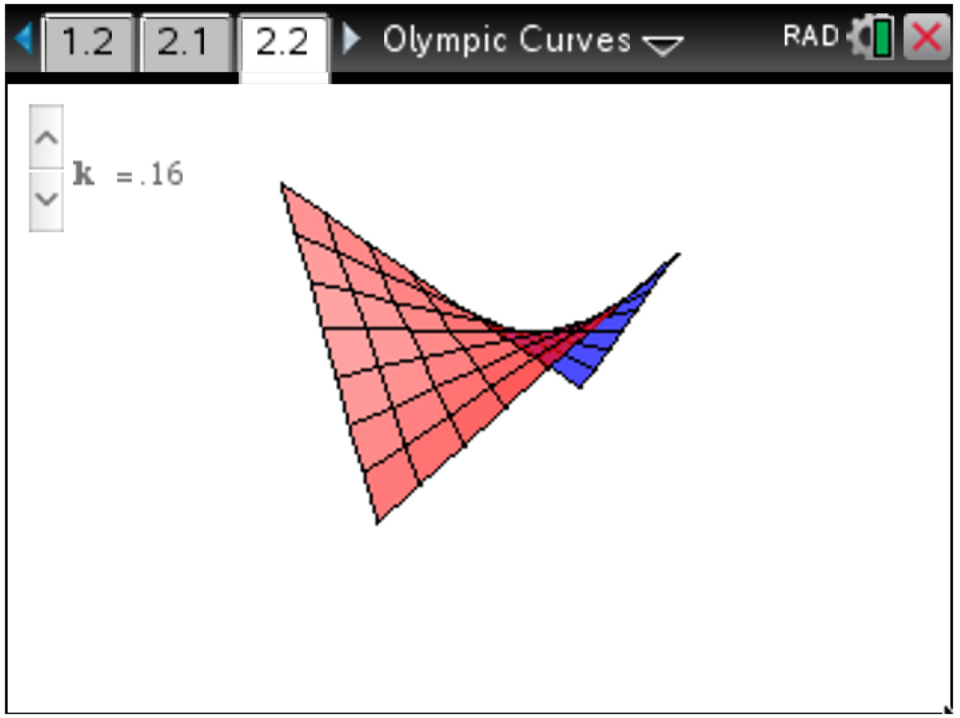
Option: Creating 3D Planes on the TI-Nspire



Graphs in the Next Dimension.pdf

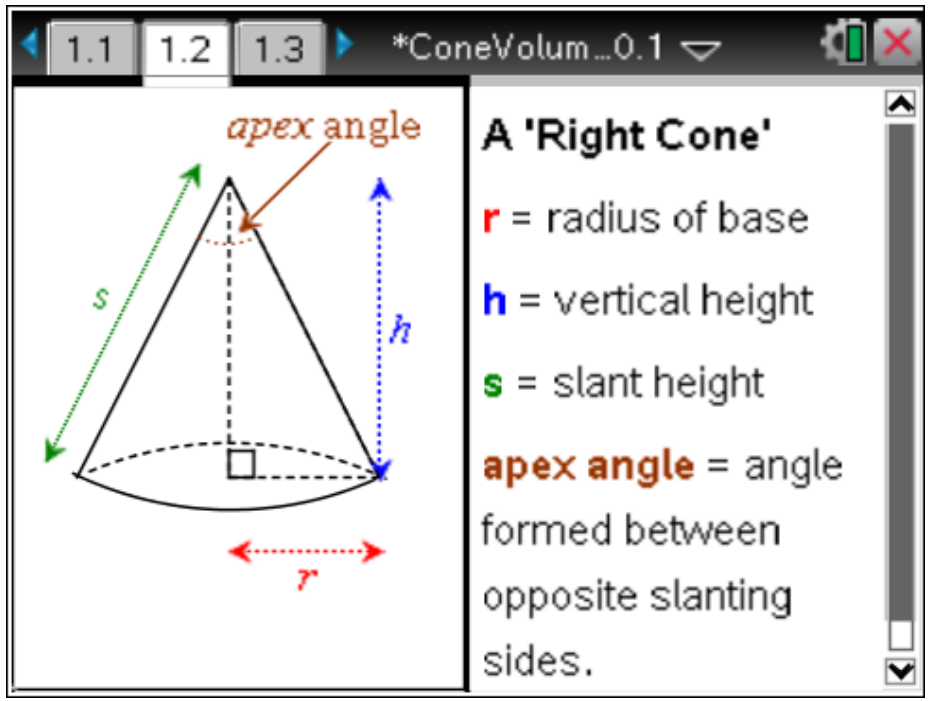
Option: Creating 2D & 3D Curves on the TI-Nspire

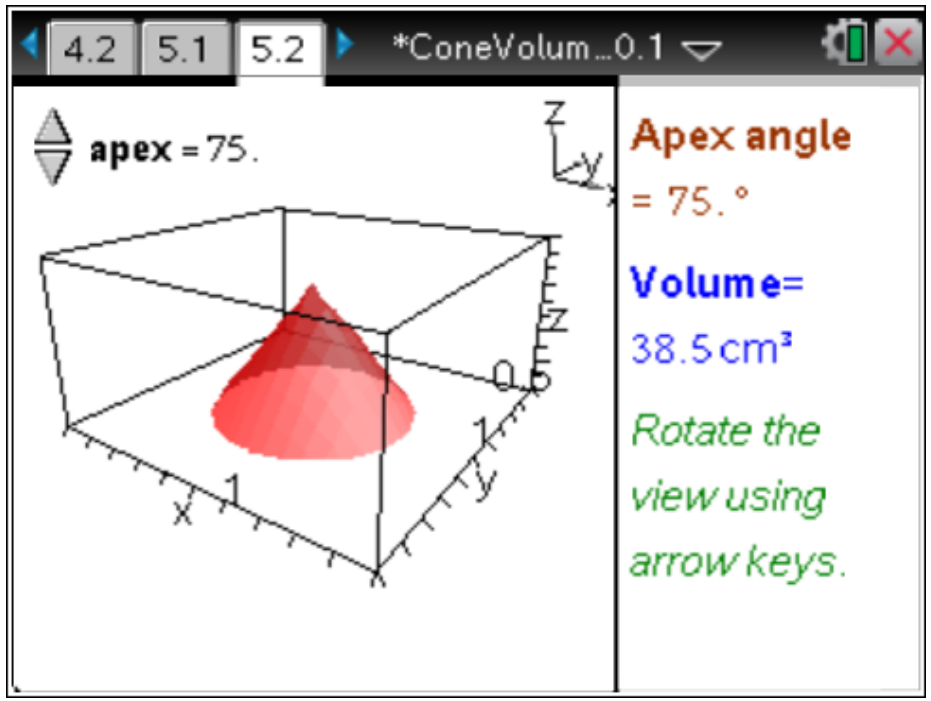




Olympic Curves.pdf
Olympic Curves.tns

Option: Optimising the Volume of a Cone





Cone Volumes.pdf
Cone Volumes.tns

Similar Cones.pdf

Option: Pointing to 3D Space!

1.1 | 1.2 | 3D Coordina...tro | DEG

3D Coordinates Introduction

Have the students use 31 multilink blocks to build a set of 3D axes. 10 blocks for each axis, and 1 for the origin.

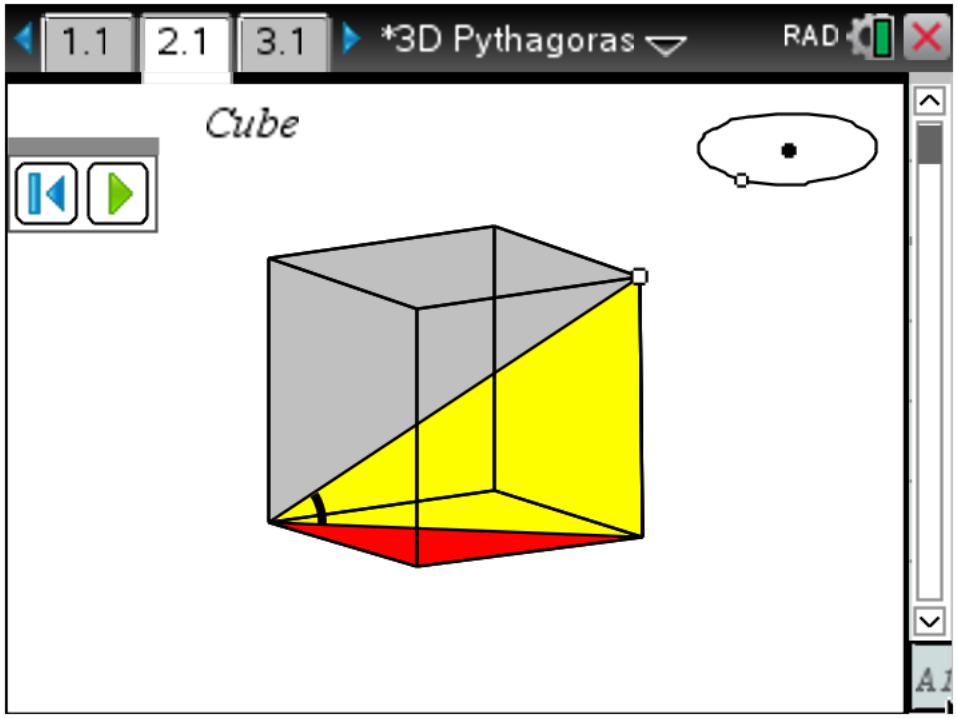
Then, using page 1.2, press VAR and select coordsn(n) to generate random 3D coordinates in 3D space, that include more and more negatives.

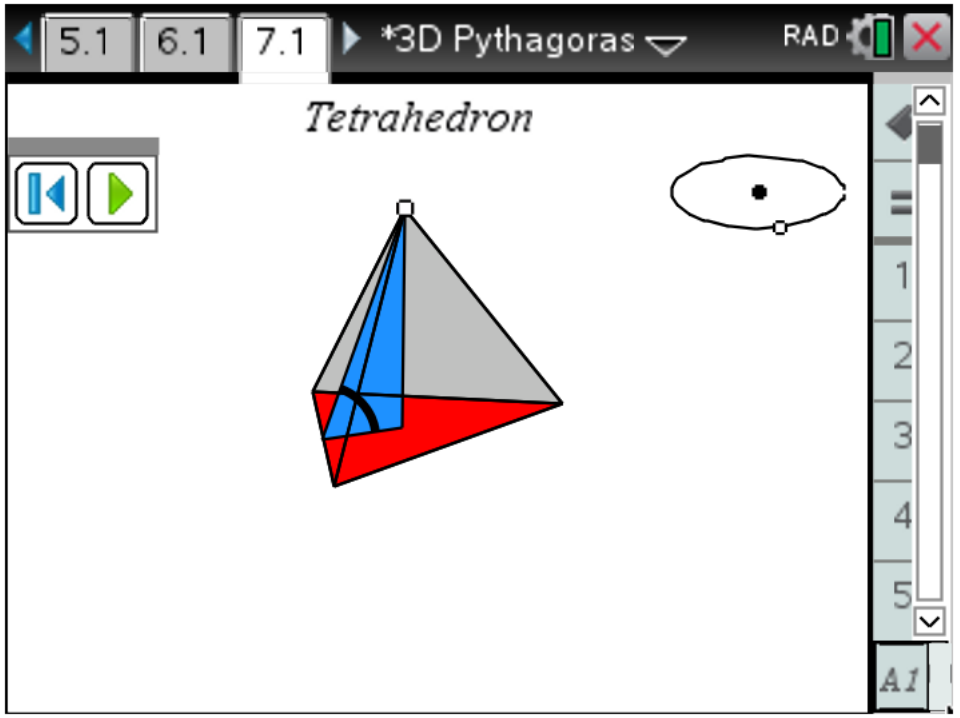
1.1 | 1.2 | *3D Coordin...tro | DEG

$coords1(1)$	$\{5,9,8\}$
$coords2(2)$	$\{7,-3,5\}$
$coords3(3)$	$\{-8,-8,6\}$
$coords4(4)$	$\{-6,0,5\}$
$coords5(5)$	$\{3,-3,-9\}$

3D Coordinates Intro.tns

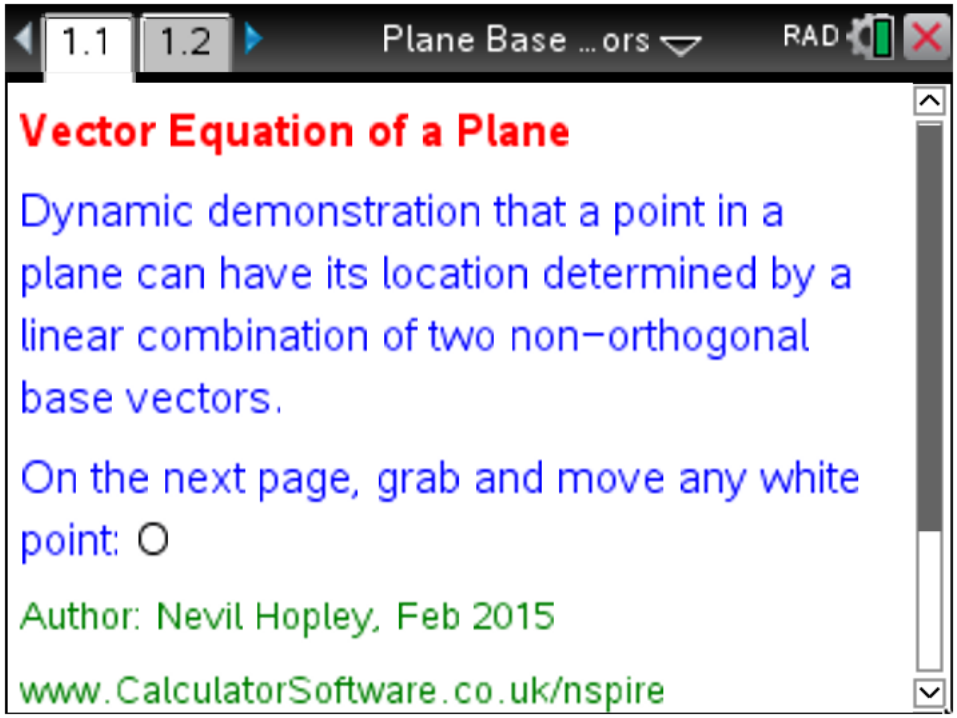
Option: Supporting 3D Pythagoras' Theorem

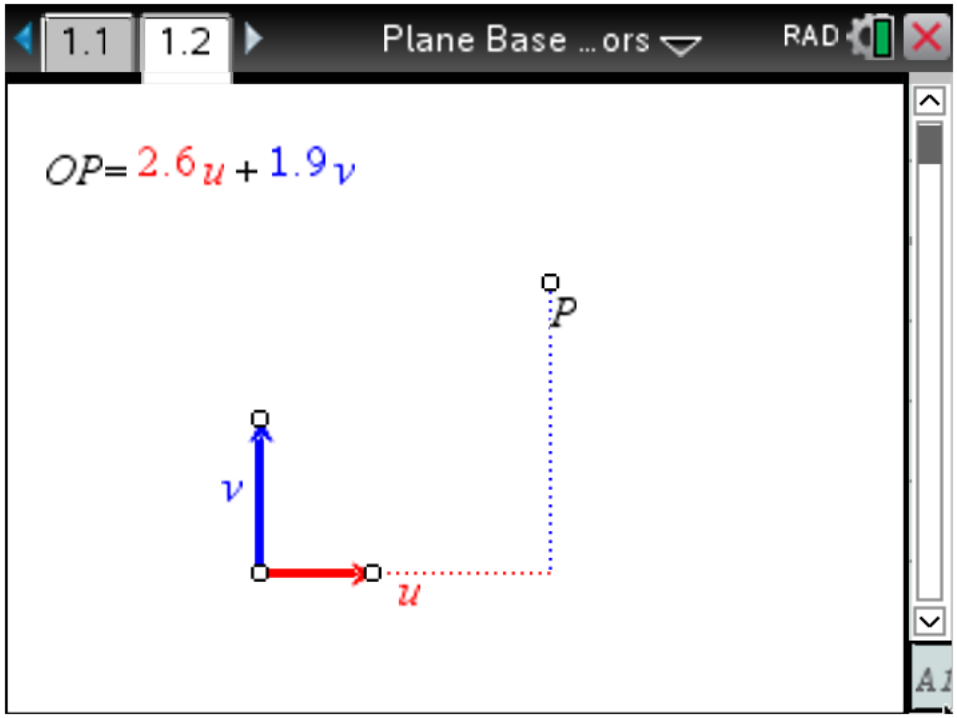




3D Pythagoras.tns
3D Problems that Need Diagrams.pdf

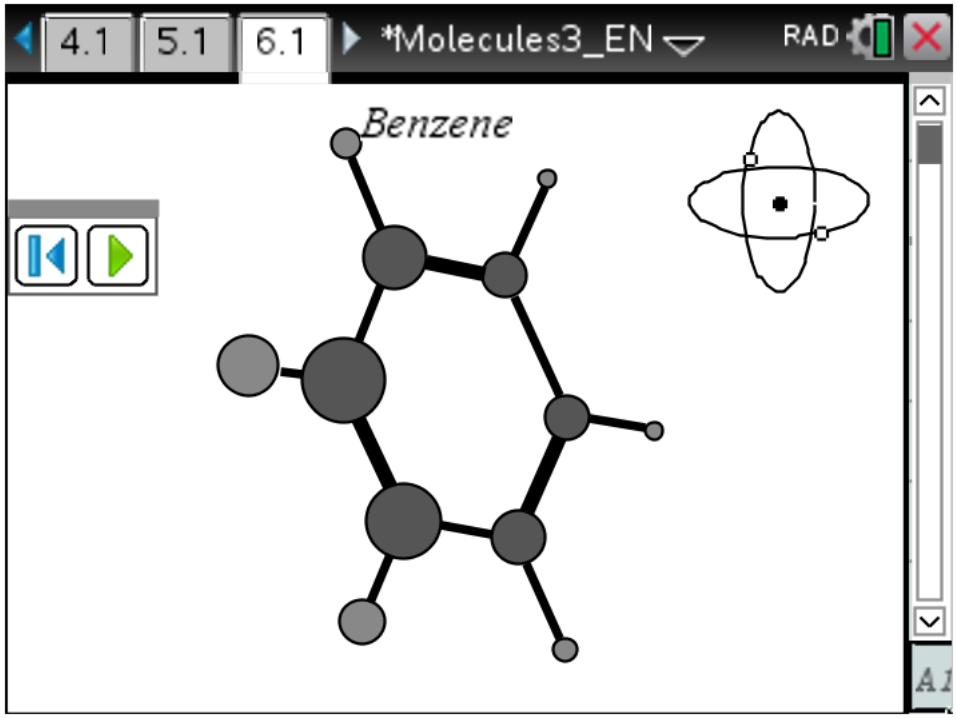
Option: Introduction to Vector Equation of Plane

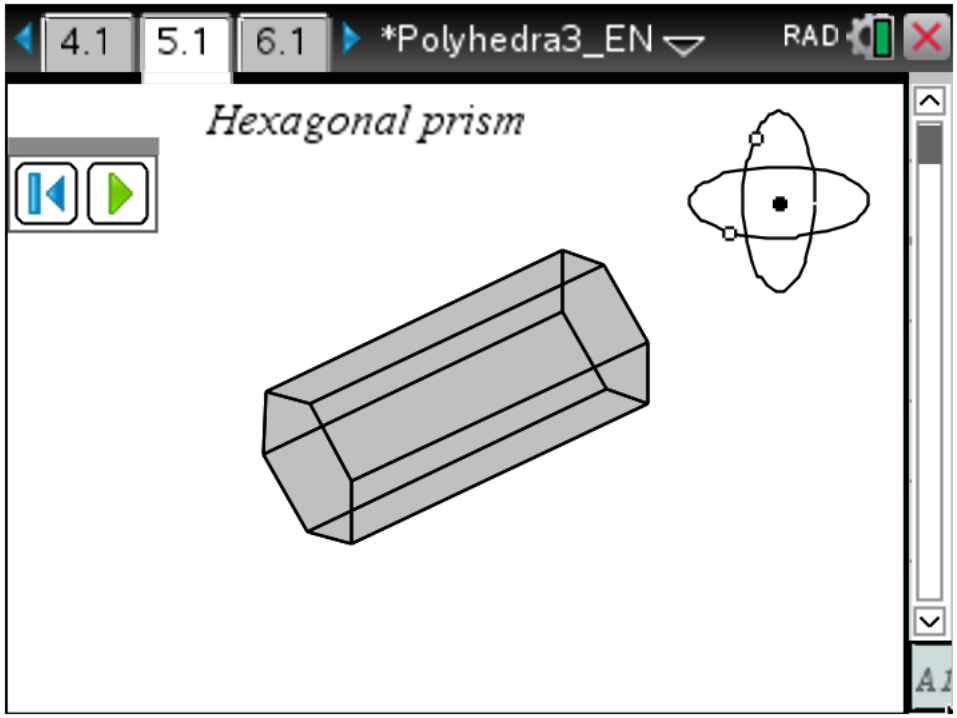




Plane Base Vectors.pdf

Option: Just playing with 3D objects!





Molecules1_EN.tns
Molecules2_EN.tns
Molecules3_EN.tns

Polyhedra1_EN.tns
Polyhedra2_EN.tns
Polyhedra3_EN.tns
Polyhedra4_EN.tns

Volume Motivation Poster.pdf

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www.CalculatorSoftware.co.uk/nspire

Thank you for coming to this session.

Nevil Hopley

T^3 National Trainer, Scotland & UK.

Mathematics Teacher

Head of Mathematics Department

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