FROM MAP READING TO MENTAL IMAGE

MATHIJS BOODEN AND FREEK JUTTE

Inspired by a workshop activity at the 2016 GA Annual Conference, two Dutch educators – Mathijs and Freek – outline ways of visualising the landscape on a map.

Roadmap to 2032

The Dutch government has recently stated its intention to reinvent the country's K12 curriculum by 2032, so that it better prepares pupils for the demands of a changed society. A committee report (Schnabel *et al.*, 2016) presents the view that our future citizens should be *vaardig, waardig en aardig*: literally, 'skilled, dignified and nice'.

Whatever one thinks of this trinity (the fact that three rhyming terms were used raises alarm bells about the importance of at least one of them), it is undeniable that, overall, the proposed curriculum amounts to geography writ large. It calls for broadly applied interdisciplinary learning (which geography naturally excels at), for a focus on citizenship (which geographers take one step further to include global citizenship), and to foster a sense of responsibility for the local and global environment. For us geographers this represents a great opportunity to show how we can teach our pupils the 21st-century skills that they will need in order to excel at each of those rhyming goals.

The cycle of map reading

To be a responsible and caring global citizen, one must know about one's own environment and be able to imagine what other places are like. Maps are a primary tool for this, and reading maps and constructing a mental image of an area based on them is at the core of the geographic skill set. To professionals in the field, teachers included, the ability to connect what they see on the map and what exists in the world comes largely without a second thought. To many pupils it does not.

For example, pupils might not realise that closely-spaced contour lines correspond to a steep slope, or that an inconspicuous dot corresponds to a highly-visible landmark. This is unremarkable when one considers all the implicit knowledge and skills that go into the contour line example. As skilled professionals, we understand intuitively that first, there exist gradients in elevation in the real world and these can be expressed by elevation change over distance; that, second, a cartographer abstracts this using contour lines on a map with a particular scale; and, third, in doing so, the cartographer leaves out any detail not relevant to the scale of the map.

Knowing this, we can visualise the general contours of the landscape and populate our visualisation with detail (vegetation, gullies, trails and so on) that we know from experience could be there, but might be left out in the process of abstracting a map from reality. In effect, we utilise our own personal 'Street View' skill in order to form a mental image of what we would see in any given spot on the map (Figure 1).

Many exercises have been developed to help pupils to acquire the skills to read and interpret maps. Here, we present an assignment that assists them in the final step: that of taking the abstracted map and forming an accurate mental image of what it would be like to stand in that spot.

What is it like to be there?

In the Spring 2016 issue of *Primary Geography*, Jon Clayton presented an activity that was an example of 'creative activities that encourage creative responses [which] foster an enthusiasm for landscapes, a fascination for places, spaces and environments and a love of maps' (Mackintosh, 2013). The assignment presented here attempts the same and includes the following activities:

1. Pupils practice their map reading and predictive skills by drawing an image of what they would see from a particular spot on the map. We have done this by having pupils identify the salient features on a map by drawing a sketch map, and then imagining and drawing the view from a given point on the map. Depending on the level of detail on the map, the first step can be omitted.
2. Pupils check the validity of their mental image by visiting the actual area, either in person or virtually through a tool such as Google Street View.

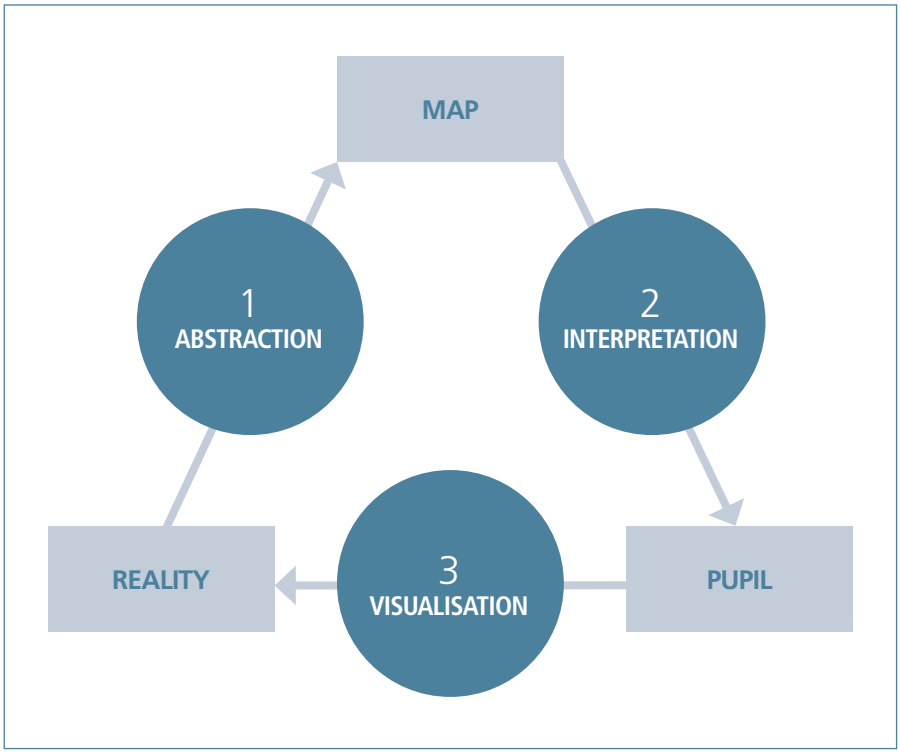


Figure 1: The cycle of map abstraction, interpretation and visualisation.

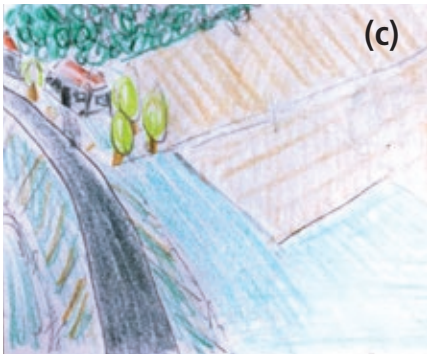
Figure 2: (a) Topographic map showing a section of the Waal River right bank, (b) sketch map indicating important features, and (c) pupil's sketch of the imagined view from the red circle in Figure 2a.

The choice of scale is set to an extent by the requirement that pupils can envision a view of a substantial portion of the map. Topographic maps at 1:10,000 are useful sources, whereas maps at scales in the order of 1:100,000 are unsuitable because they provide too little detail to accurately picture the immediate environment.

The choice of location will be based on the ability to visit the area (even if only virtually) and the subject at hand. The area should lend itself to being drawn; in other words, it should have some features that would stand out from a distance, but still offer a view into that distance. A sandy desert may not be the best spot, but neither is a busy city centre full of traffic and high-rise buildings. Good locations would be fairly open suburban settings and rural areas with a varied landscape in terms of relief, vegetation, and so on.

An example of what can be done (Figures 2a–c) is to apply the assignment within a unit on water management. The topographic map used is of a section of the right bank of the Waal River, with salient features including the river bed and groynes, flood plain, levee and a polder, with a village beyond the levee. A pupil has identified their take on what the most important features are (Figure 2b) and been asked to imagine and draw the view looking Westwards from the location marked by the red circle (Figure 2c).

This fairly accomplished drawing does a good job of showing the general layout of the levee, road and farmhouse.



It also shows the limitations of the chosen landscape: its flatness means that features in the distance have trouble standing out. More relief-rich spots are better suited, but this particular example could have been improved by specifying a viewing direction (for example, not along the levee, but perpendicular to it, so as to benefit from the increased elevation over the landscape) or by specifying landmarks to be included (for example, the church spire in Herwijnen).

Many pupils enjoy the practical and creative side of drawing the imagined 'Street View'. We have not yet had the opportunity to take pupils into the field to the actual spot, but Google Street View works wonders in this regard and pupils were enthusiastic about the opportunity to check whether they had drawn the 'correct' view. Most important, however, is that pupils appreciate the assignment as a method of visualising the landscape on a map, stating that it does make maps more tangible.

References

Clayton, J. (2016) 'Art and the locality', *Primary Geography*, 89, pp. 31–2.

Mackintosh, M. (2013) 'Representing places in maps and art' in Scoffham, S. (ed) *Teaching Geography Creatively*. Abingdon: Routledge, pp. 74–84.

Schnabel, P. (2016). *Ons Onderwijs 2032 Eindadvies*. The Hague, NL: Bureau Platform Onderwijs2032.

WEB RESOURCES

Download a worksheet to support this activity: *www.geography.org.uk/pg*

Dr Mathijs Booden is teacher trainer in geography at the University of Amsterdam and secondary geography teacher at Luzac College, The Hague. Freek Jutte is a year 7–12 geography teacher at St Bonifatius in Utrecht, the Netherlands. He is also an author on the popular secondary geography method *De Geo*.