

## Lesson Five: Contour Lines (Year five)

This lesson builds on the lesson four, but has a greater emphasis on physical geography. Pupils learn how hills and valleys are represented on Ordnance Survey maps, through the use of contour lines. The main activity involves building a 3-D model of landscape from contour lines, and pupils develop their understanding of how physical features and gradient are represented on maps.

### Key Questions

- What are the definitions of: 'human feature' and 'physical feature'?
- How are these represented on an Ordnance Survey map?
- How is land height shown on Ordnance Survey maps?
- What is a contour line?
- How can we develop our understanding of contour lines and the features they show?

### Key ideas

- A human feature of the environment is built and man-made, whereas a physical feature is a natural feature of the environment.
- Physical and human features are represented using a range of symbols on maps, and also a map key.
- Height is shown on Ordnance Survey maps using contour lines. These lines show the shape of the land.
- The closer together contour lines are, the steeper the slope of the land.

### Subject Content Areas

- Locational knowledge: use grid references to locate places and geographical features on Ordnance Survey maps.
- Place knowledge: use maps to learn about places on maps through reading symbols and map keys.
- Human and physical geography: focussing on gradient and contour lines as a physical feature of the environment.
- Geographical skills and fieldwork: interpret a range of sources of geographical information, including maps and aerial photographs. At KS2 pupils use the eight points of a compass, four **and** six-figure grid references, symbols and map keys) to build knowledge of the United Kingdom and the wider world.

### Downloads

Contour Lines (PPT)

OS map symbols flash cards PDF

OS Relief and contour lines PDF | MSWORD

Map extract with contour lines PDF | MS Word

Lesson plan PDF | MSWORD

Instructions 3D Model PDF | MSWORD

### Web links

For a web version of the relief and contours information sheet go to

<http://www.ordnancesurvey.co.uk/mapzone/assets/doc/map-skills/Relief-and-Contours-en.pdf>

To download *Digimap for Schools* go to <http://digimapforschools.edina.ac.uk/>

## Learning objective:

To create a 3D model using map contour lines.

## Starter

Give table groups the *Map symbols flash cards* (see downloadable resources) to look through. Review the definitions of human and physical features of the environment.

- Human Geography refers to “the study of the different ways in which human societies develop and operate in relation to their physical environment” (*Cambridge Dictionary Online*). Human features would include roads, railways, schools, Post Office, places of worship, etc.
- Physical Geography is “the study of the natural features of the Earth, such as mountains and rivers” (*Cambridge Dictionary Online*). Physical features would include cliff, valley, river, marsh, scrub, contours, etc.

Ask pupils to sort the cards as to whether they are human or physical features.

## Main Teaching

Re-visit previous lessons on four-figure grid references. Ask the class to spot some of the features from the flashcards in the starter on an OS map of the local area using *Digimap for Schools* (see web links) or hard-copy OS maps. Ask them to find examples of both physical and human features on their map extract. The map may well have more examples of human features than physical features, especially if your school is in a town or city.

Using slides three and four of the *Contour Lines* PowerPoint presentation show pupils a picture of a mountain and then ask them if they can find it on the OS map extract. Point out the brown contour lines on the map. Give the class a chance to locate the contour lines. Look at the numbers on the contour lines. Ask the class if they know what they might be for.

Explain that contour lines join together places of equal height and show the shape, height or ‘relief’ of the land. On 1:25,000 OS maps they are every five meters. Make sure the pupils are aware that these contour lines only appear on a map and could not be seen in real life. Show them pictures or on a map the other ways height is shown, open the downloadable resource *OS Relief and Contour Lines*. Spot heights show the actual height at one particular location and are often measured near triangulation pillars, which can actually be seen on the ground.

Show the class pictures of contour lines and the physical features they show. Explain that the closer together the contour lines are, the steeper the slope is. Also, the numbers (height) faces the same way as the slope. Go through several examples, pointing out which feature is represented by which contour line.

## Main Activity

Using the worksheet and *Contour Lines* PowerPoint slides to model, explain to the class how to make a 3-D model from the contour pattern: each contour line should be traced around onto card. Then the layers stuck together with thick card in between. The examples are not based on real places, but simplified for use in the classroom. As an extension, you may wish to see if some pupils can make a model of an actual mountain or valley.

In the class, they could make different models showing hills and valleys. This could link with the unit on volcanoes and mountains. Photographs can then be taken from above and the side as a record and stuck in pupils' books. If you live near suitable features you could include a photo of the 'real thing!'

### **Plenary**

Show pupils a series of photos of different physical features and ask them to draw how they would appear on an OS map.

### **Further study**

This map work would be a good starting point for any topics on mountains, volcanoes and earthquakes. It could also be combined with a unit of work on rivers. Finding each stage of the river and looking at the height of the land at each would aid pupils' understanding.