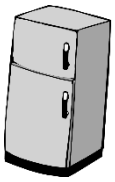
Soil pH

Soil is the top layer of the Earth where plants grow. It isn't just dirt, soil is a super important part of how our world works. It helps plants grow, supports animals and insects, and even helps keep the air and water clean.

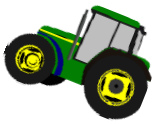
Soil pH tells us how acidic or alkaline (basic) the soil is. Acidic substances are all around us, for example lemon juice, car batteries or stomach acid to digest food. Acids taste sour (but never eat them!). Alkaline substances are bitter, some examples are soap or bleach. Measuring soil pH is kind of like measuring if the soil is sour, sweet, or just right for plants. Soil scientists (or pedologists) measure soil pH on a scale from 0 to 14:

- 0–6 = Acidic soil (like vinegar)
- 7 = Neutral soil (like pure water, not too sour, not too sweet!)
- 8–14 = Alkaline soil (like baking soda)

Soil pH is super important because it affects what can grow in the soil. Different plants like different kinds of soil, just like some people like sour candy and others like sweet treats. For example, blueberries and azaleas love acidic soil, whereas cabbage and lavender like alkaline soil. Most garden vegetables prefer neutral or slightly acidic soil. That's why it's so important to check the pH when growing plants.



Soil pH also changes how easy it is for plants to absorb nutrients, like nitrogen, phosphorus, and potassium, their "vitamins". If the pH is too high or too low some nutrients get locked in the soil, meaning the plants can't use them. Plants may turn yellow, stop growing, or even die. Imagine a fridge full of food, but the door is stuck, that's what it's like when nutrients are there, but the pH is wrong.



Lots of things can change the pH of soil. For example rain can wash away nutrients and make soil more acidic. Farming and the use some fertilisers can raise or lower pH. Additionally, the use of organic matter, like compost, can change pH over time. Lastly, the type of rock underneath the soil can change the soil pH. Soil is formed by the breaking down of rocks over a long, long time. So if the rock the soil cane from is more alkaline then the soil will be more alkaline too.

Farmers and gardeners can add special things to soil to change the pH. To make soil less acidic, they add lime. To make soil more acidic, they add sulphur or compost. This helps make the soil just right for certain crops or flowers.

You can test it using a soil pH kit or pH strips from a garden shop. Some people also use a fun DIY kitchen test using vinegar and baking soda. To do this, take two soil samples (from the same place) and put them in two cups. Add vinegar to one cup, if it bubbles the soil is alkaline. Add baking soda mixed with water to the other cup, if it bubbles the soil is acidic. If nothing happens, the soil is likely neutral. See https://www.thespruce.com/how-to-test-soil-acidity-alkalinity-without-a-test-kit-1388584 for more details.

You could test soil at different locations outside your school. Are there noticeable differences? If some soil is more acidic or alkaline why could this be? Could humans have changed the soil at these locations by adding compost or other things?