What factors influence the growth of organic fruit and vegetables that will support a more sustainable future?

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Overview

Pupils are often taught about global food production and the environmental impact of importing food. We, therefore, wanted to test which foods we could successfully grow in our school grounds. To do this we have had the help of our STEM partner, Garden Organic. They have donated seeds from their heritage seed library which the pupils can test the growing conditions of.

Aims

- To identify the optimal growing conditions that can give us the best yield of food whilst reducing our carbon footprint.
- To achieve this, we will use Mirco:bits and data loggers to take measurements of the growing conditions and to record them.

Fig. 1 pea plants growing in pots

Background information

This project builds on work that the pupils carried out on testing the best conditions for growing different varieties of peas. The pupils found that Blackdown Blue pea grew successfully in our raised beds (Fig. 3). The pupils also helped to train new recruits to the eco-STEM club about seed germination, how to make structures to support the growth of plants and how to monitor the conditions that they are grown in (Fig.1 and 2). To move the project forward, the pupils will use their skills to test the optimal conditions needed for plants in vertical beds. Our STEM partner that is a professor of architecture, has discussed with pupils the importance of having edible walls to tackle space issues in urban areas. They will also grow *Mayor of Leicester* peas for Garden Organic and report their findings.

Fig. 2 pea plants growing in raised beds

Fig 3. Pea Blackdown Blue that gave us the best yield.

Methodology

1. To grow plants from seed, the pupils will use gardening equipment and follow the instructions of when to plant them. They will produce tables to record their observations and keep a journal.
2. Programme the Micro:bits and use them as moisture and temperature sensors (Fig. 4 and 5). Pupils have already had a go at doing this and tested them.
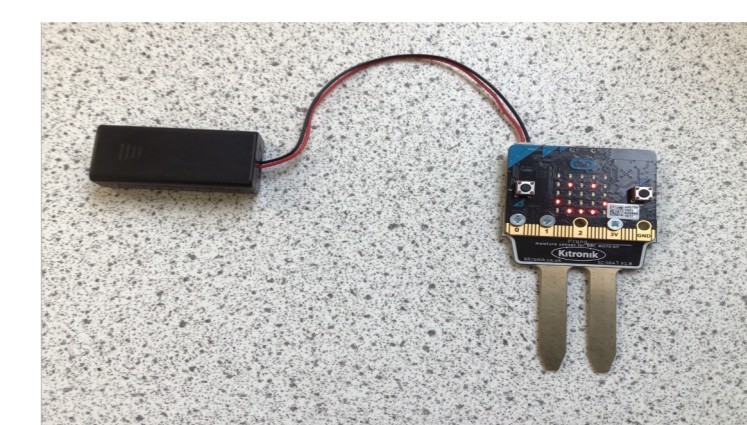3. Use data loggers to find the pH of soil and light intensity.
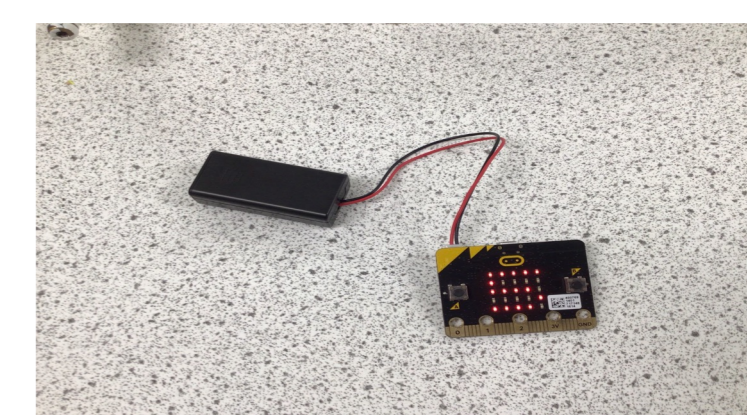

Fig. 4 Moisture sensor

Fig. 5 Temperature sensor

Predicted results

We predict that plants that are given water at regular intervals and grown in sunlight will give us a good yield. We also predict that some plants will do well in vertical beds compared to other such as small fruit and vegetables and herbs.

Next steps

Once we have our results we will produce activities to engage with school pupils, kitchen staff, and families about the impacts of food and the opportunities we have. We have planned when we would like to sow our seeds ready for the growing season in April. We have decided which plants we would like to try in the vertical beds and where we would like them to go.

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