GARDEN MUSEUM

How did the potato get its name?

- The name comes from the word batatas which is the Caribbean name for the sweet potato.
- In South America it was called papa or patata.
- When it was introduced into Europe in about 1580 it become known as potato.
- It became very popular and is the world's fourth important food crop after wheat, maize and rice.
- The name 'spud' comes from the tool which was used to weed the potato patch!

Potato Experiment

- Potatoes are a good source of carbohydrate, and have a small amount of protein, vitamin C and vitamin B.
- Have you thought about how plants 'drink' water from the soil? We can conduct an experiment using potatoes to explain this process.

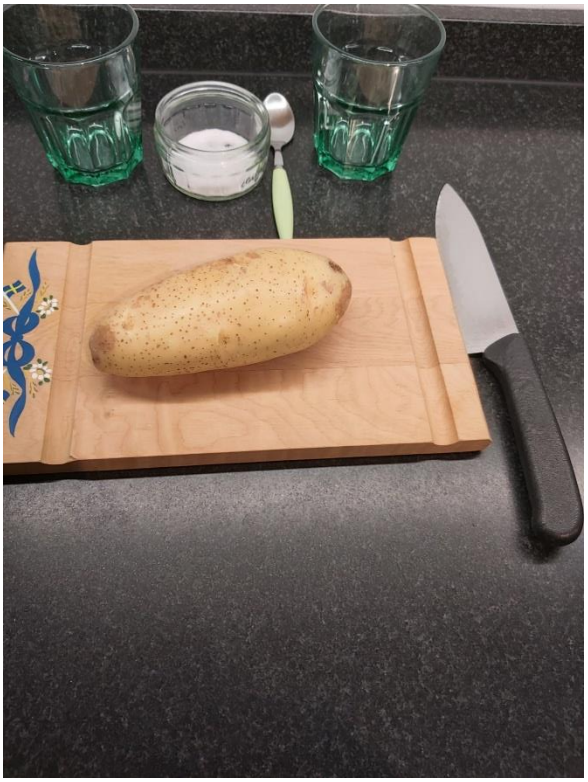
Potato Experiment

You will need:

One potato, salt, water, 2 glasses or bowls, knife, chopping board and a teaspoon.

Step 1

Wash the potato and place on the chopping board



Carefully cut the potato into 6 equal slices

Step 2

Fill 2 glasses or bowls with equal quantity of water.

Add 3 teaspoons of water into 1 of the bowls or glasses.

Place two slices of potato into each glass.

Leave 2 slices on the chopping board - this is one of your controls.

Step 3

After 30 minutes remove all the potato slices and place them side by side on the chopping board.

Do you notice anything?

Touch them all to see which ones seem soft or firm.

Bend the slices that were immersed in the plain water, salted water and those that stayed on the chopping board.

Compare how they bend - which one bends the most?

Can you think why?

Results

1. The potato slices that had been immersed in salt water were the most bendy

2. The potato slices that had been immersed in water only did not bend.

3. The potato slices that had remained on the chopping board did not bend at all.

Explanation

You have just witnessed the phenomenon of **Osmosis** in this experiment.

This is the process by which in nature, water in the soil moves into a plant's roots and then into the plant's cells.

Osmosis is the movement of water molecules across a cell membrane from an area where there are many water molecules to an area where there are fewer water molecules.

In this experiment the glass that had the potato slices immersed in only water had water molecules moving into the potato slices.

In the glass that had potato slices immersed in salt water, water moved out of the potato and into the salt water. This is because there were more water molecules inside the potato cells compared to the salt water - which had salt particles mixed with the water.

This is why potato cells shrink and become more bendy.

How do you think you could make this experiment more accurate?

(Hint kitchen scales...)

Further Activities

- Try the experiment using carrots, swedes or sweet potatoes.
- Experiment with different concentrations of salt water.
- Draw a table with your results.
- Explain Osmosis to someone in your family!