



# GEOLOGY

## WITH PROFESSOR TERRY PAVLIS AND PROFESSOR LAURA SERPA

### Talking *points*

#### COMPREHENSION

1. What are the advantages of using virtual 3D models to teach geology in the classroom compared to 2D resources?
2. What are the advantages of teaching geology through virtual field trips compared to 'real' field trips?

#### APPLICATION

3. How would you create a virtual 3D model of a volcano? What equipment would you need, and what procedure would you follow?
4. How might a volcanologist use your 3D model to learn more about the volcano and the hazards it poses to nearby communities?

#### ANALYSIS

5. What are Laura and Terry's motivations for creating 3D models of geological features?

#### SYNTHESIS

6. How would you design a lesson that incorporates both 3D models and fieldwork to study a local geological feature?
7. Geologists study the history of the Earth. How can this knowledge help society address present issues such as the climate and biodiversity crises?
8. What other technologies could be combined with virtual 3D models to enhance the teaching of geology?

#### EVALUATION

9. Which branch of geology would you most like to study, and why?
10. Many people choose to study geology because they love being outdoors. Why is it essential that people who cannot or do not want to work outdoors also see geology as a potential career path?
11. To what extent do you think that using virtual 3D models in the classroom will encourage more students to study geology?

### Activities

#### 1. Go on a virtual field trip

Explore Terry and Laura's virtual 3D model of Nobel Hills in south-eastern California ([v3geo.com/model/399](http://v3geo.com/model/399)) and the close-up of 'Wash 1' ([v3geo.com/model/397](http://v3geo.com/model/397)).

Write a short account of Nobel Hills and Wash 1, describing the features you observe (including their size (use the measurement tool), orientation, colour, etc.) and interpreting the processes that may have formed them.

#### 2. Explore virtual geological features

Visit V<sub>3</sub>Geo ([www.v3geo.com](http://www.v3geo.com)), a site containing freely accessible 3D models of geological features around the world. Look at some of the different models and choose one that interests you. It might be close to your home, or somewhere you have always wanted to visit. Explore your chosen model in depth, read the information provided on the V<sub>3</sub>Geo website and do some research of your own.

Create a one-page fact sheet about your chosen location, containing information such as:

- What geological feature(s) are visible in the model?
- What types and ages of rocks are present?
- What geological processes might have formed the feature(s)?

#### 3. Make your own 3D model

If you have access to a smartphone or tablet, you can create your own 3D models with the Polycam app ([www.poly.cam](http://www.poly.cam)). You can create up to 5 models without an account.

Choose an object (e.g., a pencil case on your desk, a rock or bush outside) and slowly move the in-app camera around it, covering as much of the object as you can from as many angles as possible. Once the software has stitched your photos together, view your object in 3D.

### More resources

- The Department of Earth, Environmental and Resource Science at UTEP runs education and outreach activities in the local area in Texas, USA: [www.utep.edu/science/geology/about/education-and-outreach.html](http://www.utep.edu/science/geology/about/education-and-outreach.html)

Head to Terry and Laurie's Futurum webpage to read their article in Spanish and to watch videos of them explaining their 3D models: [www.futurumcareers.com/a-rocky-revolution](http://www.futurumcareers.com/a-rocky-revolution)