



# Teacher Earth Science Education Programme



## Professional Development Workshop Series in Earth and Environmental Science at Geoscience Australia's Education Centre, Canberra

**Monday 9 December, 9am to 12.15pm: Chemistry of the Rock Cycle, Plate Tectonics and Critical Minerals** discusses why and where different minerals form, and subsequently where different rocks form due to plate tectonics. The workshop will discuss the geochemistry of the mantle and the crust, controls on mineral formation like temperature and pressure, why economic and critical minerals only form in certain geological conditions, and volcanoes and natural hazards related to Earth processes. The workshop will integrate hands-on activities to describe rocks, rock cycle examples, and explore how the properties of rocks provide resources for humans, including for First Nations Australians and for the energy transition.

**Monday 9 December, 1.30 to 3.30pm: Field excursion at Red Hill** provides an opportunity to learn some basic geological mapping skills including rock descriptions and measurements, discuss local ACT geology, and examine how the underlying geology influences soil, water and vegetation. The field trip will be self-drive, with participants to meet at the Red Hill summit car park at 1.30pm, and will finish at the same location at 3.30pm. An optional stop to examine the Deakin Anticline with a 4.30pm finish is also available. A field trip worksheet will be provided.

*Note – the field trip will include ~3km of walking on uneven, gravel paths with short steep inclines and declines. Attendees will need to wear enclosed shoes, wear appropriate clothing for the weather, bring sun protection including a hat plus water. In the case of extreme weather conditions, replacement activities will be implemented.*

**Tuesday 10 December, 9am to 12pm: How Geology influences Biology and the Big 5 Extinctions** discusses Fossils, Evolution & Extinctions, including life explosions and the Big 5 Extinction events. The workshop will examine how plate tectonic/volcanic/climate/solar system-related events and processes have influenced the evolution of life and led to mass extinctions, and will chronicle life explosions and extinctions throughout the history of the Earth. The workshop will include a hands-on opportunity to view fossil, volcanic and meteorite samples.

**Tuesday 10 December, 1 to 3.30pm: Our Place in Space** discusses the evolution of Earth and our Solar System, compares our planet to Mars, the causes and effects of rotations, orbits, tides and meteorites, and how First Nations Australians viewed and used the night skies. The workshop will include a hands-on opportunity to view meteorite samples and touch a piece of the Moon!

The PD workshops will include [hands-on classroom exercises](#), an [overview of the integrated TESEP rock kit, critical minerals kit, plate tectonic poster and online resources](#), and an opportunity to learn more about the [role of Geoscience Australia \(GA\) and Education Centre](#). A \$10 voucher for the Blackstone Café at GA will be available to attendees in the morning PD sessions to help contribute to their lunch costs.

The topics are focused on teachers of years 7-10 secondary science students and will be of interest to upper primary science years 4-6. Morning and afternoon tea will be provided. Teachers and laboratory technicians are welcome to attend. An ASTA Certificate of PD Attendance will be issued.

Presenter: Phil Gilmore is a TESEP regional coordinator, and a geoscientist with over 25 years of experience and expertise in geological mapping and geodynamics, mineral systems and exploration, outreach and geotourism.



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\* Professional Development \* Unique teaching materials \* Curriculum resources portal \*

See [www.tesep.org.au](http://www.tesep.org.au) for more information.



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To register for a workshop:

1. Please complete the following form and email to: [office@asta.edu.au](mailto:office@asta.edu.au)
2. You will be issued with an invoice by ASTA for payment by direct bank transfer or credit card.

WORKSHOP DETAILS			
Please select from the options below:			
<input type="checkbox"/> <b>Chemistry of the Rock Cycle, Plate Tectonics and Critical Minerals</b> Mon 09/12/2024 9am to 12.15pm Geoscience Australia Cost: \$50 (includes \$10 lunch voucher)	<input type="checkbox"/> <b>Field excursion at Red Hill</b>  Mon 09/12/2024 1.30 to 3.30pm (with extra option) Red Hill (self-drive) Cost: \$35	<input type="checkbox"/> <b>How Geology influences Biology and the Big 5 Extinctions</b> Tue 10/12/2024 9am to 12pm Geoscience Australia Cost: \$50 (includes \$10 lunch voucher)	<input type="checkbox"/> <b>Our Place in Space</b>  Tue 10/12/2024 1 to 3.30pm Geoscience Australia Cost: \$40
YOUR DETAILS			
Name:		School:	
Teaching area:		Phone (school):	
		Phone (mobile):	
Email:			
Postal address (for certificate):			
Dietary or other requirements:			
PAYMENT DETAILS			
The registration fee for each workshop / field trip is non-refundable – though the fee is transferable to another PD workshop or for another teacher to substitute.			
An invoice will be emailed to you by the ASTA (Australian Science Teachers Association, ABN 87 902 882 824). The invoice can be paid by direct bank transfer or by credit card. Contact ASTA if any queries: <a href="mailto:office@asta.edu.au">office@asta.edu.au</a>			
CERTIFICATE OF PARTICIPATION			
A certificate will be issued by ASTA which states the number of PD attendance hours. For ACT Teachers: this workshop can be counted towards Teacher Identified hours for TQI accreditation. Please note that issuing of a certificate is conditional on workshop payment.			

Please contact us if any queries or for more information!



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