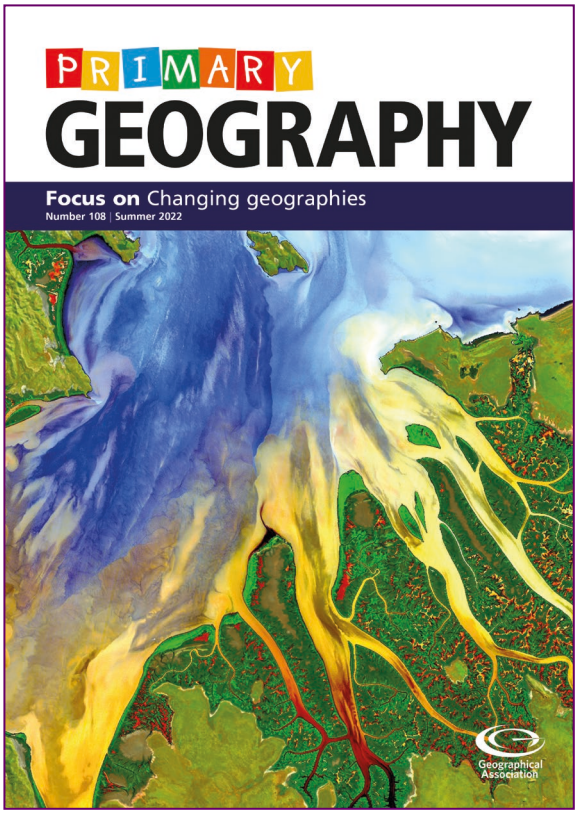
PRIMARY GEOGRAPHY

Using the front cover in the classroom

Richard Greenwood, Rich Hatwood, Paula Owens and Steve Rawlinson

This image, featured on the cover of the Summer 2022 issue of *Primary Geography*, was captured by the Landsat 8 satellite and shows the view over Western Australia on May 12, 2013. The image shows rich sediment and nutrient patterns in a tropical estuary area and complex patterns and conditions in vegetated areas.



The image is enhanced and involved masking, separately enhancing and then reassembling water and land portions of the image. The water patterns are the result of an RGB display of Landsat-8's red, blue, and ultra-blue bands. Land is shown using short-wavelength-infrared, near-infrared and green.

A simple technique for all age groups when introducing and discussing aerial imagery is to keep it simple and focus on three core question strands:

- What can you see? Describe and name.
- What do you think is happening here? What geographical processes are happening?
- Where in the world do you think this might be and why?

Activity 1

Show pupils the image using the PowerPoint presentation. Encourage them to describe what they can see. They will be able to talk about the bright colours and name these. You could ask them if they know what kind of image it is and find out whether they realise it is an aerial image of a part of Earth, taken from a satellite in space.

Having explained that far, ask pupils to try and name some of the features they can see. If viewing the Earth from space they are likely to see either land, water or both. You can then draw out responses indicating the presence of water and coastline, encouraging good guesses and scaffolding responses. Some pupils may be able to identify 'coast', 'river' 'estuary' and other geographical features. You can talk about these natural features and whether there are any human features evident.

Activity 2

You could then develop question 2. What is happening here? For example, what is the water doing? Where is it flowing from and to? What else is happening? Pupils could discuss what the different colours mean and may be able to deduce with some scaffolding again, that the colours show nutrients and soil washed from the land into the river and out to sea. Use the presentation to look at the specific words and create a glossary for the key geographical terms. Get pupils to note for example, that there is a small island shown in the estuary. Pupils could annotate the image individually or as a class to label features and show other information such as the direction of flow.

Activity 3

Pupils may be able to establish that the image is by a river and coastline, but without the description there is no obvious way to try and locate it. However, with the clues provided, a tool such as Google Earth could be used to explore the tropical portion of Western Australia to see if any estuaries fit this pattern. Pupils could work in pairs to try and locate the image. Discuss, using the glossary, where the tropical region is likely to be (within the latitudes of the Tropics), and think about the climate and biome of a tropical region. This will help pupils develop their understanding of what the aerial image shows. Finally, a few pupils can present their evidence and geographical reasoning for a suggested location before the class votes for the likeliest spot.

Follow up activity

Using the Landsat fact sheet, get pupils to think about what these kinds of satellites do and whether it is a worthwhile service or not.

For nearly 50 years, Landsat satellites have shown us our home planet from space. With the launch of Landsat 9, the mission will continue collecting data on Earth's forests, farms, cities and freshwater regions – the longest satellite record of its kind. Since the launch of the first Landsat satellite in 1972, the mission's archive has grown to contain more than 8 million images. Landsat 9 data will add to this archive to better our understanding of Earth in innumerable ways, from tracking water use in crop fields in the western United States, to monitoring deforestation in the Amazon rainforest, to measuring the speed of Antarctic glaciers. Decision makers from across the globe use the freely available Landsat data to better understand environmental change, forecast global crop production, respond to natural disasters, and more. The usefulness of the data stems from the careful design and engineering of the satellite and the mission.

Share how you use the *PG* Cover on Twitter @The_GA #PriGeogJournal

Richard Greenwood, Rich Hatwood, Paula Owens and Steve Rawlinson are all members of the Primary Geography Editorial Board.