4.4.7 Agriculture and Society		Grade 5	Grade 6	Grade 7
A	**Explain society's standard of living in relation to agriculture.** Compare and contrast agricultural changes that have been made to meet society's needs. Compare and contrast how animals and plants affect agricultural systems. Compare several technological advancements and their effect(s) on the historical growth of agriculture. Compare different environmental conditions related to agricultural production, cost and quality of the product.		Compare and contrast agricultural changes that have been made to meet society's needs. P (Social Studies) Compare and contrast how animals and plants affect agricultural systems. P (Social Studies) Compare several technological advancements and their effect(s) on the historical growth of agriculture. P (Science) Compare different environmental conditions related to agricultural production, cost and quality of the product. P (Social Studies)	
B	**Investigate how agricultural science has recognized the various soil types found in Pennsylvania.** Explain the importance of particle sizes in different soil types. Determine how water has influenced the development of Pennsylvania soil types.			Explain the importance of particle sizes in different soil types. P (Science) Determine how water has influenced the development of Pennsylvania soil types. P (Science) Investigate how soil types have influenced the plant types used on Pennsylvania farms. P (Science)

	Investigate how soil types have influenced the plant types used on Pennsylvania farms. Analyze how soil types and geographic regions have impacted the profitability of Pennsylvania farms.			Analyze how soil types and geographic regions have impacted the profitability of Pennsylvania farms. P (Science)
C	**Explain agricultural systems' use of natural ad human resources.** Analyze the needs of plants and animals as they relate to climate and soil conditions. Identify the plants and animals that can be raised in the area and explain why. Identify natural resources necessary for agricultural systems. Compare the need for crop reduction to the need for animal production. Define issues associated with food and fiber production.	Analyze the needs of plants and animals as they relate to climate and soil conditions. I Identify the plants and animals that can be raised in the area and explain why. I	Analyze the needs of plants and animals as they relate to climate and soil conditions. P Identify the plants and animals that can be raised in the area and explain why. P	Analyze the needs of plants and animals as they relate to climate and soil conditions. P Identify natural resources necessary for agricultural systems. I (Social studies) Compare the need for crop reduction to the need for animal production. I (Social studies) Define issues associated with food and fiber production. I (Social Studies)
D	**Explain the improvement of agricultural production through technology.** Compare the technologies that have advanced agricultural production.		Compare the technologies that have advanced agricultural production. I (Science, Social Studies) Explain how energy sources have changed to meet agricultural technology. I (Science, Social Studies)	Compare the technologies that have advanced agricultural production. P Explain how energy sources have changed to meet agricultural technology. P

	Explain how energy sources have changed to meet agricultural technology.			

4.6.7 Ecosystems and their Interactions		Grade 5	Grade 6	Grade 7
A	**Explain the flows of energy and matter from organism to organism within an ecosystem.** Identify and explain the characteristics of biotic and abiotic. Describe and explain the adaptations of plants and animals to their environment. Demonstrate the dependency of living components in the ecosystem on the nonliving components. Explain energy flow through a food web. Explain the importance of the predator/prey relationship and how it maintains the balance within ecosystems. Understand the limiting factors and predict their effects on an organism. Identify niches for producers, consumers and decomposers within an ecosystem. Understand limiting factors and predict their effects on an organism.	Identify and explain the characteristics of biotic and abiotic. P Describe and explain the adaptations of plants and animals to their environment. P Demonstrate the dependency of living components in the ecosystem on the nonliving components. P Explain energy flow through a food web. P Explain the importance of the predator/prey relationship and how it maintains the balance within ecosystems. P Understand the limiting factors and predict their effects on an organism. P Identify niches for producers, consumers and decomposers within an ecosystem. P Understand limiting factors and predict their effects on an organism. P Identify niches for producers, consumers and decomposers within an ecosystem. P	.	

	Identify niches for producers, consumers and decomposers within an ecosystem. Compare and contrast the major ecosystems of Pennsylvania. Identify the major characteristics of a biome. Compare and contrast different biomes and their characteristics. Identify the relationship of abiotic and biotic components and explain their interaction in an ecosystem. Explain how different soil types determine the characteristics of ecosystems.	Compare and contrast the major ecosystems of Pennsylvania. P Identify the major characteristics of a biome. P Compare and contrast different biomes and their characteristics. P Identify the relationship of abiotic and biotic components and explain their interaction in an ecosystem. P		Explain how different soil types determine the characteristics of ecosystems. P
B	**Explain the concepts of cycles.** Identify and explain cycles within an ecosystem. Analyze the role of different cycles within an ecosystem.	Identify and explain cycles within an ecosystem. Analyze the role of different cycles within an ecosystem.		Identify and explain cycles within an ecosystem. Analyze the role of different cycles within an ecosystem.
C	**Explain how ecosystems change over time.** Explain how ecosystems change. Identify succession stages of a given ecosystem. Explain how specific organisms may change an ecosystem.	Explain how ecosystems change. Identify succession stages of a given ecosystem. Explain how specific organisms may change an ecosystem.		Explain how ecosystems change. Identify succession stages of a given ecosystem. Explain how specific organisms may change an ecosystem.

	Explain a change in an ecosystem that relates to humans.	Explain a change in an ecosystem that relates to humans.		Explain a change in an ecosystem that relates to humans.

4.3.7 Environmental Health

		Grade 5	Grade 6	Grade 7
A	**Identify environmental health issues.** Identify various examples of long-term pollution and explain their effects on environmental health. Identify diseases that have been associated with poor environmental quality. Describe different types of pest controls and their effects on the environment. Identify alternative products that can be used in life to reduce pollution.	Identify alternative products that can be used in life to reduce pollution. I	Identify various examples of long-term pollution and explain their effects on environmental health. I Identify diseases that have been associated with poor environmental quality. I Describe different types of pest controls and their effects on the environment. I Identify alternative products that can be used in life to reduce pollution. P	Identify various examples of long-term pollution and explain their effects on environmental health. P Identify diseases that have been associated with poor environmental quality. P Describe different types of pest controls and their effects on the environment. P
B	**Describe how human actions affect the health of the environment.** Identify land use practices and their relation to environmental health. Explain how natural disasters affect environmental health. Identify residential and industrial sources of pollution and their effects on environmental health.			Identify land use practices and their relation to environmental health. P Explain how natural disasters affect environmental health. P Identify residential and industrial sources of pollution and their effects on environmental health. P Explain the difference between point and nonpoint source pollution. P

	Explain the difference between point and nonpoint source pollution. Explain how nonpoint source pollution can affect the water supply and air quality. Explain the relationship between resource use, reuse, recycling and environmental health.			Explain how nonpoint source pollution can affect the water supply and air quality. P Explain the relationship between resource use, reuse, recycling and environmental health. P
C	**Explain biological diversity.** Explain the complex, interactive relationships among members of an ecosystem. Explain how diversity affects ecological integrity of the natural resources.	Explain the complex, interactive relationships among members of an ecosystem. I	Explain the complex, interactive relationships among members of an ecosystem. P Explain how diversity affects ecological integrity of the natural resources. I	

4.9.Environmental Laws and Regulations		Grade 5	Grade 6	Grade 7
A	**Explain the role of environmental laws and regulations.** Identify and explain environmental laws and regulations (e.g., Clean Air Act, Clean Water Act, Recycling and Waste Reduction Act, Act 26 on Agricultural Education). Explain the role of local and state agencies in enforcing environmental laws and regulations (e.g., Department of Environmental protection, Department of Agriculture, Game Commission).			Identify and explain environmental laws and regulations (e.g., Clean Air Act, Clean Water Act, Recycling and Waste Reduction Act, Act 26 on Agricultural Education). Explain the role of local and state agencies in enforcing environmental laws and regulations (e.g., Department of Environmental protection, Department of Agriculture, Game Commission).

4.8.7 Humans and the Environment

		Grade 5	Grade 6	Grade 7
A	**Describe how the development of civilization relates to the environment.** Explain how people use natural resources in their environment. Locate and identify natural resources in different parts of the world. Compare and contrast how people use natural resources throughout the world.		Explain how people use natural resources in their environment. Locate and identify natural resources in different parts of the world. Compare and contrast how people use natural resources throughout the world. 4.2 (Social Studies)	Explain how people use natural resources in their environment. Locate and identify natural resources in different parts of the world. Compare and contrast how people use natural resources throughout the world. 4.2 (Environment and Ecology unit)
B	**Explain how people use natural resources.** Describe how natural resources are used for survival. Explain how natural resources and technological changes have affected the development of civilizations. Explain how climate and extreme weather events (e.g., drought, flood) influence people's lives.		Describe how natural resources are used for survival. Explain how natural resources and technological changes have affected the development of civilizations. Explain how climate and extreme weather events (e.g., drought, flood) influence people's lives. 4.2 (Social Studies)	Describe how natural resources are used for survival. Explain how natural resources and technological changes have affected the development of civilizations. Explain how climate and extreme weather events (e.g., drought, flood) influence people's lives. 4.2 (Environment and Ecology unit)

C	**Explain how human activities may affect local, regional and national environments.** Describe what effect consumption and related generation of wastes have on the environment. Explain how a particular human activity has changed the local area over the years.		Describe what effect consumption and related generation of wastes have on the environment. Explain how a particular human activity has changed the local area over the years. 4.2 (Social Studies)	Describe what effect consumption and related generation of wastes have on the environment. Explain how a particular human activity has changed the local area over the years. 4.2 (Environment and Ecology unit)
D	**Explain the importance of maintaining the natural resources at the local, state and national levels.** Explain how human activities and natural events have affected ecosystems. Explain how conservation practices have influenced ecosystems. Define the roles of Pennsylvania agencies that deal with natural resources.	Explain how human activities and natural events have affected ecosystems. I Explain how conservation practices have influenced ecosystems. I Define the roles of Pennsylvania agencies that deal with natural resources. I	Explain how human activities and natural events have affected ecosystems. (Social Studies) Explain how conservation practices have influenced ecosystems. (Social Studies) Define the roles of Pennsylvania agencies that deal with natural resources. (Social Studies)	Explain how human activities and natural events have affected ecosystems. Explain how conservation practices have influenced ecosystems. Define the roles of Pennsylvania agencies that deal with natural resources.

4.5.7 Integrated Pest Management		Grade 5	Grade 6	Grade 7
A	**Explain benefits and harmful effects of pests.** Identify different examples of pests and explain the beneficial or harmful effects of each. Identify several locations where pests can be found and compare the effects the pests have on each location.	Identify different examples of pests and explain the beneficial or harmful effects of each. (Health class) Identify several locations where pests can be found and compare the effects the pests have on each location. (Health class)		
B.	**Explain how pest management affects the environment.** Explain issues related to integrated pest management including biological technology, resistant varieties, chemical practices, medical technology and monitoring techniques. Describe how integrated pest management and related technology impact human activities. Identify issues related to integrated pest management that affect the environment.	Explain issues related to integrated pest management including biological technology, resistant varieties, chemical practices, medical technology and monitoring techniques. (Health class) Describe how integrated pest management and related technology impact human activities. (Health class) Identify issues related to integrated pest management that affect the environment. (Health class)		

C	**Explain various integrated pest management practices used in society.** Compare and contrast integrated pest management monitoring methods utilized in different community settings. Compare integrated pest management to past practices. Compare and analyze the long-term effects of using integrated pest management products.	Compare and contrast integrated pest management monitoring methods utilized in different community settings. (Health class) Compare integrated pest management to past practices. (Health class) Compare and analyze the long-term effects of using integrated pest management products. (Health class)		

4.2.7 Renewable and Nonrenewable Resources		Grade 5	Grade 6	Grade 7
A	**Know that raw materials come from natural resources.** Identify resources used to provide humans with energy, food, housing and water. Explain how plants and animals may be classified as natural resources. Compare means of growing or acquiring food. Identify fiber and other raw materials used in clothing and shelter production. Identify types of minerals and fossil fuels used by humans.		Identify resources used to provide humans with energy, food, housing and water. P (Social Studies) Explain how plants and animals may be classified as natural resources. P (Social Studies) Compare means of growing or acquiring food. (Social Studies) Identify fiber and other raw materials used in clothing and shelter production. P (Social Studies) Identify types of minerals and fossil fuels used by humans. P (Social Studies)	Identify resources used to provide humans with energy, food, housing and water. P Explain how plants and animals may be classified as natural resources. P Compare means of growing or acquiring food. P Identify fiber and other raw materials used in clothing and shelter production. P Identify types of minerals and fossil fuels used by humans. P
B	**Examine the renewability of resources.** Identify renewable resources and describe their used. Identify nonrenewable resources and describe their uses. Compare finished products to their original raw materials. Identify the waste derived from the use of renewable and nonrenewable resources.		.	Identify renewable resources and describe their used. P Identify nonrenewable resources and describe their uses. P Compare finished products to their original raw materials. P Identify the waste derived from the use of renewable and nonrenewable resources. P

	Determine how consumption may impact the availability of resources. Compare the time spans of renewability for fossil fuels and alternative fuels.			Determine how consumption may impact the availability of resources. P Compare the time spans of renewability for fossil fuels and alternative fuels. P
C	**Explain natural resource distribution.** Distinguish between readily available and less accessible resources. Identify the locations of different concentrations of fossil fuels and mineral resources. Analyze the effects of management practices on air, land and water in forestry, agriculture, fisheries, wildlife, mining and food and fiber production that is unique to different climates.			Distinguish between readily available and less accessible resources. P Identify the locations of different concentrations of fossil fuels and mineral resources. P Analyze the effects of management practices on air, land and water in forestry, agriculture, fisheries, wildlife, mining and food and fiber production that is unique to different climates. P (Primary focus on mining)
D	**Describe the role of recycling and waste management.** Identify materials that can be recycled in the community. Explain the process of closing the loop in recycling. Compare the decomposition rates of different organic materials.			Identify materials that can be recycled in the community. P Explain the process of closing the loop in recycling. P Compare the decomposition rates of different organic materials. P Describe methods that could be used to reuse materials for new products. P

	Describe methods that could be used to reuse materials for new products. Evaluate the costs and benefits of disposable products.			Evaluate the costs and benefits of disposable products. P (Field Trip to Presque Isle)

4.7.7 Threatened, Endangered and Extinct Species	Grade 5	Grade 6	Grade 7
A	**Describe diversity of plants and animals in ecosystems**. Select an ecosystem and describe different plant sand animals that live there. Identify adaptations in plants and animals. Recognize that adaptations are developed of overlong periods of time and are passed on from one generation to the next. Understand levels of ecosystem organization (e.g., individuals, populations, species).	Select an ecosystem and describe different plant sand animals that live there. P Identify adaptations in plants and animals. P Recognize that adaptations are developed of overlong periods of time and are passed on from one generation to the next. P Understand levels of ecosystem organization (e.g., individuals, populations, species). P		Identify adaptations in plants and animals. Recognize that adaptations are developed of overlong periods of time and are passed on from one generation to the next.
B	**Explain how species of living organisms adapt to their environment.** Explain the role of individual variations in natural selection. Explain how an adaptation is an inherited structure or behavior that helps an organism survive and reproduce. Describe how a particular trait may be selected over time and account for a species' adaptation.	Explain the role of individual variations in natural selection. Explain how an adaptation is an inherited structure or behavior that helps an organism survive and reproduce. Describe how a particular trait may be selected over time and account for a species' adaptation.		Explain how an adaptation is an inherited structure or behavior that helps an organism survive and reproduce. Compare and contrast animals and plants that have very specific survival requirements with those that have more general requirements for survival.

	Compare and contrast animals and plants that have very specific survival requirements with those that have more general requirements for survival. (8th grade) Explain how living things respond to changes in their environment. Explain how one species may survive an environmental change while another might not.	Explain how living things respond to changes in their environment. Explain how one species may survive an environmental change while another might not.		
C	**Explain natural or human actions in relation to the loss of species** (This standard statement is taught in 8th grade) Identify natural or human impacts that cause habitat loss. Explain how habitat loss can affect the interaction among species and the population of a species. Analyze and explain the changes in an animal population over time. Explain how a habitat management practice affects a population.	Identify Pennsylvania plants and animals that are on the threatened or endangered list. Describe state laws passed regarding threatened and endangered species. Explain why one species may be more susceptible to becoming endangered than another species.		Identify natural or human impacts that cause habitat loss. Explain how habitat loss can affect the interaction among species and the population of a species. Analyze and explain the changes in an animal population over time. Explain how a habitat management practice affects a population. Explain the differences among threatened, endangered and extinct species.

	Explain the differences among threatened, endangered and extinct species. Identify Pennsylvania plants and animals that are on the threatened or endangered list. Describe state laws passed regarding threatened and endangered species. Explain why one species may be more susceptible to becoming endangered than another species.			

4.1.7 Watersheds and Wetlands		Grade 5	Grade 6	Grade 7
A	**Explain the role of the water cycle within a watershed.** Explain the water Cycle. Explain the water cycle as it relates to a watershed.			Explain the water Cycle. P Explain the water cycle as it relates to a watershed. P
B	**Understand the role of the Watershed.** Identify and explain what determines the boundaries of a watershed. Explain how water enters a watershed. Explain factors that affect water quality and flow through a watershed.		Explain how water enters a watershed. I Explain factors that affect water quality and flow through a watershed. I	Identify and explain what determines the boundaries of a watershed. Explain how water enters a watershed. Explain factors that affect water quality and flow through a watershed.
C	**Explain the effects of water on the life of organisms in a watershed.** Explain how water is necessary for all life. Explain how the physical components of aquatic systems influence the organisms that live there I terms of size, shape and physical adaptations. Describe the life cycle of organisms that depend on water.			Explain how water is necessary for all life. P Explain how the physical components of aquatic systems influence the organisms that live there I terms of size, shape and physical adaptations. P Describe the life cycle of organisms that depend on water. P Identify organisms that have aquatic stags of life and describe those stages. P

	Identify organisms that have aquatic stags of life and describe those stages.			
D	**Explain and describe characteristics of a wetland.** Identify specific characteristics of wetland plants and soils. Recognize the common types of plants and animals. Describe different types of wetlands. Describe the different functions of a wetland.			Identify specific characteristics of wetland plants and soils. P Recognize the common types of plants and animals. P Describe different types of wetlands. P Describe the different functions of a wetland. P
E	**Describe the impact of watersheds and wetlands on people.** Explain the impact of watersheds and wetlands in flood control, wildlife habitats and pollution abatement. Explain the influence of flooding on wetlands.		Explain the influence of flooding on wetlands. P	Explain the impact of watersheds and wetlands in flood control, wildlife habitats and pollution abatement. P