

Twin Valley School District

Agricultural Science, 9-12

Scope & Sequence

Board Approved April, 2006

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STANDARD-BASED AGRICULTURAL SCIENCE CURRICULUM

Scope and Sequence for Unit Topics

Aquatic Sciences	Natural Resources	Animal Sciences
<p>Topics of Study: Hydrology Freshwater Ecology Marine Ecology Ichthyology</p>	<p>Topics of Study: Forestry Wildlife Management Air, Soil & Water Conservation</p>	<p>Topics of Study: Domestication/Classification Husbandry Systems</p>
<p><i>Eligible Content</i></p> <p>S11A. The Nature of Science</p> <p>S11.A.1.1.4 Scientific knowledge or technological design concepts solve practical problems (e.g., momentum, Newton’s laws of universal gravitation, tectonics, conservation of mass and energy, cell theory, theory of evolution, atomic theory, theory of relativity, Pasteur’s germ theory, relativity, heliocentric theory, gas laws, processing and feedback systems).</p> <p>S11.A.1.1.5 Direct and indirect observation as means to study the world and the universe (e.g., behavior of atoms, functions of cells, birth of stars).</p> <p>S11.A.1.2.1 Scientific concepts to societal issues using case studies (e.g., sea level change, spread of HIV, deforestation, environmental health, energy).</p> <p>S11.A.1.3.3 Changes in physical and</p>	<p><i>Eligible Content</i></p> <p>S11A. The Nature of Science</p> <p>S11.A.1.1.1 Scientific theories, scientific laws, and beliefs (e.g., the law of gravity, how light travels, formation of moons, stages of ecological succession).</p> <p>S11.A.1.2.1 Scientific concepts to societal issues using case studies (e.g., sea level change, spread of HIV, deforestation, environmental health, energy).</p> <p>S11.A.1.3.2 Dynamic changes to stable systems (e.g., chemical reactions, human body, food webs, tectonics, homeostasis).</p> <p>S11.A.2.2.1 Appropriate methods, instruments, and scale for precise quantitative and qualitative observations (e.g., to compare properties of materials, water quality).</p> <p>S11.A.3.1.1 Systems analysis, showing relationships (e.g., flowcharts, decision trees, dichotomous keys, mind map), input and</p>	<p><i>Eligible Content</i></p> <p>S11A. Nature of Science</p> <p>S11.A.1.1.2 Verify the accuracy of scientific facts, principles, theories, and laws.</p> <p>S11.A.1.1.3 The appropriateness of research questions (e.g., testable vs. not-testable).</p> <p>S11.A.1.1.5 The use of both direct and indirect observation as means to study the world and the universe (e.g., behavior of atoms, functions of cells, birth of stars).</p> <p>S11.A.1.2.1 Scientific concepts to societal issues using case studies (e.g., sea level change, spread of HIV, deforestation, environmental health, energy)</p> <p>S11.A.1.3.1 Appropriate quantitative data to describe or interpret change in systems (e.g., biological indices, electrical circuit data, automobile diagnostic systems data).</p>

biological indicators (e.g., soil, plants, or animals) of water systems reflect changes in these systems (e.g. changes in bloodworm populations reflect changes in pollution levels in streams).

S11.A.2.1.3 Data to make inferences and predictions, or to draw conclusions, demonstrating understanding of experimental

S11.A.2.1.4 Critique the results and conclusions of scientific inquiry for consistency and logic.

S11.A.3.1.2 Analyze and predict the effect of making a change in one part of a system on the system as a whole.

S11.A.3.3.1 Recurring patterns that form the basis of biological classification, chemical periodicity, geological order, or astronomical order.

S11.B. Biological Sciences

S11.B.1.1.1 Structure determines function at multiple levels of organization (e.g., chemical, cellular, anatomical, ecological).

S11.B.1.1.2 Structural and functional similarities and differences among living things (e.g., classify organisms into existing classification groups, compare systems).

S11.B.3.1.1 The significance of diversity in ecosystems.

S11.B.3.1.2 The biotic (i.e., plant, animal, and microbial communities) and abiotic (i.e., soil, air, temperature, and water) components of an ecosystem and their interaction.

output, and measurements to explain a system and its parts.

S11.A.3.1.2 Analyze and predict the effect of making a change in one part of a system on the system as a whole.

S11.A.3.2.3 Relationships represented in models are used to explain scientific or technological concepts (e.g., dimensions of the solar system, life spans, size of atomic particles, topographic maps).

S11.A.3.3.1 Recurring patterns that form the basis of biological classification, chemical periodicity, geological order, or astronomical order.

S11.B. Biological Sciences

S11.B.3.1.1 The significance of diversity in ecosystems.

S11.B.3.1.2 The biotic (i.e., plant, animal, and microbial communities) and abiotic (i.e., soil, air, temperature, and water) components of an ecosystem and their interaction.

S11.B.3.1.3 Living organisms affect the survival of one another.

S11.B.3.1.4 The similarities and differences in the major biomes (e.g., desert, tropical rain forest, temperate forest, coniferous forest, tundra) and the communities that inhabit them.

S11.B.3.1.5 Limiting factors (e.g., physical, biological, chemical factors) can affect organisms.
S11.B.3.3.1 Different human-made systems and how they use renewable and nonrenewable natural

S11.A.1.3.2 Dynamic changes to stable systems (e.g., chemical reactions, human body, food webs, tectonics, homeostasis).

S11.A.2.1.1 The elements of an experimental design (e.g., raising questions, formulating hypotheses, developing procedures, identifying variables, manipulating variables, interpreting data, and drawing conclusions) applicable to a specific experimental design.

S11.A.2.1.2 The elements of the design process (e.g. identify the problem, understand criteria, create solutions, select solution, test/evaluate and communicate results) applicable to a specific technological design.

S11.A.2.1.3 Data to make inferences and predictions, or to draw conclusions, demonstrating understanding of experimental limits.

S11.A.2.1.4 The results and conclusions of scientific inquiry for consistency and logic.

S11.A.2.1.5 Results of investigations using multiple representations.

S11.A.3.2.1 The accuracy of pre-dictions represented in a model to actual observations and behavior.

S11.A.3.2.2 Advantages and disadvantages of using models to simulate processes and outcomes.

S11.A.3.2.3 How relationships represented in models are used to explain scientific or technological concepts (e.g., dimensions of the solar system, life spans, size of atomic particles, topographic maps).

<p>S11.B.3.1.3 How living organisms affect the survival of one another.</p> <p>S11.B.3.1.4 The similarities and differences in the major biomes (e.g., desert, tropical rain forest, temperate forest, coniferous forest, tundra) and the communities that inhabit them.</p> <p>S11.B.3.1.5 Limiting factors (e.g., physical, biological, chemical factors) can affect organisms.</p> <p>S11.B.3.2.2 Biological diversity as an indicator of a healthy environment.</p> <p><i>S11.D. Earth and Space Sciences</i></p> <p>S11.D.1.3.1 The multiple functions of different water systems in relation to landforms (e.g., buffer zones, nurseries, food production areas, habitat, water quality control, biological indicators).</p> <p>S11.D.1.3.2 Relationships among physical characteristics, vegetation, topography, and flow as it relates to water systems.</p> <p>S11.D.1.3.3 Factors (e.g., nutrient loading, turbidity, rate of flow, rate of deposition, biological diversity) that affect water quality and flow through a water system.</p>	<p>resources (e.g., energy, transportation, distribution, management, and processing).</p> <p>S11.B.3.3.2 The impact of management practices (e.g., production, processing, research, development, marketing, distribution, consumption, byproducts) in meeting the need for commodities locally and globally.</p> <p>S11.B.3.3.3 The environmental benefits and risks associated with human made systems (e.g., integrated pest management, genetically engineered organisms, organic food production).</p> <p><i>S11.D. Earth and Space Sciences</i></p> <p>S11.D.1.1.1 Major types of rocks (igneous – granite, basalt, obsidian, pumice; sedimentary – limestone, sandstone, shale, coal; and metamorphic – slate, quartzite, marble, gneiss) and minerals (quartz, calcite, dolomite, clay, feldspar, mica, halite, pyrite) by their origin and formation.</p> <p>S11.D.1.2.1 Factors affecting availability, location, extraction, and use of natural resources.</p> <p>S11.D.1.2.2 The impact of obtaining and using natural resources for the production of energy and materials (e.g., resource renewal, amount of pollution, deforestation).</p>	<p>S11.A.3.3.1 Recurring patterns that form the basis of biological classification, chemical periodicity, geological order, or astronomical order.</p> <p>S11.A.3.3.2 Stationary physical patterns (e.g., crystals, layers of rocks, skeletal systems, tree rings, atomic structure) to the object's properties.</p> <p><i>S11.B. Biological Sciences</i></p> <p>S11.B.1.1.1 Structure determines function at multiple levels of organization (e.g., chemical, cellular, anatomical, ecological).</p> <p>S11.B.1.1.2 The structural and functional similarities and differences among living things (e.g., classify organisms into existing classification groups, compare systems).</p> <p>S11.B.2.1.1 The theory of evolution by interpreting data from fossil records, similarities in anatomy and physiology, embryological studies, or DNA studies that are relevant to the theory of evolution.</p> <p>S11.B.2.1.2 The role of mutations, differential reproduction, and gene recombination in changing the genetic makeup of a population.</p> <p>S11.B.2.1.3 The role of selective breeding and biotechnology in changing the genetic makeup of a population.</p> <p>S11.B.2.1.4 Natural selection can act only on inherited traits.</p> <p>S11.B.2.2.1 Genetic information is expressed (i.e., DNA, genes, chromosomes, transcription,</p>
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		<p>translation, and replication).</p> <p>S11.B.2.2.2 The functions of mitosis and meiosis in passing on genetic information.</p> <p>S11.B.2.2.3 Different patterns of inheritance affect population variability. (i.e., multiple alleles, co-dominance, dominance, recessiveness, and sex-influenced traits).</p>
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<p style="text-align: center;">Standard Exposure/Introduction</p>	<p style="text-align: center;">Standard Exposure/Introduction</p>	<p style="text-align: center;">Standard Exposure/Introduction</p>
<p>3.1 Unifying Themes</p> <ul style="list-style-type: none"> • 3.1.10&12.A Systems • 3.1.10&12.B Models • 3.1.10&12.C Patterns • 3.1.10&12.D Scale • 3.1.10&12.E Change <p>3.2 Inquiry and Design</p> <ul style="list-style-type: none"> • 3.2.10&12.A Nature of Scientific Knowledge • 3.2.10&12.B Process Knowledge • 3.2.10&12.C Scientific Method • 3.2.10&12.D Problem Solving in Technology <p>3.3 Biological Sciences</p> <ul style="list-style-type: none"> • 3.3.10.A Structure and function of living things • 3.3.10.B Chemical & Structure of Living Organisms • 3.3.10.C Elements of Scientific Inquiry • 3.3.10.D Technological Design Process <p>3.4 Physical Science, Chemistry and Physics</p> <ul style="list-style-type: none"> • 3.4.10.A Concepts about the Structure and Properties of Matter • 3.4.10.B Energy Sources and Transfers of Heat <p>3.5 Earth Sciences</p> <ul style="list-style-type: none"> • 3.5.10.B Sources and Uses of the Earth's Resources 	<p>3.1 Unifying Themes</p> <ul style="list-style-type: none"> • 3.1.10&12.A Systems • 3.1.10&12.B Models • 3.1.10&12.C Patterns • 3.1.10&12.D Scale • 3.1.10&12.E Change <p>3.2 Inquiry and Design</p> <ul style="list-style-type: none"> • 3.2.10&12.A Nature of Scientific Knowledge • 3.2.10&12.B Process Knowledge • 3.2.10&12.C Scientific Method • 3.2.10&12.D Problem Solving in Technology <p>3.5 Earth Sciences</p> <ul style="list-style-type: none"> • 3.5.10.B Sources and Uses of the Earth's Resources <p>4.1. Watersheds and Wetlands</p> <ul style="list-style-type: none"> • 4.1.10.E Describe Human Events on Wetlands • Ecosystem <p>4.2 Renewable and Non-Renewable Resources</p> <ul style="list-style-type: none"> • 4.2.10.A that Renewable and Non-Renewable Resources supply energy • 4.2.10.B Factors Affecting the Availability of Natural Resources • 4.2.10.C Man-Made Systems • 4.2.10.D Recycling and Solid Waste Management 	<p>3.1 Unifying Themes</p> <ul style="list-style-type: none"> • 3.1.10&12.A Systems • 3.1.10&12.B Models • 3.1.10&12.C Patterns • 3.1.10&12.D Scale • 3.1.10&12.E Change <p>3.2 Inquiry and Design</p> <ul style="list-style-type: none"> • 3.2.10&12.A Nature of Scientific Knowledge • 3.2.10&12.B Process Knowledge • 3.2.10&12.C Scientific Method • 3.2.10&12.D Problem Solving in Technology <p>3.3 Biological Sciences</p> <ul style="list-style-type: none"> • 3.3.10.A Structure and function of living things • 3.3.10.C Elements of Scientific Inquiry • 3.3.10.D Process <p>4.4 Agriculture and Society</p> <ul style="list-style-type: none"> • 4.4.10.B Farming Practices • 4.4.10 C Components of Food and Fiber System <p>4.8.10 Humans and the Environment</p> <ul style="list-style-type: none"> • 4.8.10.A Natural Resources and sustaining society

<p>4.1. Watersheds and Wetlands</p> <ul style="list-style-type: none"> • 4.1.10.A Changes in Streams • 4.1.10.B Relationships Between Landforms, Vegetation & Water • 4.1.10.C Physical Characteristics of Streams • 4.1.10.D Multiple Functions of Wetlands • 4.1.10.E Human Events on Wetlands <p>4.3 Environmental Health</p> <ul style="list-style-type: none"> • 4.3.10.B Pollution Effects on Health • 4.3.10.C Biological Diversity <p>4.6 Ecosystems and their Interactions</p> <ul style="list-style-type: none"> • 4.6.10.A Biotic and Abiotic Processes • 4.6.10.B Cycles on the Ecosystem • 4.6.10.C Changes in Ecosystems <p>4.7 Threatened, Endangered, Extinct Species</p> <ul style="list-style-type: none"> • 4.7.10.A Diversity in Ecosystems • 4.7.10.B How Plants and Animals Survive • 4.7.10.C Adaptations Lead to Diversity 	<p>4.6 Ecosystems and their Interactions</p> <ul style="list-style-type: none"> • 4.6.10.A Biotic and Abiotic Processes • 4.6.10.B Cycles on the Ecosystem • 4.6.10.C Changes in Ecosystems <p>4.7 Threatened, Endangered, Extinct Species</p> <ul style="list-style-type: none"> • 4.7.10.A Diversity in Ecosystems • 4.7.10.C Adaptations Lead to Diversity 	
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STANDARD-BASED AGRICULTURAL SCIENCE CURRICULUM

Scope and Sequence for Unit Topics

Plant Sciences	Ag Leadership
<p>Topics of Study: Agronomics Landscaping Design Turf Grass Management Horticulture</p>	<p>Topics of Study: Agricultural Systems Ag Business Systems Trade Systems and Governmental Policy Global Perspective</p>
<p>Eligible Content</p> <p>The Nature of Science</p> <p>S11.A.1.2.1 Scientific concepts to societal issues using case studies (e.g., sea level change, spread of HIV, deforestation, environmental health, energy).</p> <p>S11.A.2.1.3 Data to make inferences and predictions, or to draw conclusions, demonstrating understanding of experimental limits.</p> <p>S11.A.2.2.1 Methods, instruments, and scale for precise quantitative and qualitative observations (e.g., to compare properties of materials, water quality).</p> <p>S11.A.3.1.2 The effect of making a change in one part of a system on the system as a whole.</p> <p>S11.A.3.1.3 Quantitative data to describe or interpret a system (e.g., biological indices, electrical circuit data, automobile diagnostic systems data).</p> <p>S11.A.3.3.1 Recurring patterns that form the</p>	<p>Eligible Content</p> <p>The Nature of Science</p> <p>S11.A.1.2.2 Case studies (e.g., Wright brothers' flying machine, Tacoma Narrows Bridge, Henry Petroski's Design Paradigms to propose possible solutions and analyze economic and environmental implications of solutions for real world problems.</p> <p>S11.A.1.3.4 The rate of use of natural resources and their impact on sustainability.</p> <p>S11.A.2.1.3 Data to make inferences and predictions, or to draw conclusions, demonstrating understanding of experimental limits.</p> <p>Biological Sciences</p> <p>S11.B.3.3.1 Different human-made systems and how they use renewable and nonrenewable natural resources (e.g., energy, transportation,</p>

basis of biological classification, chemical periodicity, geological order, or astronomical order.

Biological Sciences

S11.B.1.1.1 Structure determines function at multiple levels of organization (e.g., chemical, cellular, anatomical, ecological).

S11.B.1.1.2 The structural and functional similarities and differences among living things (e.g., classify organisms into existing classification groups, compare systems).

S11.B.1.1.3 Cellular processes (e.g., photosynthesis and respiration, meiosis and mitosis, protein synthesis and DNA replication).

S11.B.2.1.2 The role of mutations, differential reproduction, and gene recombination in changing the genetic makeup of a population.

S11.B.3.3.3 The environmental benefits and risks associated with human made systems (e.g., integrated pest management, genetically engineered organisms, organic food production).

distribution, management, and processing).

S11.B.3.3.2 The impact of management practices (e.g., production, processing, research, development, marketing, distribution, consumption, byproducts) in meeting the need for commodities locally and globally.

S11.B.3.3.3 The environmental benefits and risks associated with human made systems (e.g., integrated pest management, genetically engineered organisms, organic food production).

Physical Sciences

S11.C.2.2.1 The environmental impacts of energy use by various economic sectors (e.g., mining, logging, and transportation) on environmental systems).

S11.C.2.2.2 The practical use of alternative sources of energy (i.e., wind, solar, and biomass) to address environmental problems (e.g., air quality, erosion, resource depletion).

S11.C.2.2.3 Examples of renewable energy resources (e.g., wind, solar, biomass) and nonrenewable resources (e.g., coal, oil, natural gas) and explain the environmental and economic advantages and disadvantages of their use.

Standard Exposure/Introduction	Standard Exposure/Introduction
<p>3.1 Unifying Themes</p> <ul style="list-style-type: none"> • 3.1.10&12.A Systems • 3.1.10&12.B Models • 3.1.10&12.C Patterns • 3.1.10&12.D Scale • 3.1.10&12.E Change <p>3.2 Inquiry and Design</p> <ul style="list-style-type: none"> • 3.2.10&12.A Nature of Scientific Knowledge • 3.2.10&12.B Process Knowledge • 3.2.10&12.C Scientific Method • 3.2.10&12.D Problem Solving in Technology <p>3.3 Biological Sciences</p> <ul style="list-style-type: none"> • 3.3.10.A Structure and function of living things • 3.3.10.B Chemical & Structure of Living Organisms • 3.3.10.C Elements of Scientific Inquiry • 3.3.10.D Technological Design Process <p>4.4 Agriculture and Society</p> <ul style="list-style-type: none"> • 4.4.10 A Importance of Agriculture to Society • 4.4.10.D Efficiency in Agriculture through technology <p>4.5 Integrated Pest Management</p> <ul style="list-style-type: none"> • 4.5.10.A Classification of Pests • 4.5.10.B Health Benefits and Risks in Pest Management • 4.5.10.C Effects of Pest 	<p>3.1 Unifying Themes</p> <ul style="list-style-type: none"> • 3.1.10&12.A Systems • 3.1.10&12.B Models • 3.1.10&12.C Patterns • 3.1.10&12.D Scale • 3.1.10&12.E Change <p>3.2 Inquiry and Design</p> <ul style="list-style-type: none"> • 3.2.10&12.A Nature of Scientific Knowledge • 3.2.10&12.B Process Knowledge • 3.2.10&12.C Scientific Method • 3.2.10&12.D Problem Solving in Technology <p>3.5 Earth Sciences</p> <ul style="list-style-type: none"> • 3.5.10&12.B Sources and uses of Earth's resources and availability <p>3.8 Science, Technology and Human Endeavors</p> <ul style="list-style-type: none"> • 3.8.10.A Relationship Between Society and Technology • 3.8.10. B How Technology Can Improve Life • 3.8.10.C Evaluate the Impact of Technology Solutions <p>4.4 Agriculture and Society</p> <ul style="list-style-type: none"> • 4.4.10 A Importance of Agriculture to Society • 4.4.10.B Influence of Agriculture to Society • 4.4,12 C Social, political and Economic factors that affect agricultural

<p style="text-align: center;">Management on Society</p> <p>4.7 Threatened, Endangered, Extinct Species</p> <ul style="list-style-type: none"> • 4.7.10.A Diversity in Ecosystems • 4.7.10.B How Plants and Animals Survive • 4.7.10.C Why Adaptations Lead to Diversity 	<p style="text-align: center;">systems.</p> <ul style="list-style-type: none"> • 4.4.10.D Efficiency in Agriculture through technology <p>4.8 Humans and the Environment</p> <ul style="list-style-type: none"> • 4.8.10.D Supply and Demand
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STANDARD-BASED AGRICULTURAL SCIENCE CURRICULUM

Scope and Sequence for Unit Topics

Ag. Systems Management	Agricultural Science
<p>Topics of Study: Ag. Systems Management Ag. Engineering Project Design and Planning</p>	<p>Topics of Study: Impact of Agriculture on Society & Environment Components of Agriculture</p>
<p>Eligible Content</p> <p>S11A. The Nature of Science</p> <p>S11.A.2.1.2 The elements of the design process (e.g. identify the problem, understand criteria, create solutions, select solution, test/evaluate and communicate results) applicable to a specific technological design.</p> <p>S11.A.2.2.1 Appropriate methods, instruments, and scale for precise quantitative and qualitative observations (e.g., to compare properties of materials, water quality).</p> <p>S11.A.2.2.2 How technology is used to extend human abilities and precision (e.g., GPS, spectroscope, scanning electron microscope, pH meters, probes, interfaces, imaging technologies, telescope).</p> <p>S11.A.3.1.3 Appropriate quantitative data to describe or interpret a system (e.g., biological indices, electrical circuit data, automobile diagnostic systems data).</p> <p>S11.A.3.1.2 The effect of making a change in one part of a system on the</p>	<p>Eligible Content</p> <p>S11.A. The Nature of Science</p> <p>S11.A.3.1.1 Systems analysis, showing relationships (e.g., flowcharts, decision trees, dichotomous keys, mind map), input and output, and measurements to explain a system and its parts.</p> <p>S11.A.3.1.2 The effect of making a change in one part of a system on the system as a whole</p> <p>S11.A.3.3.2 Stationary physical patterns (e.g., crystals, layers of rocks, skeletal systems, tree rings, atomic structure) to the object's properties.</p> <p>S11.B. Biological Science</p> <p>S11.B.3.1.2.The biotic (i.e., plant, animal, and microbial communities) and abiotic (i.e., soil, air, temperature, and water) components of an ecosystem and their interaction.</p> <p>S11.B.3.2.2 Biological diversity as an indicator of a healthy environment</p> <p>S11.B.3.1.4 The similarities and differences in</p>

system as a whole.

S11.A.3.1.3 Appropriate quantitative data to describe or interpret a system (e.g., biological indices, electrical circuit data, automobile diagnostic systems data).

S11.A.3.1.4 The universal systems model of inputs, processes, outputs, and feedback to a working system (e.g., heating systems, motor, food production) and identify the resources necessary for operation of the system.

S11.A.3.3.2 Stationary physical patterns (e.g., crystals, layers of rocks, skeletal systems, tree rings, atomic structure) to the object's properties.

S11.C. Physical Science

S11.C.3.1.1 Common phenomena (e.g., motion of bowling ball, a rock in a landslide, an astronaut during a space walk, a car hitting a patch of ice on the road) using an understanding of conservation of momentum.

S11.C.3.1.2 Simple technological or natural systems that incorporate the principles of force and motion (e.g., simple and compound machines).

S11.C.3.1.3 Acceleration is the rate at which the velocity of an object is changing.

S11.C.3.1.4 Electricity and magnetism as two aspects of a single electromagnetic force.

S11.C.3.1.5 The mechanical advantage of moving an object using a simple machine.

S11.C.3.1.6 Elements of simple machines in compound machines.

the major biomes (e.g., desert, tropical rain forest, temperate forest, coniferous forest, tundra) and the communities that inhabit them

S11.B.3.3.3 The environmental benefits and risks associated with human made systems (e.g., integrated pest management, genetically engineered organisms, organic food production).

S11.D. Earth and Space Science

S11.D.2.1.1 How changes in concentration of minor components (e.g., O₂, CO₂, ozone, dust, pollution) in Earth's atmosphere are linked to climate change.

S11.D.2.1.2 The transmission, reflection, absorption, and radiation of solar energy to and by the Earth's surface under different environmental conditions (e.g. major volcanic eruptions, greenhouse effect, reduction of ozone layer; increased global cloud cover).

Standard Exposure/Introduction	Standard Exposure/Introduction
<p>3.1 Unifying Themes</p> <ul style="list-style-type: none"> • 3.1.10&12.A Systems • 3.1.10&12.B Models • 3.1.10&12.C Patterns • 3.1.10&12.D Scale • 3.1.10&12.E Change <p>3.2 Inquiry and Design</p> <ul style="list-style-type: none"> • 3.2.10&12.A Nature of Scientific Knowledge • 3.2.10&12.B Process Knowledge • 3.2.10&12.C Scientific Method • 3.2.10&12.D Problem Solving in Technology <p>3.4 Physical Science, Chemistry and Physics</p> <ul style="list-style-type: none"> • 3.4.10.B Energy Sources and Transfers of Heat <p>3.7. Technological Services</p> <ul style="list-style-type: none"> • 3.7.10.A Apply advanced Tools, materials and techniques to answer complex problems <p>4.4 Agriculture and Society</p> <ul style="list-style-type: none"> • 4.4.10 B Influence of Agricultural Science on Farming Practices • 4.4.10.D Efficiency in Agriculture through technology 	<p>3.1 Unifying Themes</p> <ul style="list-style-type: none"> • 3.1.10&12.A Systems • 3.1.10&12.B Models • 3.1.10&12.C Patterns • 3.1.10&12.D Scale • 3.1.10&12.E Change <p>3.2 Inquiry and Design</p> <ul style="list-style-type: none"> • 3.2.10&12.A Nature of Scientific Knowledge • 3.2.10&12.B Process Knowledge • 3.2.10&12.C Scientific Method • 3.2.10&12.D Problem Solving in Technology <p>3.5 Earth Sciences</p> <ul style="list-style-type: none"> • 3.5.10.A Processes that change the Earth • 3.5.10.B Sources and uses of Earth's Resources <p>4.3 Environmental Health C</p> <ul style="list-style-type: none"> • 4.3.10.C Biological Diversity as an Indicator of a Healthy Environment <p>4.4 Agriculture and Society</p> <ul style="list-style-type: none"> • 4.4.10 B Influence of Agricultural Science on Farming Practices