WebQuest on Drones in Agriculture: Agriculture 4.0

Introduction:

Welcome to the WebQuest on Drones in Agriculture, where you'll explore the exciting world of Agriculture 4.0. This inquiry-oriented activity will allow you to delve into the innovative use of drone technology to enhance agricultural practices. Your mission is to understand the current capabilities, benefits, and future potential of drones in farming.

Task:

Your task is to create a comprehensive presentation that covers:

1. An overview of what drones are and how they are used in agriculture.
2. The benefits of using drones for crop monitoring, planting, and pest control.
3. Real-world examples of successful drone usage in agriculture.
4. Future trends and technologies in drone use for farming.
5. Propose a pilot project using drones in a local farming scenario, including budget and expected outcomes.

Process and Resources:

1. **Research**: Start with gathering information from the following resources:
   o [FAO Report on Drones in Agriculture](#) - Overview and case studies.
   o [Case Studies of Successful Drone Use in Agriculture](#) - Detailed analysis of drone impact.
   o YouTube Video [Drones on the Farm in 2023](#).
2. **Analysis and Synthesis**: Break down the information into categories as outlined in the task. Discuss with your team how to integrate the data into a coherent presentation.
3. **Creation**: Use PowerPoint to create your presentation. Each team member will take responsibility for one section of the presentation.
4. **Review and Practice**: Review each other's sections, provide feedback, and practice presenting as a group.

Evaluation:

Your project will be evaluated based on the following criteria:

- **Research Quality**: Depth and relevance of the information gathered.
- **Analysis and Integration**: How well the information is analyzed and synthesized into the presentation.
- **Creativity and Innovation**: Creativity in presentation style and the proposed pilot project.
- **Teamwork and Collaboration**: Effectiveness of collaboration among team members.

The rubric for the **WebQuest on Drones in Agriculture** defines the parameters with which students will be evaluated on key aspects related to the assigned task. For this rubric, a series of indicators have been defined to follow in order to carry out the evaluation of the webquest.

Criteria	Excellent (9-10 points)	Good (7-8 points)	Satisfactory (5-6 points)	Poor (0-4 points)
Quality of research	Updated information and statistics, examples of real cases and detailed explanations of the use of drones in agriculture are included. At least 5 reliable sources are correctly cited.	Includes relevant data and examples with some explanations. Between 3-4 reliable sources are used, although not all are well cited.	Information lacks depth or relevance. Only 1-2 reliable sources are used, and citations are inconsistent.	No reliable sources are included, and information is sparse or irrelevant.
Analysis and integration	Ideas are logically connected; implications of using drones in different areas of agriculture are clearly identified and explained.	Ideas are mostly connected, but some explanations or implications are vague or missing.	There are attempts to connect ideas, but the information is weak or poorly developed.	There is no clear connection between the data presented or analysis of impact.
Creativity and innovation	Use of unique visual elements and creative techniques to capture attention. Pilot project includes innovative and thoughtful details (e.g., specific technology, clear	Interesting, yet conventional, visual elements. The pilot project includes general details and is functional.	Visual elements are basic or predictable. The pilot has little clarity or lacks specific details.	No significant visual elements or innovative ideas are presented in the pilot project.

	objectives, detailed costs).			
Teamwork and collaboration	All members participated in a balanced manner; the team showed leadership, problem solving and effective communication.	Most members contributed in a balanced manner; there was adequate communication with few minor problems.	Some members participated significantly more than others, or there were obvious communication problems.	There was little or no collaborative effort; most of the work fell to one or two members.

Conclusion:

Students are expected to reflect on what they have learned about the use of drones in agriculture, highlighting how this technology is transforming the way we farm and manage agricultural resources. They are expected to consider the applications they have learned about and discuss how these innovations can be useful in addressing the needs of agriculture.

On the other hand, students are sought to think about how drones can offer customized solutions to challenges in their region (improving water use efficiency, reducing operating costs, or increasing the sustainability of farming practices). In addition, they are expected to go further and consider the potential benefits not only economically, but also in terms of environmental sustainability and climate change adaptation.

It includes a final reflection on how this technology can transform the future of agriculture by integrating artificial intelligence and big data analysis, leading to more efficient, sustainable systems tailored to the needs of both small farmers and large farms. In addition, it is expected that the knowledge acquired in this WebQuest will be applied in future projects, whether academic or real, contributing to the advancement of agriculture in their community through innovative, responsible and sustainable solutions..

Teacher Page:

- **Objective**: Enhance understanding of drone technology in agriculture and stimulate innovative thinking towards its application.

- **Resources**: Provided links and suggested additional research tools like local agricultural reports and drone technology forums.
- **Guidance**: Offer insights during the project phases, especially in integrating diverse information into a single presentation.
- **Evaluation Tools**: Rubrics for assessing each part of the project are included, focusing on both group and individual contributions.

This WebQuest encourages you to explore the intersection of technology and agriculture, fostering skills in research, critical thinking, and collaborative problem-solving.