

LESSON 8: Information Sheet 8

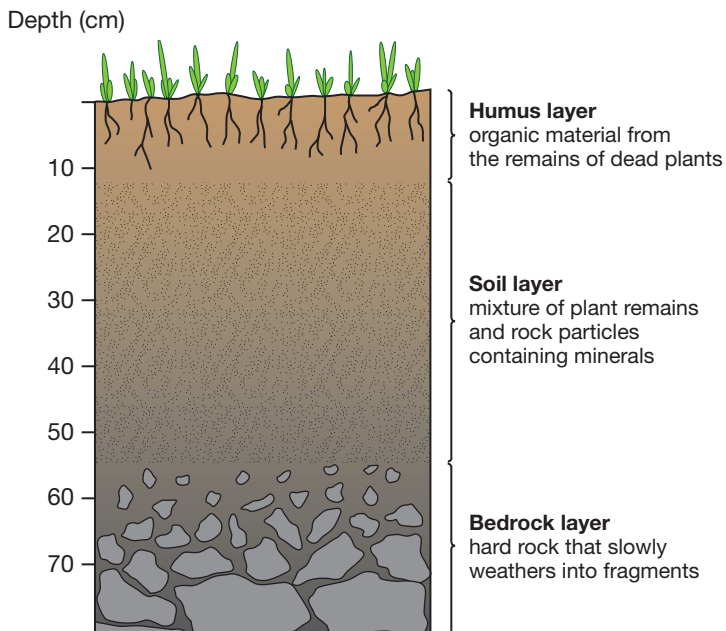
Soil formation

Soil is a mixture of tiny particles from broken down fragments of rock, together with the remains of dead plants, called humus. It also contains water and air. Most soil has three main layers, as shown in the drawing – humus, soil and bedrock.

Humus layer – organic material from the remains of dead plants

Mineral layer – mixture of plant remains and particles containing minerals

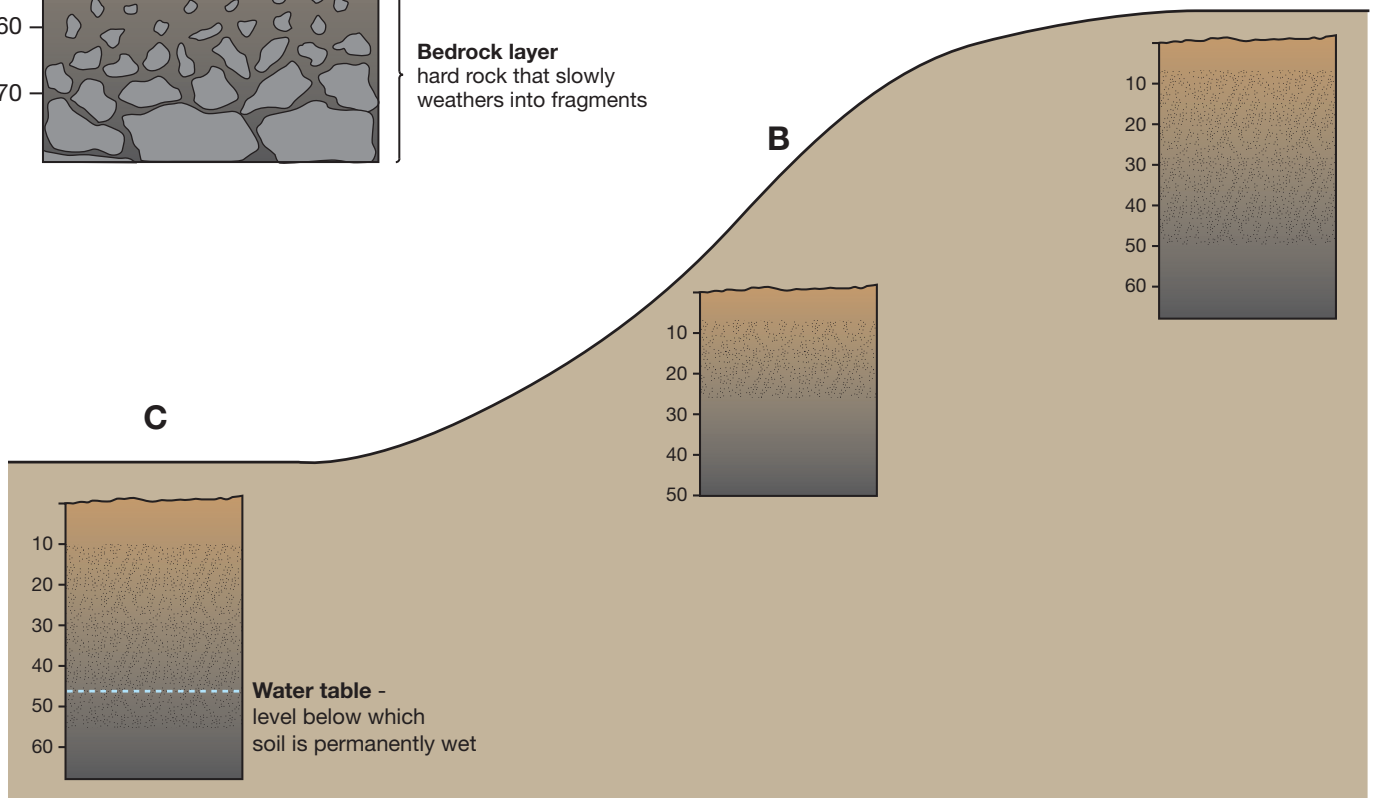
Bedrock layer – hard rock that slowly weathers into fragments



The type of soil that develops in any place depends on a number of factors;

- **Bedrock** – soil usually develops from the underlying rock, but it may also develop from the weathered fragments of other rock, carried by water, wind or ice.
- **Climate** – temperature and rainfall affect the way soil develops. Generally, the hotter and wetter the climate, the deeper the soil will be, since weathering is more rapid.
- **Plants and animals** – humus is one of the main soil ingredients, so plants affect soil composition. Plants and animals also mix the soil and create air spaces.
- **Time** – soil develops over time so, generally, it becomes deeper and more clearly layered over time.
- **Relief (shape of the land)** – soil is easily eroded from sloping land. Thin soil is found on steep slopes and deeper soil at the base of the slope.

The drawing below shows three soils in the same area – one on the hilltop, one on the hillside and one at the bottom of the hill. Farmers need to consider the location of the soil before they decide what to grow.



LESSON 8: Activity Sheet 11

Penrhiw Farm

You will need to read Information Sheet 8 to do this activity.

Your task

You are the farmer at Penrhiw Farm. You have to decide the best way to use the land at three locations on the farm. You could choose to grow crops, grass or trees.

- Crops need fertile soil. This is usually the deepest soil with the most organic matter and minerals in it. The soil also needs to be well-drained, with no danger of flooding.
- Grass needs good soil with plenty of minerals to grow well. It also needs plenty of moisture and can even survive flooding.
- Trees can grow on a variety of soil, even thin soil with fewer minerals. Long roots help them to survive dry conditions.

1. Look at the contour map that shows the relief, or shape of the land, on the farm. Try to identify areas of high land and low land, with slopes in between. Remember the simple rule – the closer the contour lines the steeper the land.
2. Now, compare the contour map with the farm map, showing field boundaries. Find the three locations – A, B and C – on the map. What type of soil would you expect to find at each location?
3. Decide how to use the land at A, B and C. Choose one location each for crops, grass and trees. Give reasons for your decision.
4. Finally, compare your decision with what the farmer did. Find Penrhiw Farm on Google Earth at postcode SA44 4PE (your teacher may need to help you). Did the farmer make the same decision as you? If not, why not?

