



LESSON PLAN



Grade : High School 9-12 grade

Date 11/01/2025

Subject :Business, Agriculture, Sustainability, Entrepreneurship

Name of Activity: Seed to Startup - Designing Sustainable Agri-Businesses

A student-centered workshop exploring agricultural innovation through entrepreneurship and sustainability.

Purpose & Learning Objectives

Purpose: To actively engage students in designing sustainable agricultural solutions by applying entrepreneurial thinking and leveraging real-world innovation tools.

Learning Objectives: By the end of this lesson, students will be able to:

- Define agricultural innovation and entrepreneurship.
- Identify current agri-tech trends and sustainability challenges.
- Apply the Business Model Canvas (BMC) to design a sustainable agri-business.
- Collaborate and communicate ideas effectively.
- Reflect on the role of innovation in solving agricultural problems.

Duration: 60–90 minutes

Background & Agricultural Connections

Agriculture is rapidly evolving in response to climate change, food insecurity, and resource depletion. Innovations such as vertical farming, biodegradable packaging, smart irrigation, and agri-drones offer new opportunities for sustainable entrepreneurship. This lesson empowers students to explore these innovations and design solutions that are environmentally responsible and economically viable.

Description of Activity

In this activity, students will explore the intersection of sustainability, entrepreneurship, and innovation by engaging in a hands-on design challenge. The lesson begins with multimedia prompts (videos, infographics, case studies) to spark curiosity about agricultural and eco-friendly innovations. Students will then define key concepts such as agricultural innovation and entrepreneurship, grounding their understanding with real-world examples like vertical farming, smart irrigation, and biodegradable packaging.

Next, students will examine current agri-tech trends and sustainability challenges through guided discussion, connecting global issues such as climate change, food insecurity, and resource depletion to local contexts. Working in collaborative teams, they will apply the Business Model Canvas (BMC) framework to design a sustainable agri-business concept, considering value propositions, target customers, resources, and environmental impact. The activity concludes with individual reflection through an exit ticket, where students identify one agri-innovation they would like to see in their community. A brief wrap-up reinforces key takeaways and previews next steps, such as preparing for pitch presentations, guest speakers, or a Shark Tank-style showcase.

Materials and Equipment Needed

Projector or smartboard
Short video clips or infographics on agri-tech
Printed or digital Agri-Innovation BMC Worksheet
Innovation worksheet (optional extension)
Sticky notes or digital collaboration tools (Padlet, Jamboard)
Pens, markers, poster paper (for physical gallery walk)
Rubric for evaluating student projects
Optional: Guest speaker or virtual Q&A with agri-entrepreneur
Google Slides deck for visual guidance

Teacher Preparation

Review key concepts: agricultural innovation, sustainability, entrepreneurship, BMC
Prepare multimedia resources and tech setup
Print/distribute worksheets and rubrics
Arrange classroom for group work and gallery walk
Optional: Coordinate guest speaker or digital sharing platform

Activities & Procedures

1. Introduction (Engage)

- Present multimedia resources (short videos, infographics, or case studies) to spark curiosity about agri-tech innovations.
- Prompt students with a guiding question: “How can technology and entrepreneurship transform the way we grow, package, and deliver food?”

2. Concept Definition (Explore)

- Define agricultural innovation and entrepreneurship in clear, student-friendly terms.
- Share real-world examples such as vertical farming, smart irrigation systems, and biodegradable packaging.
- Encourage students to connect these examples to challenges they’ve observed in their own communities.

3. Trend Exploration (Explain & Discuss)

- Facilitate a class discussion on current agri-tech trends and sustainability challenges.
- Guide students to consider issues like climate change, food insecurity, and resource depletion.
- Use think-pair-share or small group discussions to ensure all voices are heard.

4. Business Model Canvas Application (Apply)

- Divide students into teams and provide the Agri-Innovation Business Model Canvas (BMC) Worksheet.
- Each team designs a sustainable agri-business concept, identifying:
 - Value proposition
 - Target customers
 - Key resources and partners
 - Revenue streams and cost structure
- Circulate to support groups, prompting them to think about both environmental impact and entrepreneurial viability.

5. Reflection (Evaluate)

- Students complete an exit ticket responding to: “One agri-innovation I’d like to see in my community is...”
- Collect responses to assess understanding and gather ideas for future lessons.

6. Wrap-Up (Extend & Connect)

- Recap key takeaways: the role of innovation, sustainability, and entrepreneurship in shaping the future of agriculture.
- Preview next steps, such as:
 - Pitch presentations of student business models
 - A guest speaker from the agri-tech industry
 - A Shark Tank–style showcase where teams present their ideas

Grading Rubric

| Criteria | Points | Description |
|--|-----------|--|
| Innovation & Creativity business idea | <u>10</u> | Originality and relevance of the agri- |
| Feasibility model | <u>10</u> | Practicality and clarity of the business |
| Sustainability Impact | <u>10</u> | Environmental and social benefits |
| Presentation & Communication | <u>10</u> | Clarity, visual appeal, and teamwork |
| Peer Feedback Participation | <u>5</u> | Thoughtful engagement in gallery walk |

Total Points:45 points

Extensions & Adaptations

- **Cross-Curricular Tie-Ins:** Link to science (biodegradability), art (design), or math (cost structure)
- **Community Engagement:** Invite local business owners or sustainability advocates to judge pitches
- **Digital Portfolio:** Compile canvas, prototype, and video into a shareable presentation

Teacher Reminders Checklist

- Time Management** – Keep each stage (intro, activity, reflection) on schedule.
- Materials Ready** – Eco-friendly supplies (recycled paper, fabric, twine, etc.) prepared in advance.
- Inclusivity** – Apply accommodations so all learners can participate meaningfully.
- Cross-Disciplinary Links** – Reinforce connections to Entrepreneurship, Environmental Science, Business, Marketing, and Technology.
- Encourage Creativity** – Remind students there's no single "right" way to eco wrap.
- Student Voice** – Allow time for sharing reflections and ideas.
- Assessment Tools** – Use rubric/checklist during activity for smooth evaluation.
- Positive Closure** – End with a motivational takeaway about small sustainable choices making a big impact.

References & Resources

National Geographic: Future of Farming
FAO – Agricultural Innovation
AgFunder News
AgriTech Tomorrow
Business Model Canvas template (student-friendly version)Padlet or J
Jamboard for digital gallery walk
Google Slides deck for visual guidance

Student Accommodations

Learning & Cognitive Support

- Provide step-by-step instructions with visuals or diagrams.
- Break tasks into smaller, manageable parts with checklists.
- Offer guided practice before independent work.
- Allow students to demonstrate understanding in multiple formats (oral, written, visual, or digital).

Physical & Sensory Needs

- Use larger, easier-to-handle materials for students with fine motor challenges.
- Allow adaptive tools (scissors with larger grips, pre-cut materials).
- Offer quiet workspace options for students sensitive to noise or distraction.

Technology Integration

- Allow students to design eco wrapping digitally if physical wrapping is difficult.
- Provide assistive technology (speech-to-text, text-to-speech) for reading/writing tasks.
- Use short instructional videos to reinforce steps

These accommodations make the activity inclusive, flexible, and engaging while still connecting to Entrepreneurship, Environmental Science, Business, Marketing, and Technology.