A Learning Experience for Grade 7 Science

project AGRICULTURE Activity	GRADE 7 SCIENCE
	CONCEPTUAL KNOWLEDGE

LEARNING SOURCES
 	
How can agricultural environments contribute to sustainability?
 	
What are sustainable agroecosystems?
	Unit A: Interactions and Ecosystems
	
	1. Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions
	• Illustrate how life-supporting environments meet the needs of living things for nutrients, energy sources, moisture, suitable habitat, and exchange of gases
	• Identify examples of human impacts on ecosystems, and investigate and analyze the link between these impacts and the human wants and needs that give rise to them (e.g., identify impacts of the use of plants and animals as sources of food, fibre and other materials; identify potential impacts of waste products on environments)
	• Analyze personal and public decisions that involve consideration of environmental impacts, and identify needs for scientific knowledge that can inform those decisions
	
	2. Trace and interpret the flow of energy and materials within an ecosystem
	• Analyze an ecosystem to identify biotic and abiotic components, and describe interactions among these components
	• Analyze ecosystems to identify producers, consumers and decomposers; and describe how energy is supplied to and flows through a food web, by:
	  • describing and giving examples of energy and nutrient storage in plants and animals
	  • describing how matter is recycled in an ecosystem through interactions among plants, animals, fungi, bacteria and other microorganisms
	  • interpreting food webs, and predicting the effects of changes to any part of a web
	• Describe the process of cycling carbon and water through an ecosystem
	• Identify mechanisms by which pollutants enter and move through the environment, and can become concentrated in some organisms (e.g., acid rain, mercury, PCBs, DDT)
	
	Seek and apply evidence when evaluating alternative approaches to investigations, problems and issues (e.g., take the time to accurately gather evidence and use instruments carefully; consider observations, ideas and perspectives from a number of sources during investigations and before drawing conclusions and making decisions)
	
	Work collaboratively in carrying out investigations and in generating and evaluating ideas (e.g., consider alternative ideas, perspectives and approaches suggested by members of the group; share the responsibility for carrying out decisions)
	
	Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment (e.g., assume personal responsibility for their impact on the environment; predict consequences of proposed personal actions on the environment; consider both immediate and long-term consequences of group actions; identify, objectively, potential conflicts between responding to human wants and needs and protecting the environment)

project AGRICULTURE Activity	GRADE 7 SCIENCE
	PROCEDURAL KNOWLEDGE
BUILD COMPETENCIES Sustainability practices  Ecosystem cycles 	**Unit A: Interactions and Ecosystems** Ask questions about the relationships between and among observable variables, and plan investigations to address those questions • Identify science-related issues (e.g., identify a specific issue regarding human impacts on environments) Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data • Research information relevant to a given problem or issue • Select and integrate information from various print and electronic sources or from several parts of the same source (e.g., compile information on a global environmental issue from books, magazines, pamphlets and Internet sites, as well as from conversations with experts) Analyze qualitative and quantitative data, and develop and assess possible explanations • Compile and display data, by hand or computer, in a variety of formats, including diagrams, flow charts, tables, bar graphs and Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results • Communicate questions, ideas, intentions, plans and results, using lists, notes in point form, sentences, data tables, graphs, drawings, oral language and other means (e.g., present findings from an analysis of a local issue, such as the control of the beaver population in a nearby wetland) • Defend a given position on an issue, based on their findings (e.g., make a case for or against on an issue, such as: "Should a natural gas plant be located near a farming community?")

These **LEARNING SOURCE** and **BUILD COMPETENCIES** activities can meet specific learning outcomes in the Grade 7 Science curriculum. Have students focus on the relationship between people and environments, the characteristics of ecosystems and the link between ecosystems and agriculture.