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Activity: Soil Chemistry Challenge

http://www.soil-net.com

Acid and Alkaline Soils

Soils are classified as A....., N..... or A.....

This factor has an important impact on what plants can be

gr.....

What makes a soil Acid or alkaline?

It is the number of H.....i.....in the soil that determines

whether a soil is A.....or A.....

The gre..... the number of hydrogen ions, the more

a.....is the soil.

The pH Scale

This measures the acidity or alkalinity on a scale of 1 to 14.

7 is n.....

below 7 is a.....

above 7 is a.....

There is a word list to help you on Page 3!

Remember that between each value on this scale there is a 10-fold difference (because it is a logarithmic scale).

There is a huge difference between each number on the scale

A number above 7 is alkaline, below 7 is acid.

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How do you measure the pH value?

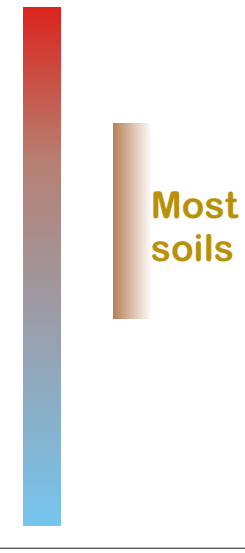
You can use a S……T…… kit. You take a measured sample of d……soil, place it in a tube and add a measured amount of B……S……, and soil testing solution. The mixture will turn a different c…… depending on the p…… This colour change is m…… with a chart of colour changes to give the correct pH.

You can change the pH of the soil to some extent.

Over a period of time soils tend to become more acid and l…… is added to raise the pH of a soil. The amount added depends on the type of Soil.

To get a better idea of pH, see how other common substances' pH compare to the typical ranges for soil (3.5 to 8.5 - the range is surprisingly broad!):

Substance	pH
Battery acid	1 (Acid)
Lemon Juice	2
Vinegar (Acetic acid)	3
Tomato juice	4
Black coffee	5
Urine	6
Blood and pure water	7 (Neutral)
Seawater	8
Egg white	9
Milk of Magnesia	10
Ammonia	11
Bleach	12
Oven cleaner	13
Drain cleaner	14 (Alkaline)



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Impact of pH on Plants

Most plants will row best in a pH of 6-7 although many will tolerate a wider band

Plants that like acid soil are called Calcifuges

Plants that prefer an alkaline soil are called Calcicoles

Name some plants for each type:

Calcifuges/Acid preferred

Rh.....
Ca.....
Er.....(heather)

Calcicoles/Alkaline preferred

Cle.....
Di.....
Vi.....

Rhododendron	Hydrogen ions
Matched	Colour
pH	Camellia
Acid	Soil Testing Kit
Clematis	Barium sulphate
Erica	Viburnum
Diathus	Lime
Dry	Neutral
Alkaline	greater
Grown	Word bank

Soil-net.com Teacher Notes

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Acid and Alkaline Soils
Soils are classified as **Acid**, **Neutral** or **Alkaline**
This factor has an important impact on what plants can be **grown**

What makes a soil Acid or alkaline?
It is the number of **Hydrogen ions** in the soil that determines whether a soil is **Acid** or **Alkaline**
The **greater** the number of hydrogen ions the more **Acid** is the soil.

The pH Scale
This measures the acidity or alkalinity on a scale of 1 to 14.
7 is **Neutral**
below 7 is **Acid**
above 7 is **Alkaline**

How do you measure the pH value?
You can use a **Soil Testing** kit. You take a measured sample of **Dry** soil, place it in a tube and add a measured amount of **Barium Sulphate**, and soil testing solution. The mixture will turn a different **Colour** depending on the **pH**. This colour change is **Matched** with a chart of colour changes to give the correct pH.

You can change the pH of the soil to some extent. Over a period of time soils tend to become more acid and **Lime** is added to raise the pH of a soil. The amount added depends on the type of Soil.

Impact of pH on Plants
Most plants will row best in a pH of 6-7 although many will tolerate a wider band. Plants that like acid soil are called Calcifuges. Plants that prefer an alkaline soil are called Calcicoles. Name some plants for each type:

Calcifuges/Acid preferred
Rhododendron
Camelia
Erica (heather)

Calcicoles/Alkaline preferred
Clematis
Diathus
Vibernum