SMART AGRICULTURE

ELECTIVE

MAURITIUS INSTITUTE OF EDUCATION under the aegis of

MINISTRY OF EDUCATION AND HUMAN RESOURCE

ACKNOWLEDGE

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EXPLORING SMART TOOLS WHICH ARE IMPORTANT FOR PRECISION AGRICULTURE

Lesson 14
Exploring Smart Tools which are important for Precision Agriculture

Duration:
35 minutes

Grade:
7

Exploring Smart Tools which are important for Precision Agriculture

Lesson Aim

The aim of the lesson is to develop learners' understanding of smart tools used in precision agriculture and how these tools help farmers to grow crops in a smarter and more efficient manner.

Lesson Overview

In this lesson, learners will explore smart tools used in precision agriculture through simple explanations and an engaging virtual tour. They will discover how these tools help farmers monitor, manage and improve crop production efficiently.

Lesson Objectives

At the end of this lesson, learners will be able to:

1. Identify at least three smart tools used in precision agriculture.
2. Explain how selected tools (e.g., Automated Irrigation, Tractors with GPS, Drones) help farmers improve farming practices.
3. Discuss simple reasons why smart tools are useful for agriculture.

Exploring Smart Tools which are important for Precision Agriculture

Lesson Procedures

Time	Activity
10 minutes	**Starter Activity:** Show learners the following smart tools; tractors with GPS, automated irrigation and drone and ask: **'What can you observe? Share your observations, feelings and any experience you have."**
3 minutes	**Explanation:** Teacher provides a simplified definition of smart tools supported by the pictures of smart mentioned above.
10 minutes	**Video viewing:** Show the virtual tripvideo with teacher narration. Students share their understanding and opinions.
5 minutes	Students work on their observation sheets based on video viewing.
5 minutes	Teacher helps students work on their personal journal.
2 minutes	Recap and Question Time: Ask learners simple questions.

Introducing Smart Tools

What are smart tools?
Smart tools are special devices and gadgets that use technology to help farmers grow crops better.

Let's explore some smart tools used in agriculture.
How are the smart tools shown in the pictures used?

1. Tractor with GPS

Figure 1: Tractor operating using GPS

2. Automated Irrigation

Figure 2: Automated Irrigation System for vegetables

3. Drone

Example: St Antoine Sugar Estate – used for early detection of disease (crop).

Figure 3: Monitoring of Crops using Drones

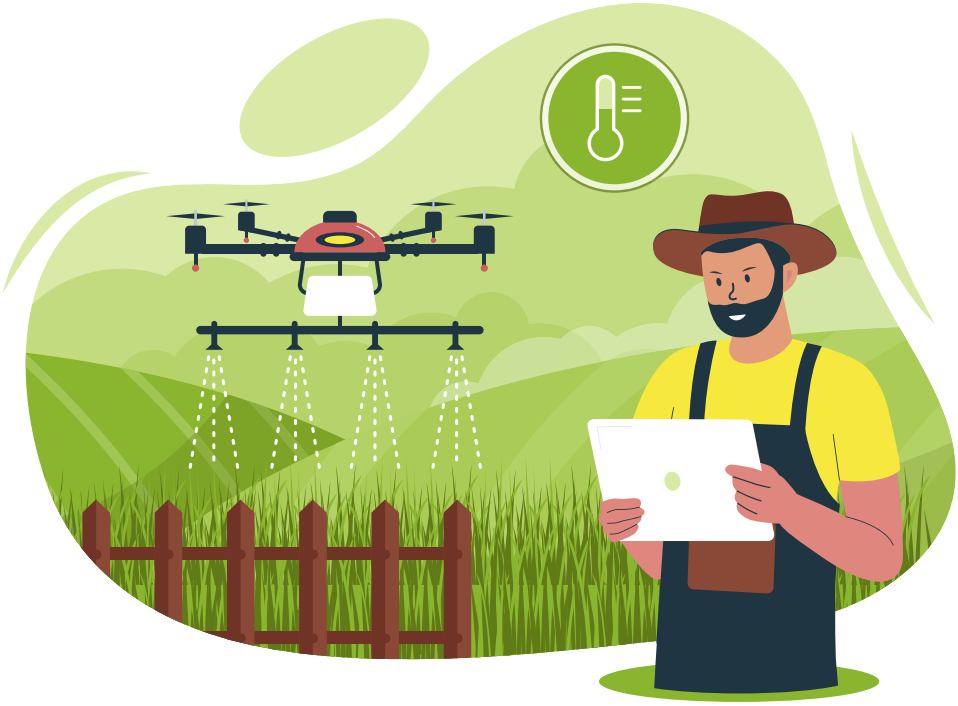
Source: https://images.stockcake.com/public/a/5/6/a5640221-68a3-48e3-8ac5-8a3cd21cc199_large/drone-over-farm-stockcake.jpg

Introduction to agricultural technologies

Smart tools and their importance in Precision Agriculture

Definition of Precision Agriculture
Precision agriculture is a smart way of doing agriculture through the use of special tools and technology.

Importance of smart tools
1. Smart tools help farmers know more about their land and plants.
2. They make farming easier, faster, and help produce good crops.
3. Smart tools help produce more food and healthier plants.



Learning Activity

Activity 1: Virtual Trip

- YouTube Video Title: 3 Applications of AI in Agriculture
- Duration: 4.16 minutes
- YouTube Video Link: https://youtu.be/nsnpEmr1q_k?si=3PHI2R7XwLJ-Z63UM

Observation Sheets based on video viewing

OBSERVATION SHEET

Name: _____

Virtual Video on Smart Tool Used in Agriculture

What I saw?

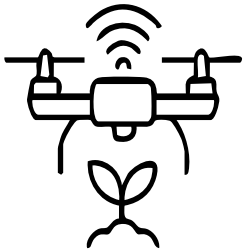
What I heard: _____

I thought: _____

Learning Activity

Activity 2: Matching Exercise

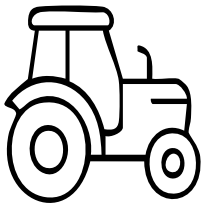
Match the pictures to the names.



Drone

Smartphone

Tractor



Smart Irrigation

Teacher's Responsibilities adapted to lesson requirements

1. Introduction

Introduce the lesson clearly in an engaging manner.

2. Presentation of visuals and videos

- Show the pictures sequentially, explaining each one in simple, clear language.
- Play the virtual video trip, pausing to highlight important features and encourage viewers' observations by asking simple prompt questions.
- Use visual aids and gestures to reinforce understanding.

3. Facilitation

Provide individual support, as required,to help students fill their observation sheet and learners' personal journal.

4. Assessment and feedback

- Observe learners' engagement and understanding.
- Use simple assessments (e.g. verbal responses).
- Offer positive and constructive feedback.

5. Follow-up

- Summarise the key points of the lesson.
- Learners are given opportunities to express what they learned.
- Motivate students to complete their observation sheet and learners' personal journal.

Teacher's Responsibilities adapted to lesson requirements

1. Engagement

- Pay attention to the pictures and videos presented.
- Participate enthusiastically in discussions and activities.

2. Participation

- Respond to questions and prompts from the teacher.
- Ask for clarification if needed.
- Share their thoughts or feelings about pictures and videos presented.

3. Learning Support

- Work out the aids provided (observation sheet and learners' personal journal) to reinforce understanding.

4. Feedback

- Share what they have learned or found interesting.
- Express if they need more help or clarification.
- Invite students to share their Personal Learning Journal.

Learning Activity

Activity 3: Learner Personal Learning Journal: Smart Tools for Precise Agriculture

Learner Personal Learning Journal

Name: _____

Date: _____

Today, I learned about smart tools that help farmers grow crops better.
What are smart tools?

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Why are these tools important?

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Learning Activity

I draw 2 – 3 Smart Tools that I have learned about.

My thoughts

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Teacher's Observation Sheets

	Yes	No
Did learners recognise pictures of drones? - Students identified the drone and named it.	☐	☐
Did learners understand the purpose of drones? - Students explained how drones help check crops.	☐	☐
Did learners recognise GPS-guided tractors? - Students recognised the tractor and said it uses GPS.	☐	☐
Did learners grasp how GPS helps farmers? - Students said GPS helps the tractor to stay straight on track.	☐	☐
Did learners recognise smart irrigation systems? - Students identified the smart irrigation system.	☐	☐
Was the lesson visual and interactive? - Pictures and videos helped students understand smart tools used in agricultural activities.	☐	☐
Did learners stay engaged? - Students listened and asked questions.	☐	☐
Were learners able to repeat or explain some tools? - Some learners repeated drone or GPS tractor names.	☐	☐
Additional notes: Learner comfort or challenges	☐	☐

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