Middlesex County Schools Curriculum Pacing Guide

Grade/Course Kindergarten/Science **School Year** 2011 – 2012 1st Quarter

Time Frame	Unit/SOLs Science	SOL #	Strand Science	Essential Knowledge/ Understandings	Date of Common Formative Assessment (i.e. Unit Tests/Benchmark Tests)
Observed throughout the year.	K.1 The student will conduct investigations in which a) basic characteristics or properties of objects are identified by direct observation	K.1 a	Scientific Investigation Reasoning, and Logic	observe objects and describe their basic properties. These properties include color, shape (circle, triangle, square, and rectangle), size (big, little, large, small), texture (rough, smooth, hard, soft), and weight (heavy, light).	Science SOL K.1a-j inquiry skills that make up the standard are incorporated in all the other kindergarten science standards and does not require a unit on scientific investigation. (DOE)
	b) observations are made from multiple positions to achieve different perspectives	K.1 b		observe an object or objects from multiple positions to achieve different perspectives. In order to accomplish this, the student should look at the object from top, bottom, front, and back, and describe what he/she sees	
	c) a set of objects is sequenced according to size	K.1 c		arrange a set of objects in sequence according to size.	
	d) a set of objects is separated into two groups based on a single physical attribute	K.1 d		separate a set of objects into two groups based on a single physical characteristic, including color, shape, size texture, and weight.	
	e) Non-standard units are used to measure length, mass, and volume of common objects f) observations and predictions are made for an unseen member in a sequence of objects	K.1 e K1. f		Measure common objects with nonstandard units. Examples of nonstandard units include hands, pennies, and paper clips for determining length; holding and comparing two different objects for determining mass; and liquids put in drinking cups for determining volume. Predict an unseen member in a sequence of objects to complete a pattern	
	g) a question is developed and predictions are made from one or more observations h) observations are recorded	K.1 g K. 1 h		develop a question from one or more observations about the natural world make a prediction based on observations	
	i) picture graphs are constructed	K.1 i		construct picture graphs using 10 or fewer units.	
	j) unusual or unexpected results in an activity are recognized; and k) Objects are described both pictorially and verbally	K.1 j K.1 k		identify unusual or unexpected results in an activity. Describe objects both pictorially and orally	
9 weeks	K.4 The student will investigate and understand that the position, motion, and physical properties of an object can be described. Key concepts include a) colors of objects	K.4 a	Matter	identify and name six basic colors, including red, orange, yellow, green, blue, and purple; and identify and name black and white.	September 2011
	b) shapes and forms of objects c) Textures and feels of objects d) relative size and weights of objects	K.4 b K4. c K.4 d		identify and name a circle, triangle, square, and rectangle. Compare and contrast objects that are rough, smooth, hard, and/or soft compare objects using the concepts heavy/light,	September 2011

				long/short, wide/thin, big/little, and large/small.	
	e) relative positions and speeds of objects	K.4 e		Measure objects , using nonstandard units and direct comparisons Identify the position of an object, using position words over/under, in/out, above/below, and left/right Group objects according to speed – fast or slow	September 2011
9 weeks	K.9 The student will investigate and understand that there are simple repeating patterns in his/her daily life. Key concepts include; b) the shapes and forms of many common natural objects including seeds, cones, and leaves	K.9 b	Earth Patterns, Cycles, and Change	identify simple patterns in natural objects – veins in leaf, spiral patterns in cones, shapes and colors of common seeds	October 2011

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Grade/Course Kindergarten/Science **School Year** 2011– 2012 2nd Quarter

Time Frame	Unit/SOLs Science	SOL #	Strand Science	Essential Knowledge/ Understandings	Date of Common Formative Assessment (i.e. Unit Tests/ Benchmark Tests)
9 weeks	K.2 Students will investigate and understand that humans have senses that allow one to seek, find, take in, and react or respond to information in order to learn about one's surroundings. Key concepts include a) five senses and corresponding sensing organ	K.2a	Scientific Investigation Reasoning, and Logic	identify and describe the five senses: taste, touch, smell, hearing, and sight. match each sensing organ (eyes, ears, nose, tongue, and skin) with its associated sense.	December 2011
	b) sensory descriptors used to describe common objects and phenomena	K.2b		match sensory descriptors with the senses (taste: sweet, sour, bitter, salty; touch: smooth, hard, soft, cold, warm, hot; hearing: loud, soft, high, low; sight: bright, dull color, black, and white; smell: strong, faint, bad, good)	
9 weeks	K.3 The student will investigate and understand that magnets have an effect on some materials, make some things move without touching them, and have useful applications. Key concepts include a) magnetism and its effects	K.3a	Force, Motion, and Energy	predict and test which common objects will be attracted to magnets and which will not be attracted to magnets. classify objects as being attracted or not attracted to magnets, such as iron nail, iron-bearing paper clip, cereal, and book. explain in their own wordshow an object such as an iron nail, an iron bearing paper clip, cereal, or a book is affected by a magnet.	December 2011
9 weeks					January 2012

	b) useful applications (refrigerator magnet, can opener, magnetized screwdriver, and magnetic games).	K.3 b		identify items in the home or school that contain a magnet or magnets, such as can openers, magnetized screwdrivers, magnetic door latches, refrigerator magnets, and magnetic letters magnetic games, and refrigerator magnets.	
9 weeks	K.9 The student will investigate and understand simple patterns in his/her daily life. Key concepts include; a) weather observations	K.9 a	Earth Patterns, Cycles, and Change	observe and identify daily weather conditions sunny, rainy, cloudy, snowy, windy, warm, hot, cool, and cold. predict daily weather based on basic observable conditions.	January 2012
	c)animal and plant growth	K.9 c		• describe how animals and plants change as they grow. (Related to K.7)	

Middlesex County Schools Curriculum Pacing Guide

Grade/Course Kindergarten/Science **School Year** 2011 – 2012 3rd Quarter

Time Frame	Unit/SOLs Science	SOL #	Strand	Essential Knowledge/ Understandings	Date of Common Formative Assessment (i.e. Unit Tests/Benchmark Tests)
9 weeks	K.7 The student will investigate and understand basic needs and life processes of plants and animals. Key concepts include a) animals need adequate food, water, shelter, air, and space to survive	K.7 a	Life Processes	describe the life needs of animals. The life needs are food, water, shelter, air, and space describe the life needs of plants. The life needs are nutrients, water, air, light, and a place that has adequate space for them to grow predict what will happen to animals and plants if life needs are not met.	April 2012
	b) plants and animals live and die (go through a life cycle); and	K.7 b		describe some simple changes animals undergo during the life cycles. This may include changes in their body size, color, covering, or shape. describe some simple changes that plants undergo during their life cycles. This may include size, presence of leaves and branches, fruits, and seeds.	
	c) plants and animals change as they grow, have varied life cycles, and eventually die d) offspring of plants and animals are similar but not identical to their parents or to one another.	K.7 c K.7 d		compare and contrast young plants and animals with their parents, using pictures and/or live organisms.	
9 weeks	K.8 The student will investigate and understand that shadows occur when light is blocked by an object. Key concepts include a) shadows occur in nature when sunlight is blocked by an object;	K.8 a	Interrelation-ships In Earth/Space Systems	identify a shadow describe how shadows occur. identify and describe sources of light . sun, electric lights, and flashlights that can produce shadows. match objects with the shadow they would create.	April 2012
	b) shadows can be produced by blocking artificial light sources	K.8 b		Demonstrate that shadows change as the direction of the light source changes	

Middlesex County Schools Curriculum Pacing Guide

Grade/Course Kindergarten/Science **School Year** 2011 – 2012 4th Quarter

Time Frame	Unit/SOLs Science	SOL #	Strand	Essential Knowledge/ Understandings	Date of Common Formative Assessment (i.e. Unit Tests/Benchmark Tests)
9 weeks	K.5 The student will investigate and understand that water flows and has properties that can be observed and tested. Key concepts include a) water occurs in different phases	K.5 a	Matter	classify examples of the different phases of water (solid, liquid, and gas).	June 2012
	b) water flows downhill;	K.5 b		describe the natural flow of water. predict where a stream of water will flow.	
9 weeks	c) some materials float in water, while others sink.	K.5 c		predict whether items will float or sink when placed in water. Items to use include wood, metal, paper, and plastics.	June 2012
	K.6 The student will investigate and understand the differences between living organisms and non-living objects . Key concepts include a) all living things can be classified as living or non-living b) living organisms have certain characteristics that distinguish them from non-living objects including growth, movement, response to the environment, having offspring, and the need for food, air, and water.	K.6 a K.6 b	Life Processes	Identify and describe the basic characteristics of living things (growth, movement, response to the environment, having offspring, and the need for food, air, and water Identify living organisms and nonliving objects found at home and at school Classify items by living or nonliving	
	K.10 The student will investigate and understand that change occurs over time and rates may be fast or slow. Key concepts include a) natural and human-made things may change over time; and b) changes can be observed and measured.	K.10 a K10 b	Earth Patterns, Cycles, and Change	identify some changes that people experience over time . e.g., height, weight, and color of hair. predict how their own height will change over the school year. Measure and graph the information. describe how people cause things to change . e.g., demolition of buildings, construction of buildings, cutting down trees, planting trees, and building highways. Describe how things change naturally .	

				This includes seasonal changes, the growth in seeds and common plants, common animals, and the weather.	
9 weeks	K.11 The student will investigate and understand that materials can be reused, recycled, and conserved. Key concepts include a) materials and objects can be used over and over again;	K.11 a	Earth Resources	give examples of objects, such as paper, plastic containers, and glass containers, that can be recycled. identify materials that can be reused. describe the difference between recycle and reuse. name ways to conserve water and energy.	June 2012
9 weeks	b) everyday materials can be recycled; and	K.11 b		describe how to properly dispose of a given material - paper, oil, aluminum, glass and plastics – by recycling.	June 2012
	c) water and energy conservation at home and in school help ensure resources are available for future use	K.11 c		predict what would happen if recycling and reusing were not practiced.	