Pennsylvania Academic Standards for Science and Technology
Curriculum: ***Indoor Gardening***

Lesson	Academic Standards	Grade Level	Activities
Flowering and Foliage Plants	3.1.4.C. Illustrate patterns that regularly occur and reoccur in nature. 3.2.4.B. Describe objects in the world using the five senses. 3.3.4.A. Know the similarities and differences of living things.	4 4 4	Learn differences between flowering and foliage houseplants, their common and scientific names, and how they are classified. Observe growing conditions and plant health at local greenhouses and record the data.
Starting a Plant Collection	3.1.4.C. Illustrate patterns that regularly occur and reoccur in nature. 3.2.4.C. Recognize and use the elements of scientific inquiry to solve problems. 3.2.7.C. Identify and use the elements of scientific inquiry to solve problems. 3.3.4.A. Know the similarities and differences of living things.	4 4 7 4	Learn the ways a plant can reproduce. Understand why different types of vegetative propagation are more effective with different plants, and experiment with the various methods.

Starting a Plant Collection (continued)	3.6.4.A. Know that biotechnologies relate to propagating, growing, maintaining, adapting, treating, and converting.	4	
What Plants Need to Grow- Light and Temperature	3.1.4.C. Illustrate patterns that regularly occur and reoccur in nature. 3.1.4.E. Recognize change in natural and physical systems. 3.2.4.A. Identify and use the nature of scientific and technological knowledge. 3.2.4.C. Recognize and use the elements of scientific inquiry to solve problems. 3.4.4.B. Know the basic energy types, sources, and conversions. 3.5.4.C. Know the basic weather elements.	4 4 4 4 4 4	Learn basic plant processes in response to light and temperature, including growth, photosynthesis, and phototropism. Learn to identify characteristics of plants exposed to incorrect amounts of light and temperature. Review and practice experimental procedure.
What Plants Need to Grow- Water and Humidity	3.1.4.E. Recognize change in natural and physical systems.	4	Learn why water is essential to plant growth.

What Plants Need to Grow- Water and Humidity (continued)	3.2.4.A. Identify and use the nature of scientific and technological knowledge. 3.2.4.C. Recognize and use the elements of scientific inquiry to solve problems. 3.2.7.C. Identify and use the elements of scientific inquiry to solve problems. 3.2.4.D. Recognize and use the technological design process to solve problems. 3.3.4.A. Know the similarities and differences of living things. 3.5.4.D. Recognize the Earth's different water resources.	4 4 7 4 4 4	Demonstrate how to correctly water a plant, and how to tell when it needs water. Learn how humidity affects plants through transpiration. Review and practice using scientific procedure.
What Plants Need to Grow- Potting Mixes, Containers, and Nutrients	3.1.4.E. Recognize change in natural and physical systems. 3.2.4.C. Recognize and use the elements of scientific inquiry to solve problems.	4 4	Understand why soil is important for plant growth, as well as which types of soil are best for houseplants. Identify different types of plant pots and learn how to transplant pot bound plants.

What Plants Need to Grow- Potting Mixes, Containers, and Nutrients (continued)	3.2.7.C. Identify and use the elements of scientific inquiry to solve problems. 3.3.4.A. Know the similarities and differences of living things. 3.5.4.A. Know basic landforms and Earth history.	7 4 4	Learn how to fertilize plants, and compare plants that have been fertilized correctly to those that have not.
Troubleshooting	3.1.4.E. Recognize change in natural and physical systems. 3.2.4.C. Recognize and use the elements of scientific inquiry to solve problems. 3.2.4.D. Recognize and use the technological design process to solve problems. 3.3.4.D. Identify changes in living things over time. 3.3.7.D. Explain basic concepts of natural selection.	4 4 4 4 7	Learn to identify the symptoms of plants that have received too much or too little water, fertilizer, or sunlight. Identify and control various houseplant pests.

Pennsylvania Academic Standards for Environment and Ecology
Curriculum: ***Indoor Gardening***

Lesson	Academic Standards	Grade Level	Activities
Flowering and Foliage Plants	4.7.4.A. Identify differences in living things. 4.7.7.A. Describe diversity of plants and animals in ecosystems.	4 7	Learn differences between flowering and foliage houseplants, their common and scientific names, and how they are classified. Observe growing conditions and plant health at local greenhouses and record the data.
Starting a Plant Collection	4.6.4.A. Understand that living things are dependent on non-living things in the environment for survival. 4.7.4.A. Identify differences in living things. 4.7.7.A. Describe diversity of plants and animals in ecosystems. 4.7.7.B. Explain how species of living organisms adapt to their environment.	4 4 7 7	Learn the ways a plant can reproduce. Understand why different types of vegetative propagation are more effective with different plants, and experiment with the various methods.
What Plants Need to Grow- Light and Temperature	4.6.4.A. Understand that living things are dependent on non-living things in the environment for survival.	4	Learn basic plant processes in response to light and temperature, including growth, photosynthesis, and phototropism.

What Plants Need to Grow- Light and Temperature (continued)	4.6.7.A. Explain the flows of energy and matter from organism to organism within an ecosystem. 4.6.4.B. Understand the concept of cycles. 4.6.7.B. Explain the concepts of cycles.	7 4 7	Learn to identify characteristics of plants exposed to incorrect amounts of light and temperature. Review and practice experimental procedure.
What Plants Need to Grow- Water and Humidity	4.3.4.A. Know that plants, animals, and humans are dependent on air and water. 4.6.4.A. Understand that living things are dependent on non-living things in the environment for survival. 4.6.7.A. Explain the flows of energy and matter from organism to organism within an ecosystem. 4.7.4.B. Know that adaptations are important for survival.	4 4 7 4	Learn why water is essential to plant growth. Demonstrate how to correctly water a plant, and how to tell when it needs water. Learn how humidity affects plants through transpiration. Review and practice using scientific procedure.

What Plants Need to Grow- Potting Mixes, Containers, and Nutrients	4.6.4.A. Understand that living things are dependent on non-living things in the environment for survival. 4.6.7.A. Explain the flows of energy and matter from organism to organism within an ecosystem. 4.7.4.B. Know that adaptations are important for survival.	4 7 4	Understand why soil is important for plant growth, as well as which types of soil are best for houseplants. Identify different types of plant pots and learn how to transplant pot bound plants. Learn how to fertilize plants, and compare plants that have been fertilized correctly to those that have not.
Troubleshooting	4.5.4.A. Know types of pests. 4.5.7.A. Explain benefits and harmful effects of pests. 4.5.4.B. Explain pest control. 4.5.4.C. Understand society's need for integrated pest management. 4.6.4.A. Understand that living things are dependent on non-living things in the environment for survival.	4 7 4 4 4	Learn to identify the symptoms of plants that have received too much or too little water, fertilizer, or sunlight. Identify and control various houseplant pests.