

Grade Pre-Kindergarten

Life Science Module

Seeds To Plants

In a code such as 5.2.P.D.1, the “5” indicates the science standards, the “2” indicates the physical science standard within the set of science standards, the “P” indicates a Pre-Kindergarten cumulative progress indicator, the “D” indicates a “strand” or theme within the science standards, and the “1” indicates the first of the Pre-Kindergarten cumulative progress indicators within the “D” strand.

III. Scope and Sequence: Pre-Kindergarten – Seeds To Plants

In completing the work in Investigation 1 of *Seeds To Plants*, students are expected to develop understandings and skills including:

Anything with a seed inside is a fruit.

Some fruits have many seeds and other have one seed.

Seeds have different properties.

In doing so they begin to acquire knowledge and abilities such as:

Observe, manipulate, sort, and describe objects and materials (e.g., water, sand, clay, paint, glue, various types of blocks, collections of objects, simple household items that can be taken apart, or objects made of wood, metal, or cloth) in the classroom and outdoor environment based on size, shape, color, texture, and weight. (5.2.P.A.1)

Investigate and compare the basic physical characteristics of plants, humans, and other animals. (5.3.P.A.1)

Remove the seeds from a variety of fruits to discover that not all seeds are the same.

Compare size, shape, color, and texture of a variety of seeds.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

III. Scope and Sequence: Pre-Kindergarten – Seeds To Plants

Page 2

In completing the work in Investigations 2 and 3 of *Seeds To Plants*, students are expected to develop understandings and skills including:

Plants need sunlight to live and grow.

Plants need water to live and grow.

In doing so they begin to acquire knowledge and abilities such as:

Observe and describe how plants and animals obtain food from their environment, such as by observing the interactions between organisms in a natural habitat. (5.3.P.B.1)

Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light (e.g., dig outside in the soil to investigate the kinds of animal life that live in and around the ground). (5.3.P.C.1)

Explore the effects of sunlight on living and nonliving things. (5.4.P.E.1)

Discover that plants need sunlight to grow.

Discover that plants need water to grow.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

III. Scope and Sequence: Pre-Kindergarten – Seeds To Plants

Page 3

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigations 4 and 5 of *Seeds To Plants*, students are expected to develop understandings and skills including:

Seeds can grow in soil.

Seeds need water, nutrients, carbon dioxide, and sunlight to grow.

Different seeds grow different flowers.

Nature is all around us.

There is a variety of colors, shapes, and size leaves, plants, shrubs, and trees.

Small animals and insects live in trees, on the grass, and under the ground.

Trees provide us with oxygen, wood, and paper.

We should respect and protect our environment.

In doing so they begin to acquire knowledge and abilities such as:

Observe, manipulate, sort, and describe objects and materials (e.g., water, sand, clay, paint, glue, various types of blocks, collections of objects, simple household items that can be taken apart, or objects made of wood, metal, or cloth) in the classroom and outdoor environment based on size, shape, color, texture, and weight. (5.2.P.A.1)

Investigate and compare the basic physical characteristics of plants, humans, and other animals. (5.3.P.A.1)

Observe similarities and differences in the needs of various living things, and differences between living and nonliving things. (5.3.P.A.2)

Observe and describe how plants and animals obtain food from their environment, such as by observing the interactions between organisms in a natural habitat. (5.3.P.B.1)

III. Scope and Sequence: Pre-Kindergarten – Seeds To Plants

Page 4

Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light (e.g., dig outside in the soil to investigate the kinds of animal life that live in and around the ground). (5.3.P.C.1)

Observe and record change over time and cycles of change that affect living things (e.g., use baby photographs to discuss human change and growth, observe and photograph tree growth and leaf changes throughout the year, monitor the life cycle of a plant). (5.3.P.D.1)

Describe similarities and differences in observable traits between parents and offspring. (5.3.2.E.1)

Explore and describe characteristics of and concepts about soil, rocks, water, and air. (5.4.P.C.1)

Demonstrate emergent awareness for conservation, recycling, and respect for the environment (e.g., turning off water faucets, using paper from a classroom scrap box when whole sheets are not needed, keeping the playground next and clean). (5.4.P.G.1)

Observe a variety of seeds that grow in soil.

Observe a variety of plants and trees.

Observe trees with leaves with different shapes.

Observe that trees have trunk, branches, and leaves.

Collect leaves, pine cones, twigs, acorns, clover, etc.

Learn a tree is a home for insects, birds, and small animals.

Learn that trees provide us with food, wood, and paper.

Learn that trees provide us with oxygen which we need to breathe.

Learn to protect our trees.

In doing so they begin to acquire knowledge and abilities such as:

III. Scope and Sequence: Pre-Kindergarten – Seeds To Plants

Page 5

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigation 6 of *Seeds To Plants*, students are expected to develop understandings and skills including:

Roots grow downward into the soil to hold the plant in place. They also absorb water and nutrients for the plant.

Stems are the main part of the plant above the ground. It supports branches and leaves.

Stems also provide a way to get water to the rest of the plant.

Leaves are the thin flat green part of a plant that grows on the stem. They collect sunlight so the plant can make food.

The stem of a tree is called a trunk.

In doing so they begin to acquire knowledge and abilities such as:

Investigate and compare the basic physical characteristics of plants, humans, and other animals. (5.3.P.A.1)

Grow seeds in the Root-Vue Planter to observe the growth of roots, stems, and leaves.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

III. Scope and Sequence: Pre-Kindergarten – Seeds To Plants

Page 6

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigations 7 and 8 of *Seeds To Plants*, students are expected to develop understandings and skills including:

We can grow roots on a plant cutting.

We can make a new plant from our original one.

A terrarium is an enclosed area where a plant or plants can grow. Since it is sealed closed you need to water it only once.

In doing so they begin to acquire knowledge and abilities such as:

Investigate and compare the basic physical characteristics of plants, humans, and other animals. (5.3.P.A.1)

Observe and describe how plants and animals obtain food from their environment, such as by observing the interactions between organisms in a natural habitat. (5.3.P.B.1)

Observe and describe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light (e.g., dig outside in the soil to investigate the kinds of animal life that live in and around the ground). (5.3.P.C.1)

Observe and record change over time and cycles of change that affect living things (e.g., use baby photographs to discuss human change and growth, observe and photograph tree growth and leaf changes throughout the year, monitor the life cycle of a plant). (5.3.P.D.1)

III. Scope and Sequence: Pre-Kindergarten – Seeds To Plants

Page 7

Describe similarities and differences in observable traits between parents and offspring. (5.3.2.E.1)

Demonstrate emergent awareness for conservation, recycling, and respect for the environment (e.g., turning off water faucets, using paper from a classroom scrap box when whole sheets are not needed, keeping the playground net and clean). (5.4.P.G.1)

Discover that plants can be grown from a plant cutting.

Discover that plant cuttings will grow roots and can be planted in a terrarium.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigation 9 of *Seeds To Plants*, students are expected to develop understandings and skills including:

Trees and plants important to people.

In doing so they begin to acquire knowledge and abilities such as:

III. Scope and Sequence: Pre-Kindergarten – Seeds To Plants

Page 8

Observe and record change over time and cycles of change that affect living things (e.g., use baby photographs to discuss human change and growth, observe and photograph tree growth and leaf changes throughout the year, monitor the life cycle of a plant). (5.3.P.D.1)

Demonstrate emergent awareness for conservation, recycling, and respect for the environment (e.g., turning off water faucets, using paper from a classroom scrap box when whole sheets are not needed, keeping the playground net and clean). (5.4.P.G.1)

Discover plants and trees give us food and oxygen.

Discover trees provide shade, a home for birds and small animals, wood for furniture and paper.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

Grade Pre-Kindergarten

Physical Science Module

Magnets

In a code such as 5.2.P.D.1, the “5” indicates the science standards, the “2” indicates the physical science standard within the set of science standards, the “P” indicates a Pre-Kindergarten cumulative progress indicator, the “D” indicates a “strand” or theme within the science standards, and the “1” indicates the first of the Pre-Kindergarten cumulative progress indicators within the “D” strand.

III. Scope and Sequence: Pre-Kindergarten - Magnets

In completing the work in Investigation 1 of *Magnets*, students are expected to develop understandings and skills including:

Magnets stick to some things.

Magnets feel hard.

Some magnets are round.

Magnets stick to the leg of my chair.

Magnets stick to some things in our classroom.

In doing so they begin to acquire knowledge and abilities such as:

Observe, manipulate, sort, and describe objects and materials (5.2.P.A.1)

Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip). (5.2.2.E.3)

Explore with magnets.

Discover that magnets move toward or away from one another.

Communicate using language, drawings, and body movements to describe their observations.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigations 2 and 3 of *Magnets*, students are expected to develop understandings and skills including:

Magnets can pull together or attract.

Magnets can push apart or repel.

Magnets stick to objects made of special metals called iron and steel.

In doing so they begin to acquire knowledge and abilities such as:

Investigate how and why things move. (5.2.P.E.1)

Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip). (5.2.2.E.3)

Observe, predict, investigate and record a magnet’s push and pull action.

Investigate a variety of materials to determine which objects are attracted to the magnet.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

III. Scope and Sequence: Pre-Kindergarten – Magnets

Page 3

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing”. (5.1.P.D.1)

In completing the work in Investigations 4-6 of *Magnets*, students are expected to develop understandings and skills including:

Magnetic force can go through some objects like paper, wood, plastic, and other.

Magnetic force will not go through some things.

A magnetic force can attract through water.

In doing so they begin to acquire knowledge and abilities such as:

Observe, manipulate, sort, and describe objects and materials. (5.2.P.A.1)

Investigate how and why things move. (5.2.P.E.1)

Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip). (5.2.2.E.3)

Observe, predict, investigate, and record several objects to see which the magnetic force can go through.

Observe that magnetism will go through water.

Investigate a variety of objects to see whether a magnet can attract through the object to pick up a paper clip.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

III. Scope and Sequence: Pre-Kindergarten – Magnets

Page 4

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)
Communicate with other children and adults to share observations pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigation 7 of *Magnets*, students are expected to develop understandings and skills including:
Magnets can be many shapes and sizes.

In doing so they begin to acquire knowledge and abilities such as:

Observe, manipulate, sort, and describe objects and materials. (5.2.P.A.1)

Investigate how and why things move. (5.2.P.E.1)

Distinguish a force that acts by direct contact with an object (e.g., by pushing or pulling) from a force that can act without direct contact (e.g., the attraction between a magnet and a steel paper clip). (5.2.2.E.3)

Observe a variety of magnets.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

III. Scope and Sequence: Pre-Kindergarten – Magnets

Page 5

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing”. (5.1.P.D.1)

Grade Pre-Kindergarten

Physical Science Module

Light, Shadow and Color

In a code such as 5.2.P.D.1, the “5” indicates the science standards, the “2” indicates the physical science standard within the set of science standards, the “P” indicates a Pre-Kindergarten cumulative progress indicator, the “D” indicates a “strand” or theme within the science standards, and the “1” indicates the first of the Pre-Kindergarten cumulative progress indicators within the “D” strand.

III. Scope and Sequence: Pre-Kindergarten – Light, Shadow, and Color

In completing the work in Investigation 1 of *Light, Shadow, and Color*, students are expected to develop understandings and skills including:

Light comes from a variety of sources such as the sun, flashlights, light bulbs, candles, and fire.

In doing so they begin to acquire knowledge and abilities such as:

Investigate sound, heat, and light energy (e.g., the pitch and volume of sound made by commercially made and homemade instruments, looking for shadows on the playground over time and under different weather conditions) through one or more of the senses. (5.2.P.C.1)

Communicate using language, drawings, and body movements to describe their observations.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigations 2 and 3 of *Light, Shadow, and Color*, students are expected to develop understandings and skills including:

Light allows us to see.

We can see only if there is a light source.

III. Scope and Sequence: Pre-Kindergarten – Light, Shadow, and Color

Page 2

We cannot see in total darkness.

In doing so they begin to acquire knowledge and abilities such as:

Investigate sound, heat, and light energy (e.g., the pitch and volume of sound made by commercially made and homemade instruments, looking for shadows on the playground over time and under different weather conditions) through one or more of the senses. (5.2.P.C.1)

Apply a variety of strategies to collect evidence that validates the principle that if there is no light, objects cannot be seen. (5.2.2.C.2)

Discover you need light to see.

Predict, observe, investigate and record what they can see in the darkness.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigation 4 of *Light, Shadow, and Color*, students are expected to develop understandings and skills including:

Light travels in straight lines.

In doing so they begin to acquire knowledge and abilities such as:

Investigate sound, heat, and light energy (e.g., the pitch and volume of sound made by commercially made and homemade instruments, looking for shadows on the playground over time and under different weather conditions) through one or more of the senses. (5.2.P.C.1)

Investigate and discover that light travels in straight lines.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigation 5 of *Light, Shadow, and Color*, students are expected to develop understandings and skills including:

Objects that allow a great deal of light to shine through are called transparent.

Objects that do not allow any light to travel through an object are called opaque.

Objects that allow some light through are called translucent.

III. Scope and Sequence: Pre-Kindergarten – Light, Shadow, and Color

Page 4

In doing so they begin to acquire knowledge and abilities such as:

Investigate sound, heat, and light energy (e.g., the pitch and volume of sound made by commercially made and homemade instruments, looking for shadows on the playground over time and under different weather conditions) through one or more of the senses. (5.2.P.C.1)

Illustrate and explain what happens when light travels from air into water. (5.2.4.C.4)

Observe, predict, investigate and record several objects to see which will allow light to travel through.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigations 6-9 of *Light, Shadow, and Color*, students are expected to develop understandings and skills including:

Shadows are the result of blocked light.

A shadow is a darkened image of the object that is blocking the light.

Shadows change location and size during the day.

In the morning, your shadow is long and faces west.

III. Scope and Sequence: Pre-Kindergarten – Light, Shadow, and Color

Page 5

At noon, your shadow is very short and directly in front of you.

In the afternoon, your shadow is long and faces east.

The sun is in the sky.

The sun seems to move across the sky, but the sun really does not move.

The earth is moving (rotating) very slowly.

We can measure our shadows using yarn, string, our hands and feet.

We can make our shadows do tricks by moving our own bodies.

In doing so they begin to acquire knowledge and abilities such as:

Investigate sound, heat, and light energy (e.g., the pitch and volume of sound made by commercially made and homemade instruments, looking for shadows on the playground over time and under different weather conditions) through one or more of the senses. (5.2.P.C.1)

Observe and record weather. (5.4.P.F.1)

Present evidence that represents the relationship between a light source, solid object, and the resulting shadow. (5.2.2.C.3)

Observe a shadow and discover that a shadow is blocked light.

Investigate a variety of objects to see that a shadow will be the same shape as the object that is blocking the light.

Observe their shadows in different locations.

Observe their shadow and move to make it change size.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

III. Scope and Sequence: Pre-Kindergarten – Light, Shadow, and Color

Page 6

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

In completing the work in Investigations 10-15 of *Light, Shadow, and Color*, students are expected to develop understandings and skills including:

A prism is a tool which can separate white light into the colors of the rainbow.

A rainbow has all the colors of the spectrum.

The three primary colors are red, blue, and yellow.

We can make new colors by combining the primary colors.

New colors are formed by mixing two colors together.

Change the shade of a color.

Sort colors.

Show favorite color by creating a bar graph.

In doing so they begin to acquire knowledge and abilities such as:

Observe, manipulate, sort, and describe objects and materials (e.g., water, sand, clay, paint, glue, various types of blocks, collections of objects, simple household items that can be taken apart, or objects made of wood, metal, or cloth) in the classroom and outdoor environment based on size, shape, color, texture, and weight. (5.2.P.A.1)

III. Scope and Sequence: Pre-Kindergarten – Light, Shadow, and Color

Page 7

Observe a rainbow of colors as light travels through a prism.

Identify the primary colors as red, blue and yellow.

Create new colors by combining primary colors.

Locate objects in magazines that are red, blue, orange, yellow, and green.

Make a color collage.

Mix red, blue, and yellow to create new colors.

Gain practice in color recognition.

Change a color by adding black or white tempera paint.

Sort by color.

Make bar graphs.

In doing so they begin to acquire knowledge and abilities such as:

Display curiosity about science objects, materials, activities, and longer-term investigations in progress. (5.1.P.A.1)

Observe, question, predict, and investigate materials, objects, and phenomena (e.g., using simple tools to crack a nut and look inside) during indoor and outdoor classroom activities and during any longer-term investigations. (5.1.P.B.1)

Use basic science terms and topic-related science vocabulary. (5.1.P.B.2)

Identify and use basic tools and technology to extend exploration in conjunction with science investigations. (5.1.P.B.3)

Communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions. (5.1.P.C.1)

Represent observations and work through drawing, recording data, and “writing.” (5.1.P.D.1)

