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AI@GREEN

WRITTEN LESSON PLAN

DESIGNING AI-POWERED GREENHOUSE FARMING SOLUTIONS

Grade: Grade 6
Module: AI in Ecological Agriculture
Suggested duration: 45 minutes

Lesson focus

- This lesson combines research, creative design and practical reasoning, making it the strongest culminating task in the module.

Learning objectives

- Identify one sustainability challenge in ecological greenhouse farming.
- Design an AI-supported solution with a clear input, decision and action.
- Explain a likely benefit and a possible limitation or ethical consideration.

Materials and preparation

- Project design sheet, paper and markers
- Optional recyclable materials for a simple prototype
- Board or projector and optional reference images of sensors, cameras or automated irrigation

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LESSON PROCEDURE

Engage | Choose a challenge (6 min)

- Show or describe three challenges: pests, watering, and temperature control.
- Ask: 'What information would a farmer need before deciding what to do?'

Explore | How an AI system works (9 min)

- Model the sequence 'Observe or measure → Analyse → Recommend or act'.
- Use the example of soil-moisture readings helping an irrigation system decide when to water.
- Point out that human oversight and reliable data remain important.

Create | Design and prototype (19 min)

- Teams select one challenge and sketch or build a model of their solution.
- Label the input (data), AI-supported decision and output (action or recommendation).
- Add one expected environmental benefit and one possible drawback.

Share | Mini presentations (8 min)

- Teams give brief demonstrations or pitches.
- Peers ask: 'What happens if the sensor or AI makes a mistake?'

Reflect | Exit ticket (3 min)

- Each student completes: 'Our solution uses ___ data to ___, but we must check ___.'

STUDENT ACTIVITY SHEET

Copy or print this page section for each group or student. The prompts can also be completed in a notebook.

Problem

- What is happening in the greenhouse? _____

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Input

- What does the system observe or measure? _____

Decision

- What pattern or condition should the AI-supported system identify? _____

Action

- What would the system recommend or do? _____

Benefit and risk

- Expected environmental benefit: _____
- Possible problem: _____

Assessment / success criteria

- Design connects an identified problem with relevant data and a response.
- Team explains the environmental benefit of its solution.
- Student identifies one realistic limitation, risk or need for oversight.

Differentiation

- Support: Give a partially completed example (dry soil → moisture sensor → watering recommendation) and allow diagrams instead of long written responses.
- Additional challenge: Invite students to compare automated action with human approval and justify which is safer for their system.

Extension activity

- Turn the design into a labelled poster or a simple model, then test its logic against hypothetical data.

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