

MAKING SENSE OF MAPS: BUILDING A 3D LANDSCAPE

Curriculum links: Key Stage 2 Geography – Geographical Skills & Fieldwork

LEARNING OUTCOMES:

In this activity, pupils make links between the world around them and its topographic representation. They investigate mapping, using geographical skills to explore the differences between the physical form of landscape features and their representation in map symbols. This knowledge forms the basis of further work to build pupils understanding of the united kingdom and wider world.

By the end of this activity pupils will:

- Have used maps to describe relevant geographical features
- Have developed their knowledge of maps using symbols, keys and grid references
- Have worked collaboratively in small groups to build understanding and reinforce learning.

ACTIVITY:

INTRODUCE...

What? Types of maps and their uses.

How? Ask pupils to come up with as many different types of maps as they can. Use the suggestions to create a mind map, which might include atlases, weather maps, theme park maps, fire escape plans on doors and so on. Introduce Ordnance Survey (OS) maps to the class.

DEMONSTRATE...

What? What? That map symbols make it easier to understand the form or function of a landscape feature compared to an aerial view.

How? Prior to the lesson, make a 3D landscape model. Show the class a prominent feature, such as a castle. Wouldn't it be difficult to work out what a castle was if you could only look down at it from above? Now introduce the concept of map symbols as a way of understanding the function of something rather than simply showing its physical appearance.

WHAT YOU'LL NEED:

FOR THE BOARD

- large square pieces of cardboard or hardboard
- coloured paints
- PVA glue

FOR MAP SYMBOLS

- small pieces of polystyrene, cardboard or balsa wood that can be made into shapes
- paints and brushes

FOR MAP GRID LINES

- 1m long wooden battens
- thin blue string
- blue paint
- marker pen
- ruler

FOR MAP GRID LINES

- green modelling clay
- red string
- cardboard
- cocktail sticks

EXPLAIN...

What? How a map key can be used to identify different symbols in order to help us understand maps.

How? Use sets of map symbol flashcards and A4 OS map keys (which can be downloaded from the OS website). Using the castle example, ask the class to find this feature on their OS map keys. Can they identify the matching castle flashcard? Practise this skill by asking pupils to find the correct flashcards for four or five of the features shown on your 3D landscape.

APPLY...

What? This activity teaches pupils common OS map symbols and reinforces the idea that the symbol shows the function of the feature and not its physical form. To extend this activity, you could also introduce the concepts of contour lines and land height, and even go onto teach four- and six-figure grid references using the same model.

How? Working in small groups, pupils will build their own 3D landscape models and map them. The boards should be pre-made but pupils can make their own natural and man-made landscape features from cardboard or polystyrene. As they build their landscape, they should also create a map by drawing the appropriate symbols on a square piece of paper, putting each symbol in the right location. It may be helpful to give the groups a pre-made landscape feature to start with, which is a good way to check that pupils understand the task. Then assign each group a number of features to include on their landscapes and maps.

A good extension activity that makes further use of the landscape models is to make hills and add contour lines with wool or string. You can also use the models to teach grid references, particularly if the models have been designed to fit together to form a giant landscape (see activity notes). Similarly, you could use the groups' maps to explore environmental issues. Ask questions such as 'where should we place a wind farm?' or 'where should we build a new housing estate?' Then get groups to make town planning decisions, taking different human and environmental factors into consideration.

SUMMARISE...

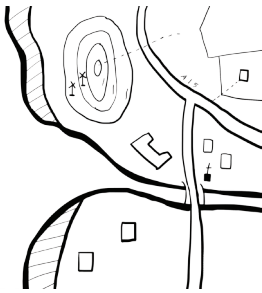
What? Conclude this activity by checking that the class can now identify different map symbols.

How? Show the class a model landscape feature and ask them to draw the correct map symbol. If you have the resources, use a web-cam to show the symbol on a large screen display and show-me boards to draw the symbols. Alternatively, ask the groups to study each others' 3D landscapes and maps. Then create a map key that can be used to identify all the features shown.

ACTIVITY NOTES

Building a 3D landscape gets pupils thinking about the different elements and functions of a map. It allows them to build up their knowledge piece by piece as they add detail to their own 3D landscapes and maps.

Pupils start with a blank landscape board and map sheet. As they add detail to their landscape they also add the relevant detail to their map. The complexity increases as they progress. Introduce contour lines to explain landscape height, grid references to show how to pinpoint locations and route-measuring to teach map scales or navigation.



1. PLANNING THE ACTIVITY

This activity requires some preparation, but pupils will have fun making most of the landscape features themselves. The key resources to prepare are the basic map boards. Use large sheets of cardboard or hardboard cut into metre squares. Paint them green and add some detail, such as water features and main roads. This helps pupils to visualise the landscape before they add their own features. You may want to design the boards so that they can all be fitted together to form a giant landscape.

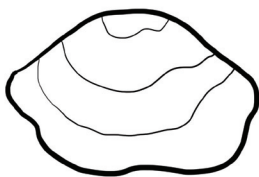
You also need to make four or five model features and place these on a 3D landscape of your own to demonstrate the concept. Make a castle as well as common features such as houses. The rest of the models will be made by the pupils as they build their own 3D landscapes. Cardboard, polystyrene and balsa wood are good materials to use – and don't forget paint!



2. MAP SYMBOLS

Map symbols show the function of a feature, not necessarily its physical form. This enables quick and easy identification. Of course, pubs don't actually look like giant tankards of beer, and nature reserves don't (usually) have giant birds flying around.

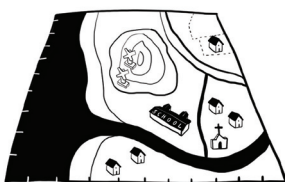
The model features should look like the actual landscape feature, but make sure they are represented on the maps using the correct symbol from an OS key. Check pupils' understanding by asking them to match map symbol flashcards to the corresponding feature on your 3D landscape. This highlights the difference between form and function, requires them to use the OS map key and makes the link between landscape and map.



3. THAT'S A RELIEF – CONTOUR LINES

Add hills to 3D landscapes with modelling clay. Then ask pupils to look down on them from above. Isn't it difficult to gauge the height of the hill? You can then introduce contour lines using red string. These form a series of circles that clearly show the height of the land, even when viewed from directly above.

Pupils can place contour lines themselves by adding a length of string at every 2cm of height. Contour lines can be placed accurately by marking a cocktail stick at 2cm intervals and using this as a guide.



4. LOCATION, LOCATION, LOCATION – GRID REFERENCES

If all your boards fit together to form a giant landscape, then you should be able to link your maps together too. Add grid lines to the boards using blue battens. Number these along the sides of the boards. This will enable you to give four-figure grid references. To teach six-figure grid references, mark further subdivisions in tenths on one part of your battens. You can even lay thin string within a larger grid square to illustrate this concept.