Farm-Ed

Lesson Plan & Alignment

Topic: Artificial Intelligence (AI) in Agriculture

Driving Question: How might AI impact the Agriculture, Food, and Natural Resources industries?

Standards Covered:

Agricultural Biotechnology Industry Readiness Indicators

5.1	Identify, select or evaluate current or emerging applications of biotechnology in plant science.
5.2	Identify current or emerging applications of biotechnology in food science.
5.4	Identify current or emerging applications of biotechnology in environmental science.
5.5	Identify, select or evaluate pros and cons associated with current or emerging application of biotechnology in plant, food, animal or environmental sciences.

ACT Science Skills

IOD 303	Find basic information in text that describes a complex data presentation
IOD 702	Analyze presented information when given new, complex information

Suggested Timing:

➔ 80 minute period

- ☐ Warm Up — 5 minutes
- ☐ Introduction — 10 minutes
- ☐ Exploration & Research — 25 minutes
- ☐ Application — 30 minutes
- ☐ Wrap Up — 10 minutes

Preparation in Advance:

- ☐ AI in Agriculture Slides posted for student access to view via LMS
- ☐ Digital or printed copies of AI in Agriculture Worksheet

Learner Materials:

- ☐ Technology access for research and slides

- ☐ If not access to slides, printed versions of resources
- ☐ Writing Utensil
- ☐ AI in Agriculture Worksheet

Lesson Overview:

Warm Up: Learners will receive a basic definition of AI, then explore a scenario in agriculture from the past. Encourage an open discussion about how farmers have been solving problems, and what some of the risks may be with the solutions developed. Extend the discussion to ways that AI or more modern technologies might help solve the same problem for farmers now.

Introduction: Learners will watch a clip from a short video about the current impact on agriculture in California based on the scenario discussed on the Warm Up slide. The slides are set to show only a two minute segment of the video (1:35 - 3:53), but you are welcome to show additional pieces of the video as you see fit. Afterwards, open the class up for another discussion based on the prior points and new learning from the video. Ask how AI tools in particular could help support Agriculture.

Exploration & Research: Learners will read external sources to see how AI is being used across the fields of Education, Healthcare, Business, and Cybersecurity. On the worksheet, they should track their learning about each AI application, and then brainstorm how similar tools could be used across Agriculture. This section will serve as the foundation for the Learner-Created Solutions in the next section.

Application: Learners will extend their learning to design their own AI-based solution to solve a problem in the AFNR realm. The guided questions should help learners think through their solutions, and the research foundation should support real-world application. This section could be completed independently or in pairs.

Wrap Up: Let learners share their ideas! Debrief with the class on the driving question for the day and ask them to extend their ideas to bring together the original discussion from the day.