Problem-Solving for the School Kitchen Garden

Subjects **Biology, Agricultural Science**

Year **11**

Learning Intention

Students will investigate how geographical factors such as climate, soil, water use, and biodiversity impact food production in a school kitchen garden. They will apply mapping and observation skills to identify challenges and propose sustainable solutions to improve the garden's productivity and environmental impact.

Curriculum links

Biology

Strand: BI **11.2 Living Together**

Sub-strand: BI 11.2.1 Organism and the

Learning Outcome

- 11.1.1.2 Explore and describe the different community structures that exist in natural ecosystems.
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Agricultural Science

Strand: AS 11.1 Agricultural Concepts

Sub-strand: AS 11.1. 1 General Agriculture – Field Trials

Learning Outcome

- 11.1.1.1 Deliberate on the importance of conducting field trials in obtaining environmentally friendly solutions in solving challenges faced by agricultural enterprises in the school.

Teaching Activity

Materials required

- Garden trowels and spades
- Soil testing kits (for pH, nutrients and moisture)
- Garden gloves
- Rulers or measuring tapes
- Notebooks and pencils for recording observations
- Coloured markers and poster paper for mapping and presentations
- Watering cans or hoses
- Compost bins for sustainability practices
- Plant labels for organising sections
- Digital devices (tablets or computers) for research and presentations (optional)

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Activity Steps

Introduce and **lead** the following activity, explaining the steps and concepts as required.

Step 1: Investigate the Garden

- Draw a map: Sketch the garden, marking plant locations, sunny/shady areas, water sources and compost bins.
- Climate and soil check: Research the local climate (temperature, rainfall) and do a simple soil test (pH or texture).
- Observe biodiversity: List insects, birds and other wildlife found in the garden.

Step 2: Identify Problems

- Are plants getting enough sunlight and water?
- Is the soil healthy for growing food?
- Are there pollinators (e.g. bees) helping plants grow?
- Is food being wasted or not used effectively?

Step 3: Suggest Solutions

- How can we improve plant growth? For example:
  - better watering
  - composting
  - new plants.
- What sustainable ideas could reduce waste? For example:
  - compost bins
  - rainwater collection.
- How can we attract more pollinators?

Step 4: Present and Reflect

- Create a poster or slideshow: Explain how your plan will improve soil health and food production.
- Class discussion: Share ideas and decide if any can be implemented in the real school garden.
- Reflect: Write a short paragraph on how crop rotation can help global food security.