

**New Jersey Science Curriculum
Pre-K-2
CAPE MAY COUNTY NEW JERSEY
Created August 2010**

Note: Differentiated Three Tiered Activities are suggestions only

SCIENCE Pre-K-12

CAPE MAY COUNTY NEW JERSEY

(2010)

OBJECTIVE CODE			UNIT CONTENT & PACING	UNIT ESSENTIAL QUESTIONS	UNIT ENDURING UNDERSTANDING WHAT STUDENTS SHOULD KNOW AND BE ABLE TO DO	DIFFERENTIATED ACTIVITIES	BENCHMARK ASSESSMENTS
Pre-K to 2						Tier 1, 2, 3	
Standard	Grade	Strand					
5.1 Science Practices	By the End of Pre-K Understand Scientific Explanations	A.1 Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	Who, what, when, where, why, and how questions, form the basis for young learners' investigations during sensory explorations, experimentation, and focused inquiry.	How do scientists/ learners show curiosity about science objects, materials, activities, and longer-term investigations in the scientific process?	Students will be curious about science objects by using materials, participating in science activities and long term scientific investigations.	1-Make a plan to design a solution to a problem. e.g. Making food waste useful http://www.educationworld.com/a_tsl/archives/99-1/lesson0014.shtml 2-Draw conclusions using "W" questions 3- In small groups raise "W" questions, use simple tools and materials to complete a task	Teacher Observation, Scaffolded and checkpoint questions, debriefing with teacher, activity rubric, data worksheet, journaling
5.1 Science Practices	By the End of Pre-K Generate Scientific Evidence Through Active Investigations	B.1 Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	Observations and investigations form young learners' understandings of science concepts.	How can people/learners observe, question, predict, and investigate materials, objects, and phenomena during indoor and outdoor classroom activities and during any longer-term investigations?	Students will be able to observe, question, predict, and investigate materials, objects, and phenomena using simple tools to look inside of things during indoor and outdoor classroom activities and during any longer-term investigations.	1-Graph and record use mathematical tools (such as magnifying glass, thermometer, balance, etc) for scientific problem solving 2-Count, sort, estimate and graph various nature specimens/objects with teacher assistance while recording results. 3-In small groups raise questions, use simple tools and materials to complete a task	Teacher Observation, Scaffolded and checkpoint questions, debriefing with teacher, activity rubric, data worksheet, journaling
5.1 Science Practices	By the End of Pre-K Generate Scientific Evidence Through Active Investigations	B.2 See Above	Experiments and explorations provide opportunities for young learners to use science vocabulary and scientific terms.	How do we/ learners use basic science terms and topic related science vocabulary?	The students will use basic science terms and topic related science vocabulary while exploring and completing experiments.	1-Identify and create word wall of scientific terms and pictures (cut and paste) 2-Use provided resources of tier 1 to continue building upon scientific vocabulary with teacher modeling 3-Oral language development/ songs utilizing vocabulary and terms	Teacher Observation, Scaffolded and checkpoint questions, debriefing with teacher, activity rubric, data worksheet, journaling

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5.1 Science Practices	By the End of Pre-K Generate Scientific Evidence Through Active Investigations	B.3 See Above	Experiments and explorations give young learners opportunities to use science tools and technology.	How can we / learners identify and use basic tools and technology to extend exploration in conjunction with science investigations?	The students will identify and use basic tools and technology to extend exploration in conjunction with science investigations.	1- Investigate standards based science content using simple tools and technology (ie. Pan-balance, thermometer, magnifying hand lens). 2- In small group, teacher models tier 1 with student practicing investigation 3- Teacher assistance, raise questions, use simple tools and materials to complete a task and develop oral language science vocabulary.	Teacher Observation, Scaffolded and checkpoint questions, debriefing with teacher, activity rubric, data worksheet, journaling
5.1 Science Practices	By the End of Pre-K Reflect on Scientific Knowledge	C.1 Scientific knowledge builds on itself over time.	Interacting with peers and adults to share questions and explorations about the natural world builds young learner' scientific knowledge.	How do we / learners/ scientists communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions?	The students will communicate with other children and adults to share observations, pursue questions, and make predictions and/or conclusions.	1 Ask questions about how science works- use worksheets to spark discussions in independent center activities. http://www.sciencenetlin ks.com/resource_index.p hp 2-Teacher models and students practice asking w questions about how things work 3-Songs, choral reciting/reading, and oral language development from centers or group activities http://www.tlsbooks.com /kindergartenworksheets. htm	Teacher Observation, Scaffolded and checkpoint questions, debriefing with teacher, activity rubric, data worksheet, journaling
5.1 Science Practices	By the End of Pre-K Participate Productively in science	D.1 The growth of scientific knowledge involves critique and communication, which are social	Science practices include drawing or "writing" on observation clipboards, making rubbings, or charting the growth of plants.	How can we/ learners represent (record and share) observations and science work?	The students will represent observations and science work through drawing, recording data, and "writing."	1-Work in pairs or as a class group to collect leaves from different trees, compare, sort, count, and graph found items. Record data. 2-Select a tree from outside. Work in groups	Teacher Observation, Scaffolded and checkpoint questions, debriefing with teacher, activity rubric, data worksheet, journaling

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5.2 Physical Science	By the End of Pre-K Properties of Matter	A.1 All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	Observations and investigations form a basis for young learners' understanding of the properties of matter.	How can we / learners observe, manipulate, sort and describe objects and materials (in the classroom and outdoor environment based on size, shape, color, texture, and weight?	The students will 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.	1-Students will independently sort out objects according to categories 2-Students will sort objects by a teacher determined category and describe how the objects are different and alike from each other 3-Students will sort and chart out objects according to likeness and differences within a teacher directed/ modeled group	Teacher Observation, Scaffolded and checkpoint questions, debriefing with teacher, activity chart, data worksheet, journaling
5.2 Physical Science	By the End of Grade 2 Properties of Matter	A.1 See Above	Living and non-living things are made of parts and can be described in terms of the materials of which they are made and their physical properties.	How can we / learners sort and describe objects based on the materials of which they are made and their physical properties?	The students will be able to sort and describe objects based on the materials of which they are made and their physical properties.	1-Explore the concept of parts and wholes at Science Net Links as a whole class then independent center activities 2-Make salt dough and discuss http://www.sciencenetlinks.com/lessons.php?BenchmarkID=11&DocID=170 3-Take apart small household objects and discuss the parts in a small group.	Teacher Observation, Scaffolded and checkpoint questions, debriefing with teacher, activity chart, data worksheet, journaling
5.2 Physical Science	By the end of grade 2 Properties of Matter	A.2 See Above	Matter exists in several different states; the most commonly encountered are solids, liquids and gases. Liquids take the shape of the part of the container they occupy. Solids retain their shape regardless of the container they occupy.	What are the three forms of matter, -solids, liquids, and gases? How are they different?	The students will show that they understand the three forms of matter , solids, liquids, and gases through scientific experimentation.	1-Conduct experiments to show the different properties of matter and that it takes up space and has inertia.. 2-After experiments, teacher modeled as students help :Chart the differences between the three states of matter. 3- Use a KWL chart, and songs to show their	Teacher observation, student report, questions and answer session as a group, student work samples- writing, drawing, photos of activities conducted.

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5.2 Physical Science	By the End of Pre-K Forms of Energy	C.1 Knowing the characteristics of familiar forms of energy, including potential and kinetic energy, is useful in coming to the understanding that, for the most part, the natural world can be explained and is predictable.	Observations and investigations form a basis for young learners' understanding of forms of energy.	What senses can be used to investigate sound, heat and light energy?	Students will be able to investigate sound, heat and light energy (e.g., the pitch and volume of sound made by commercially and homemade instruments, looking for shadows on the playground over time and under different weather conditions) through the use of one or more of the senses.	1- Independently in centers, investigate the effect that light has on different solid objects. Draw or match shadows created with flashlights. Share results with classmates. 2. Explore shadows and identify solid object that created a shadow. 3 – Small group with teacher assistance: Explore shadows using classroom objects and flashlights. Develop oral language http://www.brainpopjr.com/science/energy/light/previwweml	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.
5.2 Physical Science	By the End of Pre-K Changes in Matter	B.1 Substances can undergo physical or chemical changes to form new substances. Each change involves energy.	Observations and investigations form a basis for young learners' understanding of changes in matter	How can we / learners explore changes in liquids and solids when substances are combined, heated, or cooled	Students will be able to explore changes in liquids and solids when substances are combined, heated, or cooled (e.g., mix sand or clay with various amounts of water; mix different colors of tempera paints; freeze and melt water and other liquids) and form a basis for understanding changes in matter through scientific experimentation.	1- Students will freeze juice to make ice pops. They will make predictions, record through pictures, and report (e.g. water/juice is a liquid that can change to a solid and then later melts to return to a liquid) 2-Complete activity in tier 1 with teacher directed/ modeling in small group 3- Oral language development of tiers 1 & 2 OR Use watercolors or tempera paints to mix colors, such as blue and yellow to make green and paint pictures while discussing how each color mixed to make a new color.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.

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5.2 Physical Science	By the end of grade 2 Changes in Matter	B.1 See Above	Some properties of matter can change as a result of processes such as heating and cooling. Not all materials respond the same way to these processes.	How can we/ learners/ young scientists generate accurate data and organize arguments to show that not all substances respond the same way when heated or cooled?	Students will be able to generate accurate data and organize arguments to show that not all substances respond the same way when heated or cooled, using common materials, such as shortening or candle wax.	1-Observe and describe changes in the physical properties of solids and liquids after exposure to various treatments (i.e., temperature, sunlight, water). 2-Use writing, drawing, and discussion to communicate observations, descriptions, investigations, and experiences concerning solids and liquids. 3-Raise questions use simple tools to complete experiments. Sites: Chemical reactions http://standmaps.nsd.org/?id=SMS-MAP-1349 Science refreshers http://nsdl.org/refreshers/science/	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.
5.2 Physical Science	By the end of Grade 2 Forms of Energy	C.1 See Above	The Sun warms the land, air and water.	How will the heating of different colored objects placed in full sunlight vary?	Students will be able to compare, citing evidence, the heating of different colored objects placed in full sunlight.	1- Wrap thermometers with different colored construction paper and place in direct sunlight; record temperatures 2 – Draw pictures of clothing worn in different seasons and color appropriately. Share with class. 3-See tier 2	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.
5.2 Physical Science	By the end of Grade 2 Forms of Energy	C.2 See Above	An object can be seen when light strikes it and is reflected to a viewer's eye. If there is no light, objects cannot be seen.	Why do we need light to see? How can we / learners/ young scientists apply a variety of strategies to collect evidence that validates the principle that if there is no light, objects cannot be seen?	Students will be able to apply a variety of strategies to collect evidence that validates the principle that if there is no light, objects cannot be seen.	1-Color and light experiment http://www.accessexcellence.org/AE/AEC/CC/vision_activities.php 2-Cut a hole in the side and top of a shoebox., place a small object like a penny inside. The hole on the side is for the child to view inside the box and the top hole is for the flashlight. Ask the child to look in the side hole with the flashlight off, and discuss what he /she sees. Now turn on the flashlight and ask the child to describe what they see with the light. 3-See tier 2- model oral language development.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.

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5.2 Physical Science	By the end of grade 2 Forms of Energy	C.3 See Above	When light strikes substances and objects through which it cannot pass, shadows result	What is the relationship between a light source, solid object, and the resulting shadow? How can we demonstrate light and shadows?	Students will be able to present evidence that represents the relationship between a light source and solid object, and the resulting shadow	1 http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/light_shadows/read3.shtml As a class read discuss shadow experiments. 2- Take show quiz with a partner from this website http://www.bbc.co.uk/apps/ffl/schools/ks2bitesize/science/quizengine?quiz=lightandshadows&templateStyle=science 3-In small groups make hand shadow puppets and discuss.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.
5.2 Physical Science	By the end of Grade 2 Energy Transfer and Conservation	D.1 The conservation of energy can be demonstrated by keeping track of familiar forms of energy as they are transferred from one object to another.	Batteries supply energy to produce light, sound or heat.	How does the number of batteries or the size of the batteries affect the brightness of light, the volume of sound, or the amount of heat?	Students will understand how to predict and confirm the brightness of a light, the volume of sound, or the amount of heat when given the number of batteries, or the size of batteries.	1- Compare light from a penlight (1 AA battery) to a flashlight (4 D batteries). 2 – List objects that use batteries as the energy source. List objects that use people as the energy source. 3- Children can explore various battery operated toys.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.
5.2 Physical Science	By the end of Grade 2 Forces and Motion	E.1 It takes energy to change the motion of objects. The energy change is understood in terms of forces/	Objects can move in many different ways (fast and slow, in a straight line, in a circular path, zigzag, and back and forth).	How can energy be transferred from one material to another? What happens to a material when energy is transferred to it?	Students will be able to investigate how and why things move (e.g., slide blocks, balance structures, push structures over, use ramps to explore how far and how fast different objects move or roll).	1-Model different pathways of movement and have classmates describe or name the movement, switch roles. 2-Identify objects that only move in one way and others that may move in many ways. 3-See tier 2	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.

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5.2 Physical Science	By the end of Grade 2 Forces and Motion	E.2 See Above	A force is a push or a pull. Pushing or pulling can move an object. The speed an object moves is related to how strongly it is pushed or pulled. When an object does not move in response to a push or a pull, it is because another push or pull (friction) is being applied by the environment.	How does an object's relative speed, path, or how far it will travel differ using various forces and surfaces?	The students will be able to predict and object's relative speed, path, or how far it will travel using various forces and surfaces.	1- Identify the way objects move by charting predictions as a group and doing experiments. http://www.sciencenetlinks.com/lessons.php?BenchmarkD=12&DocID=35 2-Use words and pictures to describe the way objects move with different forces affecting them http://www.sciencenetlinks.com/pdfs/move_actsheet.pdf 3-Make a list as a group to answer specific questions, for example: http://www.sciencenetlinks.com/lessons.php?BenchmarkD=12&DocID=21	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.
5.2 Physical Science	By the End of Grade 2 Forces and Motion	E.3 See Above	Some forces act by touching, while other forces can act without touching.	How do some forces act by touching while other forces cannot be seen?	The students will be able to distinguish between forces that use direct content as opposed to forces that act without direct contact (ex. Gravity, magnetism).	1-Students will apply knowledge of forces and motion through experimentation. http://www.stevespanglerscience.com/experiments/12 2-Students will learn about the force of magnetism and direct forces through videos and hands on activities with magnets and cars or wagons that you can push or pull. http://www.brainpop.com/science/motionsforcesandtime/magnetsm/preview.weml http://www.brainpop.com/science/motionsforcesandtime/force/preview.weml 3- See tier 2	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.

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5.3 Life Science	By the end of Pre-K Organization and Development	A.1 Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which carry out biological functions.	Observations and discussions about the natural world form a basis for young learners' understanding of life science.	What are the basic physical characteristics of plants, humans, and other animals?	Students will be able to investigate and compare the basic physical characteristics of plants, humans, and other animals.	1 – Draw pictures that contrast plants and animals that have their energy needs met to those who don't. 2- Place pictures of above in appropriate columns (Needs met/ Needs not met) 3 – Verbally compare and contrast plants that do/ do not have all their needs met.	Teacher observation, student report, questions and answer session as a group, student work samples- writing, drawing, photos of activities conducted.
5.3 Life Science	By the end of Pre-K Organization and Development	A.2 See Above	Observations and discussions form a basis for young learners' understanding of the similarities and differences among living and nonliving things.	What are the similarities and differences in the needs of various living things, and differences between living and nonliving things?	Students will be able to observe similarities and differences in the needs of various living things, and differences between living and nonliving things through hands on experiments.	1-Discuss as a group a toy insect, a dead insect, and a living insect. Ask students to explain how they are different from each other on a classroom chart. 2-Have a show and tell day for stuffed animals, then discuss why they are not living animals. 3-See tier 2, but add photos or videos of real animals.	Teacher observation, student report, questions and answer session as a group, student work samples- writing, drawing, photos of activities conducted.
5.3 Life Science	By the end of Grade 2 Organization and Development	A.1 See Above	Living organisms: Exchange nutrients and water with the environment. Reproduce. Grow and develop in a predictable manner.	How can we group living and non-living things?	Students will be able to group living and non-living things according to the characteristics they share.	1-Discuss as a group a toy insect, a dead insect, and a living insect. Ask students to explain how they are different from each other telling about the characteristics they share. 2-View Video & discuss <a href="http://www.teachersdo
main.org/resource/tdc02
.sci.life.colt.nonliving/">http://www.teachersdo main.org/resource/tdc02 .sci.life.colt.nonliving/ 3-See tier 2	Teacher observation, student report, questions and answer session as a group, student work samples- writing, drawing, photos of activities conducted.

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5.3 Life Science	By the end of Pre-K Matter and Energy Transformation	B.1 Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly.		Investigations form a young learners' understanding of how a habitat provides for an organism's energy needs.	How do plants and animals obtain food from their environment?	Students will be able to observe and describe how plants and animals obtain food from their environment, such as by observing the interactions between organisms in a natural habitat.	1 – Draw pictures that contrast plants and animals that have their energy needs met to those who don't. 2- Place pictures of above in appropriate columns (Needs met/ Needs not met) 3 – Verbally compare and contrast plants that do/ do not have all their needs met.	Teacher observation, student report, questions and answer session as a group, student work samples- writing, drawing, photos of activities conducted.
5.3 Life Science	By the End of Grade 2 Matter and Energy Transformations	B.1 See Above		A source of energy is needed for all organisms to stay alive and grow. Both plants and animals need to take in water, and animals need to take in food. Plants need light.	What are the requirements for the care of plants and animals related to meeting their energy needs?	Students will be able to describe the requirements for the care of plants and animals related to meeting their energy needs through scientific observation.	1 – Make a simple model of a food chain. 2 – Put a simple food chain in order. 3 – Draw pictures showing how living things get their energy. Discuss.	Teacher observation, student report, questions and answer session as a group, student work samples- writing, drawing, photos of activities conducted.

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5.3 Life Science	By the End of Grade 2 Matter and Energy Transformations	B.2 See Above	Animals have various ways of obtaining food and water. Nearly all animals drink water or eat foods that contain water.	How do different animals obtain food and water?	The students will demonstrate knowledge of how different animals obtain food and water.	1-Make Critter Dice to match animals with the food they eat and how they eat it. http://www.education.com/activity/article/critter-dice/ Talk about where animals live and how it influences what and how they eat. 2- Play Critter Dice to match animals with the food they eat and how they eat it. http://www.education.com/activity/article/critter-dice/ 3-Show videos from various sites about animals and food and water and discuss. http://www.hsdv1.org/video.php?record_serial=1113	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.
5.3 Life Science	By the End of Grade 2 Matter and Energy Transformations	B.3 See Above	Most plants have roots to get water and leaves to gather sunlight.	How do most plants get water from the soil through their roots and gather sunlight through their leaves?	Students will be able to explain that most plants get water from the soil through their roots and gather sunlight through their leaves through the process of planting seeds in clear containers and making observations.	1-Students will plant seeds in clean containers and keep a data journal 2-See tier 1 with teacher direction. 3-See tier 1 drawings can be accepted with the journal writing	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted

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5.3 Life Science	By the end of Pre-K Interdependence	C.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).	Investigations and observations of the interactions between plants and animals form a basis for young learners' understanding of interdependence in life science.	How do plants/animals depend on their habitat to live?	Students will investigate and observe how natural habitats provide for the basic needs of plants and animals with respect to shelter, food, water, air, and light	1-Students dig outside in the soil to investigate the kinds of animal life that live in and around the ground. Make a class chart. See tier 1 3-See tier 2	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted.
5.3 Life Science	By the End of Grade 2 Interdependence	C.1 See Above	Organisms interact and are interdependent in various ways; for example, they provide food and shelter to one another.	How do all animals and most plants depend on both other organisms and their environments for their basic needs?	Students will be able to describe and understand that all animals and most plants depend on both other organisms and their environments for their basic needs through scientific observation and research.	Make a diorama of a habitat. Include plants, animals and other features. Label. Draw a picture of a habitat. Label. 3- Discriminate, match, sort the different kinds of living things and their environments. Resource-Science NetLinks	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. Conduct a survey of the different types of plants and animals you see on a walk around the school. Use your journal to document what you see (draw, write, collect) Report findings to classmates.

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5.3 Life Science	By the End of Grade 2 Interdependence	C.2 See Above	A habitat supports the growth of many different plants and animals by meeting their basic needs of food, water, and shelter.	How does a habitat support the growth of many different plants and animals?	Students will understand the characteristics of a habitat that supports the growth of many different plants and animals, through scientific research.	1-Describe how plants and animals interact with each other and their environment in a variety of settings by observing interactions in natural settings or through digital/video means. 2- Nature walk, observe, record in journal through writing or pictures of animals and their environments 3-Matching photo's of animals to their environments.	Students work in groups to construct a visual representation of a habitat. They identify all living organisms of the habitat, and then identify which elements (living and non-living) of the habitat provide all organisms with food, shelter, water. Resources: http://www.sciencenetlinks.com/lessons.cfm?DocID=440 , http://www.learner.org/resources/series179.html
5.3 Life Science	By the End of Grade 2 Interdependence	C.3 See Above	Humans can change natural habitats in ways that can be helpful or harmful for the plants and animals that live there.	How do humans change natural habitats in ways that can be helpful or harmful for the plants and animals that live there?	Student will communicate ways that humans protect habitats and/or improve conditions for the growth of the plants and animals that live there, or ways that humans might harm habitats.	1-Students become participants in the Environmental Protection Agency's (EPA) <i>Pick 5 for the Environment Challenge</i> . Choose at least five actions to commit as a class to protect the environment. 2-Students explain how human actions (both positive and negative) can affect the survival and health of plants and animals. 3-Identify characteristics of a habitat	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.

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5.3 Life Science	By the End of Pre-K Heredity and Reproduction	D.1 Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.	Observations of developmental changes in a plant or animal over time form a basis for young learners' understanding of heredity and reproduction.	How do living things change over time and how does change affect living things?	Students will be able to observe and record change over time and cycles of change that affect living things through scientific observations.	1-Record the observable characteristics of plants and animals to determine the similarities and differences between parents and offspring 2-Cut and glue pictures of appropriate animal baby by looking at a picture of the parent animal. 3-In small groups match toy animals based on characteristics passed from parent to baby animal.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.3 Life Science	By the End of Grade 2 Heredity and Reproduction	D.1 See Above	Plants and animals often resemble their parents.	How do organisms change as they go through their life cycle?	Students will be able to understand that organisms have predictable life cycles and pass on some traits to their offspring.	1-Students will observe and answer questions about changes in animals and plants as they grow. (Ex. caterpillar to butterfly) 2-Show videos from Annenberg Media http://www.learner.org/resources/series179.html 3-Watch a PowerPoint: classroom.jc-schools.net/sci-units/animalchanges.ppt and Observe changes in plants and animals and make before, middle, and end drawings to discuss in groups	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.

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5.3 Life Science	By the End of Grade 2 Heredity and Reproduction	D.2 See Above	Organisms have predictable characteristics at different stages of development.	What characteristic changes occur during the life cycle of plants and animals?	Students will determine the characteristic changes that occur during the life cycle of plants and animals by examining a variety of species, and distinguish between growth and development.	1- Watch mealworms grow and change. Form questions, predict and record. 2- See tier 1 with teacher modeling. 3-Students can watch and discuss videos of the life cycle http://www.learner.org/resources/series179.html?pop=yes&pid=1957 After watching videos they can spend time on a nature walk to look for caterpillars or buds on trees, etc.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.3 Life Science	By the End of Grade 2 Evolution and Diversity	E.1 Sometimes, differences between organisms of the same kind provide advantages for surviving and reproducing in different environments. These selective differences may lead to dramatic changes in characteristics of organisms in a population over extremely long periods of time.	Variations can exist within a group of the same type of organism.	In what ways are organisms of the same kind different from each other? How does this help them reproduce and survive?	Students should be able to describe the similarities and differences in observable traits between parents and offspring.	1-Use a graphic organizer to compare and contrast 2-Present photos of animals and their babies, and discuss 3-Students will use their own words to tell if two animals are related.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.3 Life Science	By the End of Grade 2 Evolution and Diversity	E.2 See Above	Plants and animals have different features that help them survive in different environments.	What different features do organisms have that help them survive in different environments?	Students will describe how similar structures found in different organisms (e.g. Eyes, ears, mouths) have similar functions and enable those organisms to survive in different environments through scientific observation .	1- Students will work in small groups to match pictures of animals to their environments and discuss the structures that enable the animals to survive In those environments. 2-Watch videos of two types of animals or plants and take note of similarities and differences. 3-Students will work in small groups to match pictures of animals to their environments and discuss the structures that enable the animals to survive In those environments.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.

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5.4 Earth Systems Science	By the End of Grade 2 Objects in the Universe	A.1 Our universe has been expanding and evolving for 13.7 billion years under the influence of gravitational and nuclear forces. As gravity governs its expansion, organizational patterns, and the movement of celestial bodies, nuclear forces within stars govern its evolution through the processes of stellar birth and death. These same processes governed the formation of our solar system 4.6 billion years ago.	The sun is a star that can only be seen during the day. The moon is not a star and can be sometimes at night and during the day. The moon appears to have different shapes on different days.	When are the sun and moon visible? Is there a pattern that the moon follows as it changes	Students will be able to determine some observable predictable patterns/rules in the solar system occur because of gravitational interactions and energy from the sun based on actual student observations of the sky.	1-Watch and discuss Moon video, keep a moon journal and describe the moon each night for 1 to 2 weeks. http://www.learner.org/courses/essential/earthspace/session7/closer.html 2-Display on the whiteboard for the whole class and discuss, use at individual computer stations http://www.windows2universe.org/the_universe/uts/intro.html 3-See tier 2 Discuss changes with teacher	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.4 Earth Systems Science	By the End of Pre-K Properties of Earth Materials	C.1 Earth's composition is unique, is related to the origin of our solar system, and provides us with the raw resources needed to sustain life.	Observations and investigations form a basis for young learners' understanding of properties of Earth materials.	Describe Earth materials using appropriate terms, such as hard, soft, dry, wet, heavy, and light?	Students will be able to describe Earth materials using appropriate terms, such as hard, soft, dry, wet, heavy, and light through hands on experimentation and observation.	1-Students will compare how different planting mediums help plants to grow better. http://www.globe.gov/tctg/backyard.pdf?sectionId=104 2-See tier 1 3-See tier 1	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.4 Earth Systems Science	By the End of Grade 2 Properties of Earth Materials	C.1 See Above	Soils are made of many living and nonliving substances. The attributes and properties of soil (e.g., moisture, kind and size of particles, living/organic elements, etc.) vary depending on location.	Describe the basic characteristics of soil, rocks, water, and air?	Students will be able to use observations and investigations to understand properties of Earth materials.	1-Students will compare and contrast soil samples from their homes. Chart or note differences using a graphic organizer. http://www.globe.gov/tctg/backyard.pdf?sectionId=104 2-See tier 1 make a class chart. 3-See tier 1 discuss differences/similarities.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.

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5.4 Earth Systems Science	By the End of Pre-K Energy in Earth Systems	E.1 Internal and external sources of energy drive Earth systems.	Observations and investigations form the basis for young learners' understanding of energy in Earth systems.	How does sunlight affect living and non-living things?	Students will be able to observe and conduct a variety of experiments to show how the sun affects living and non-living things by growing and observing plants.	1-Place celery in colored water and observe how the water travels up the stem. Keep one stalk of celery in sunlight and one in the dark to determine how water and light affect the celery. Draw pictures to record differences. 2-See tier 1 with teacher modeling. 3-See tier 1 in small group with teacher assistance and using oral language.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.4 Earth Systems Science	By the End of Grade 2 Energy in Earth Systems	E.1 See Above	Plants need sunlight to grow.	What is the relationship between the Sun and plant growth?	Students will be able to describe the relationship between the Sun and plant growth.	1-The students will place one houseplant in the sun and one in the dark. Water them the same, and have students record in a journal how each plant is surviving. 2-see tier 1 Draw pictures. 3-See tier 1 Discuss.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.4 Earth Systems Science	By the End of Pre-K Climate and Weather	F.1 Earth's weather and climate systems are the result of complex interactions between land, ocean, ice, and atmosphere.	Observations and investigations form the basis for young learners' understanding of weather and climate.	What are the weather conditions today?	Students will be able to use observations and investigations to form an understanding of weather and climate around them.	1-Students will take turns each day being the weather helper, describing the daily weather to the class. The teacher will help them to chart the weather differences each day of the month. 2-See tier 1 3-See tier 1	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.

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5.4 Earth Systems Science	By the End of Grade 2 Climate and Weather	F.1 See Above	Current weather conditions include air movement, clouds, and precipitation. Weather conditions affect our daily lives.	How do weather conditions influence activities for the day?	Students will observe and document daily weather and the daily activities accomplished to learn how weather can influence daily activities.	1-Students can participate in the GLOBE program http://classic.globe.gov/fsl/html/templ.cgi?EG_cloud&lang=en&nav=1 2-With teacher direction, in small groups organize weather data on graphs and on long-term data collection charts and use this data to describe typical seasonal weather patterns. 3-See tier 1 & 2	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.4 Earth Systems Science	By the End of Pre-K Biochemical Cycles	G.1 The biogeochemical cycles in the Earth systems include the flow of microscopic and macroscopic resources from one reservoir in the hydrosphere, geosphere, atmosphere, or biosphere to another, are driven by Earth's internal and external sources of energy, and are impacted by human activity.	Investigations in environmental awareness activities form a basis for young learners' understanding of biogeochemical changes.	How can we conserve, recycle, and respect the environment?	Students will be able to conduct investigations in environmental awareness activities to help them understand biogeochemical changes.	1-Students create signs for conservation awareness and water conservation such as: "Don't Let the Water Run" or "Throw Paper Here". 2-Read I Am Water by Jean Marzullo & See tier 1 3-See tier 1 & 2	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.4 Earth Science	By the End of Grade 2 Biochemical Cycles	G.1 See Above	Water can disappear (evaporate) and collect (condense) on surfaces.	What is evaporation and condensation?	Students will be able to conduct simple experiments to explore the concepts of evaporation and condensation.	1-Do the evaporation experiment found on this site. http://fun.familyeducation.com/early-learning/childrens-science-activities/40367.html 2-See tier 1 with teacher direction. 3-See tier 1 in small group with a teacher.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.

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5.4 Earth Science	By the End of Grade 2 Biochemical Cycles	G.2 See Above	There are many sources and uses of water.	How can we conserve water?	Students will be able to identify and use water conservation practices to gain an understanding that there are many sources and uses of water.	1-Identify local sources of fresh water available for consumption. As a class research project find out where the local well for your area are located. 2. Write in a journal about the need for water conservation due to the limited fresh water supply, and share ideas with the class 3. Tell 3 or more ways to help conserve water. http://www.up2meforkids.com.au/popup6.php?Do=ContentView&pageno=174	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.4 Earth Science	By the End of Grade 2 Biochemical Cycles	G.3 See Above	Organisms have basic needs and they meet those needs within their environment.	What are the basic needs of living organisms as they relate to the environment?	Students will be able to observe and identify how living organisms meet their basic needs.	1-Explore this site for many ideas. http://www.teachersdomain.org/resource/tdc02.sci.life.colt.lp_stayalive/ 2-See tier 1 with teacher modeling. 3-See tier 1 in a small group using oral language.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.
5.4 Earth Science	By the End of Grade 2 Biochemical Cycles	G.4 See Above	The origin of everyday manufactured products such as paper and cans can be traced back to natural resources.	What are the natural resources used in the process of everyday manufactured products?	Students will be able to demonstrate an understanding of natural resources that are used to create a variety of manufactured products through a variety of research.	1-Work together to create a PowerPoint from the ideas in tier 2. 2-Play name this product: and other activities from National Geographic http://www.nationalgeographic.com/xpeditions/lessons/16/gk2/everything.html 3-See tier 1 & 2 with small group, teacher assistance and using oral language.	Teacher observation, student report, questions and answer session as a group, student work samples-writing, drawing, photos of activities conducted. And participation in the above activities.

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