

## 1. Soil layers

**We are learning:** the basic properties of soils.



Soil is made of four main things:

- broken-down rock
- dead plants and animals
- air
- water

There are many different types of soils, like sandy soil, clay soil, silty soil and loamy soil.

More soil builds up each year. Dead leaves fall from trees every autumn. These leaves rot down and so become part of the soil.

### Why do we care about soils?

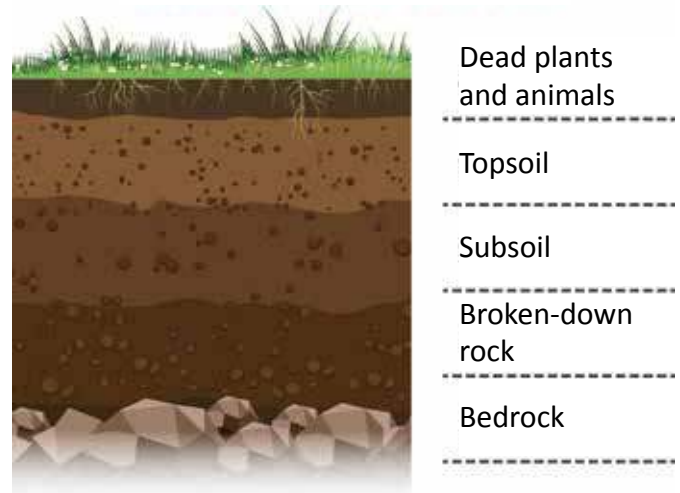
All life on land depends on the soil. Here are some examples:

- Plants (like trees) need soil to support their roots, and for vital nutrients to help them to grow
- Animals (like small mammals and insects) make burrows in the soil, to hide from predators and to stay warm



Can you sketch a diagram to show the soil profile that the presenter has uncovered?

### Soil layers



space for your drawing

## 2. Soil pH



**Soil pH is the measure of the soil's alkalinity and acidity.**

pH is measured on a scale of 1 to 14. The higher the number, the more alkaline the soil. Seven is neutral.

All plants have a preferred pH range where they grow best. For example, blueberries like an acidic pH. If the soil pH is too high, the blueberry plant won't be able to take up iron and it will not grow well.

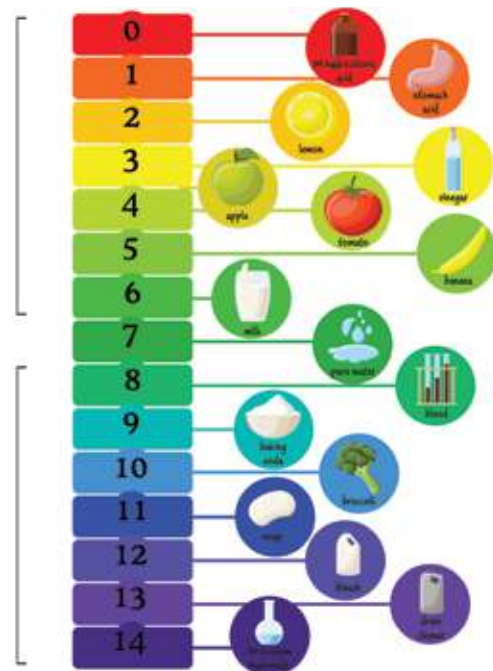


Use the boxes below to draw a step-by-step method of the method that the presenter is using for determining soil pH.

acidic

neutral

alkaline




## 3. Soil types



The main types of soil are chalky, clay, loamy, peaty, sandy and silty.

### Chalky soil

Chalky soil is alkaline (high pH), stony and free draining. Often it overlies a chalk or limestone bedrock. Chalky soil may be light or heavy.



### Clay soil

Clay soil goes hard and cracks when it is dry. It also drains poorly. Although it's hard to dig, it's very high in nutrients. It feels lumpy, slimy and sticky when wet. It rolls into a ball easily and stays in shape.

### Loamy soil

Loam is the perfect soil. It is easy to dig, holds water but drains well, and is high in nutrients. Loam is a mixture of clay, sand and silt. It rolls into a ball easily, but does not keep its shape as well as clay soil.



### Peaty soil

Peaty soil is acidic (low pH) and low in nutrients. It holds plenty of moisture and can get waterlogged. Peat is dark in colour and feels spongy if squeezed. It is rarely found naturally in gardens.

### Sandy soil

Sandy soil is free draining, easy to dig and warms up quickly in spring. However it dries out rapidly and is low in nutrients. Sandy soil feels gritty. A rolled ball of sandy soil will crumble away easily.



### Silty soil

Silty soil is made from fine particles, so is free draining but also holds moisture. It has more nutrients than sandy soil. Silty soil feels smooth. It rolls into a ball easily, but does not keep its shape as well as clay soil.

## 4. What is in soil?

We are learning to: identify soil.



### What colour is the soil?

- Choose two samples of soil from your garden.
- Use water to wet the soil.
- Using your finger, smear some soil in the boxes to compare the colours

Location 1

Location 2



### Does the soil contain clay?

#### START HERE

Can you roll it into a ball between your fingers?

No

The soil contains no clay

Yes

Can you make it into a long thin sausage?

No

The soil contains a small amount of clay

Yes

Can you curve the sausage into a C shape?

No

The soil contains a large amount of clay

Yes

Can you make it into a ring without it breaking?

No

The soil contains a large amount of clay

Yes

The soil contains mostly clay