

What map skills can learners find difficult?

Scale

- Understanding that distances on the map relate to distances in the real world
- Using a 1:50,000 scale but not being aware that scales can vary on other maps
- Interpreting 1 cm to 1 km when they want to measure real distance in miles
- On world maps, recognizing that scale is only true at the equator
- Relating the scale of an inset map to the main map on a resource sheet or textbook
- Using resources that involve making comparisons between maps of different scales

Misinterpreting map information and symbols

- Areas between towns shown on atlas maps – students can visualize a compact settlement surrounded by fields, farms and forests!
- Inability to see symbols clearly, for example when sharing maps; when wall maps are a long way away; poor classroom lighting.
- Discriminating a symbol on the map – especially when they are partially obscured on the map, but clear against a white background in the key. We often use other clues to identify the symbol. Students may not see subtle changes in colour (e.g. tidal water) unless it is pointed out to them.
- Lack of understanding of names/terms – for example, do they understand the meaning of national park, toll. Can they recognise the difference between a name and a function such as 'fish farm'?
- Interpretation of white areas– often described by students as barren or empty on an OS map; they do not consider cultivated fields.
- Misinterpretations of choropleth and proportional symbol maps – a good way to enhance understanding is to get them to draw their own maps.
- Misinterpretation of symbols on pictorial maps in atlases – a car may be positioned by a town to indicate car manufacture, but students have been known to interpret this as a car park, a car showroom a traffic jam, or even a breakdown!

Drawing maps

Drawing a map is more demanding than simply using one. Early errors in accuracy are likely to be compounded as the drawing proceeds.

Visualising relief

- Interpreting contours is a challenge for many students. The main difficulty is visualising slopes. If you ask students to add rivers to a contour map they often draw them along spurs or ridges.
- Interpreting undulating landscapes. Many cross section activities relate to small isolated hills – yet students rarely find these problematic.

- To help students visualize contours use simple models made by rolling a piece of card into a cone and drawing lines around it at regular intervals or by using half a potato and cutting it into sections to dismantle and reassemble. (Plasticine or similar could be used instead. Putting the 'model' into water can illustrate the relationship between contours and sea level.
- Shading land over a specific contour is a good task to see whether students can interpret the contours; or ask them to estimate the height above sea level of building such as a farm. Even KS4 students can find this problematic.
- The article Dove, J. 'Between the lines', *Teaching Geography*, Summer 2005 discusses students' interpolation and interpretation of 'lines on maps' and offers ways to enhance their understanding.

Co-orientation of aerial photographs and maps

This presents a particular challenge as the scale of the map is constant whereas the scale of the photo varies with distance from the camera.

Oblique aerial photographs used in conjunction with OS maps can help students with landscape visualization. However, students often have difficulties correlating features with a map because the scale on the photograph varies according to the distance from the camera. So buildings and fields in the foreground appear larger. If the map and photo have the same alignment it makes comparison, and interpretation easier for students.

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