MEGA GREEK

3. Maths

 = discussion point  = written exercise  = game  = hands-on activity

Running time
Language segment: 25-30 minutes Cultural segment: 30-40 minutes

This lesson's theme is maths, starting off with a quiz before transliterating some Ancient Greek words connected with science (and finding modern English derivatives from these words). The cultural segment looks at Pythagoras and his work on triangles, and the students demonstrate some properties of triangles with two hands-on activities.

Slide 1
Introduction.

[mouse click] Your guide for today…
[mouse click] (picture of Pythagoras)

 A man, but his humble clothes make him look more like a mortal than a god. He looks quite clever. There's a clue on his tunic - he must really like triangles. This is a tricky one!

[mouse click] Pythagoras, who was a mathematician who lived about 1500 years ago… but we still use his discoveries in geometry today.

[mouse click] Pythagoras is saying "Chairete!" (*khy-ray-tay*) which means "Hello!" Students can say hello back, but have to say, "Chaire!" (*khy-ray*) because they are greeting one person (singular), whereas Pythagoras was greeting all of us (plural).

Slide 2

 Continuing with the theme of how Ancient Greek words sneak their way into modern English, we're going to play a game to see if we can work out Ancient Greek numbers from one to ten. Pupils can work individually, in pairs or in groups, recording their answers on a whiteboard. Nine picture clues will appear on mouse click. One of the words has no etymological links with English so no clue, so the pupils will have to guess that one by process of elimination! Once the pupils have had all the clues and a bit of thinking time, the answers are revealed (going down the columns):

[mouse click] ‘εξ hex - 6
[mouse click] τρεις treis - 3
[mouse click] δυο duo - 2
[mouse click] δεκα deka - 10
[mouse click] ’οκτω octo - 8
[mouse click] πεντε pente - 5
[mouse click] ‘εισ heis - 1 (the number without a clue)
[mouse click] ‘επτα hepta - 7
[mouse click] ’εννεα ennea - 9
[mouse click] τεσσαρες tessares (which can also be written tettares) - 4

Slide 3

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 This exercise (mg3 transliteration.pdf) gets the pupils to translate some Ancient Greek maths-related words, and to think of some modern English words that come from them. Answers will appear on the slide on mouse clicks for self-marking, or there is an answer key (mg3 transliteration answerkey.pdf)

Slide 4
The start of the cultural segment. We meet the mathematician Pythagoras. Here are a few facts about him to get us started.

[mouse click] He lived from about 570 - 495 BCE (as with many people who lived such a long time ago, it's hard to be certain of their dates)
[mouse click] He was interested in philosophy…
[mouse click] …science…
[mouse click] …and maths
[mouse click] … especially triangles!

Slide 5
Pythagoras worked a lot in the field of geometry, the study of shapes and their properties. The word geometry is Greek:

[mouse click] γη (ge) means land
[mouse click] μετρειν (metrein) means to measure

 Here's a simple experiment to demonstrate one of the properties of triangles (reportedly) discovered by Pythagoras. Pupils will need a copy of mg3 triangle corners.pdf (one per table), some scissors, a piece of plain paper, a pencil, coloured pencils/felt tips and a ruler.

[mouse click] **Step 1**: From the sheet in front of you containing six different triangles, cut out one of the triangles. Mark each angle with a different-coloured dot.

[mouse click] **Step 2**: Snip the three angles off each of on of your triangles.

[mouse click] **Step 3**: Draw a straight line (also known as an angle of 180 degrees) with a ruler and put all of the points together, so they sit on it, like this.

Hopefully, every pupil will be able to confirm that their angles, when put together, will sit on a straight (180 degree) line.

 The pupils can then go on to a second triangle experiment using the worksheet mg3 pyth theorem.pdf to demonstrate Pythagorus' theorem (the square on the hypotenuse of a triangle is equal to the sum of the squares on the other two sides). They can work individually or in pairs. They will need scissors, 1cm squared paper, plain paper, glue and a set square.

Slide 6
The plenary, with Pythagoras asking two questions related to this lesson's learning, one language-related and the other cultural.

 [mouse click] What modern English words come from the Ancient Greek word **τρεις**? [three, so tricycle, triple, triangle - if unsure, a dictionary search or Googling the term alongside 'etymology' will tell you]

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[mouse click] All angles in a triangle always add up to how many degrees? [180]

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