A Learning Experience for Science 30

project AGRICULTURE Activity	SCIENCE 30
	CONCEPTUAL KNOWLEDGE
LEARNING SOURCE How do biodiversity and climate change affect smart agriculture solutions?	**Unit B: Chemistry and the Environment** 30–B1.9k Describe impacts on the biotic and abiotic components of the environment caused by acid deposition; e.g., lowered pH in water systems, accelerated corrosion, metal leaching from bedrock, the impact of leached metals on plants and the food chain 30–B1.2sts Explain how science and technology have both intended and unintended consequences for humans and the environment (SEC3) [ICT F3–4.1] • Identify and explain how human activities and natural events contribute to acid deposition in the environment. 30–B2.3k Identify organic compounds commonly considered to be environmental pollutants; i.e., hydrocarbons, organic waste, CFCs, polychlorinated biphenyls (PCBs), dioxins and furans 30–B2.5k Identify and explain how human activities and natural events contribute to the production of photochemical smog, the depletion of the ozone layer and increased concentrations of organic compounds in the environment; e.g., driving a car, use of CFCs, agricultural practices 30–B2.1sts Explain how science and technology have both intended and unintended consequences for humans and the environment (SEC3) [ICT F2–4.8, F3–4.1] • Explain how the introduction of environmental contaminants, i.e., herbicides, pesticides, dichlorodiphenyltrichloroethane (DDT), CFCs, SO2(g), CO2(g), particularly persistent organic pollutants (POPs), affects living systems globally 30–B3.1sts explain how science and technology have both intended and unintended consequences for humans and the environment (SEC3) [ICT F2–4.8, F3–4.1] • Explain the role of concentration in a risk-benefit analysis for determining the safe limits of particular substances; e.g., pesticide residues, chlorinated or fluorinated compounds
	PROCEDURAL KNOWLEDGE
BUILD COMPETENCIES Smart data 	30–B1.4s Work collaboratively in addressing problems and apply the skills and conventions of science in communicating information and ideas and in assessing results • Prepare a group visual display explaining initiatives taken by industry to reduce emissions that can cause acid deposition (CT–SEC2) [ICT C1–4.4, P4–4.2] 30–B2.1s formulate questions about observed relationships and plan investigations of questions, ideas, problems and issues • Design an investigation of alternatives to the use of pesticides or herbicides (IP–ST2) [ICT C2–4.1] 30–B3.2s Conduct investigations into relationships among observable variables and use a broad range of tools and techniques to gather and record data and information • debate the issue of whether protecting the environment should have priority over economic interests (PR–SEC1) [ICT C1–4.4, C2–4.2]

This **LEARNING SOURCE** and **BUILD COMPETENCIES** activity can meet specific learning outcomes in the Science 30 curriculum. Students can focus on how acid deposition and other forms of pollution can affect agricultural activities. Encourage students to explore the affect that pollutants can have on agriculture as well as the risks that agricultural activities can pose to the environment and climate change.