SCIENCE STANDARDS

Inquiry	Technology and Engineering
Cells	Interdependence
Flow of Matter and Energy	Heredity
Biodiversity and Change	The Universe
The Earth	The Atmosphere
Matter	Energy
Motion	Forces in Nature

Standard	Inquiry
What are the big ideas?	Students need to be able to select an investigation and answer a specific question. Students need to ask big questions, make predictions and plan how to investigate their questions. Students need to be able to graph data, organize data, diagrams, graphs, drawings and explain what they have investigated.
How can I help my child?	Have your children ask questions and try to solve them by setting up an experiment or researching the information. Use graphs and data. Write down the information. Use this Create- a -Graph link to make a graph about your findings.
Vocabulary Words	Senses, describe, predict, hypothesis, data, bar graph, pictograph, infer, scientist, scientific inquiry, observation
Websites for parents	**Mythbusters : Solving Science Questions-** http://school.discoveryeducation.com/teachers/myth-busters/ **What is Science Inquiry?** http://www.pwcs.edu/curriculum/sol/scientific.htm **Understanding Scientific Inquiry** http://www.suite101.com/content/scientific-inquiry-what-is-it-a46356 **Create-a-graph** http://nces.ed.gov/nceskids/createagraph/
Websites for kids	**BBC Science Clips:** http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml

Standard	Technology and Engineering
What are the big ideas?	Recognize that tools technology and inventions are always being developed and changing because of scientific advancement. Notice how tools, technology and inventions are used to solve human problems.
How can I help my child?	Let your child explore how simple tools are used to make life easier and how everyday problems are solved with simple design. Let them take a design, such as the skateboard and make it better. Is there a problem that they could solve with a design they create? This is about the process of thinking through problem solving.
Vocabulary Words	Tools, natural, man-made, invent, products, engineer, hypothesis, results, conclusion
Websites for parents	**How Stuff Works** http://www.howstuffworks.com/ **Inventions and how they change our lives**! http://inventionsthatchangedourlives.blogspot.com/ **Inventions :** http://www.telegraph.co.uk/science/4981964/Top-10-inventions-that-changed-the-world.html
Websites for kids	**Zoom Science!** *Engineering-Design it! Activities* http://pbskids.org/zoom/activities/sci/#engineering **Engineering for Kids** http://www.biglearning.com/treasureengineering.htm

Standard	Cells
What are the big ideas?	Recognize that cells are the basic building blocks of all living things. Students need to be able to compare plant and animal cells.
How can I help my child?	• This is the first time that students are introduced to cells and parts of cells. • Your child needs to know that difference in animal and plant cells: cell wall, chloroplasts are two examples of the differences.
Vocabulary Words	Plant cell, animal cell, cell wall, vacuole, nucleus, cytoplasm, cross-section, cell membrane, chloroplasts
Websites for parents	**Biology for kids (this is just for your information)** http://www.biology4kids.com/files/cell_main.html **Bite size BBC clips:** http://www.bbc.co.uk/schools/gcsebitesize/science/add_aqa/cells/cells1.shtml **Comparison Visual** http://waynesword.palomar.edu/lmexer1a.htm
Websites for kids	**Parts of a cell Practice :** http://www.footprints-science.co.uk/cells.htm view full screen **Case of Mixed up Cells: http://www.beaconlearningcenter.com/WebLessons/MixedUpCells/default.htm** **"Cells Alive" Interactive Plants and Animal Cells: http://www.cellsalive.com/cells/3dcell.htm** *This site goes in to deeper detail than what is needed to understand basics of cells.*

Standard	Interdependence
What are the big ideas?	Recognize the impact on predation and competition in an ecosystem.
How can I help my child?	• Help your child understand that animals and plants compete for survival. • Students need to understand what is a predator and what is a prey and how those relationships affect the overall ecosystem.
Vocabulary Words	Habitat, competition, organisms, predation, ecosystems, environment, organism, shelter, mimicry,
Websites for parents	Predator: http://idahoptv.org/dialogue4kids/season4/prey/facts.cfm
Websites for kids	Aquatic Ecosystems: http://studyjams.scholastic.com/studyjams/jams/science/ecosystems/aquatic-ecosystems.htm

Standard	Flow of Matter and Energy
What are the big ideas?	Students need to understand that the sun is the source of energy and plants require light energy to survive and grow. All organisms need energy to meet their needs.
How can I help my child?	• Describe the habitat of a particular organism based on the food water and shelter needs. • Look at pictures of habitats and determine how the needs of each organism are met. Examples: Plants need sun and water. Rabbits need grass and shelter. Owls need to eat mice and shelter in food.
Vocabulary Words	Predator, prey, organism, habitat, food web, energy pyramid, herbivore, carnivore, omnivore, food chain
Websites for parents	Biology Background: http://www.kidsbiology.com/biology_basics/needs_living_things/living_things_have_needs1.php Energy Pyramid http://www.learner.org/courses/essential/life/session7/closer5.html
Websites for kids	Survival of Living things Word Game: http://www.eduplace.com/science/hmsc/3/b/vocabgames/vcb_3b.html Food Chains eWord Game: http://www.eduplace.com/kids/hmsc/activities/ewordgame/index.html?grade=3&unit=b&chapter=5 Food Chains: http://www.sciencekids.co.nz/gamesactivities/foodchains.html Food Web: Interactive Game http://teacher.scholastic.com/activities/explorer/ecosystems/be_an_explorer/map/foodweb_play.htm Energy Pyramid http://www.gould.edu.au/foodwebs/kids_web.htm

Standard	Heredity
What are the big ideas?	Students learn what complete and incomplete metamorphosis. Students are to draw conclusions about the relationship between reproduction and survival of the species.
How can I help my child?	• Study life cycles in different organisms • Sequence pictures in order of a life cycle of a butterfly, frog, and human. • Match parents to offspring pictures
Vocabulary Words	Adult, parent, offspring, mature , family , life cycle, complete metamorphosis, and incomplete metamorphosis
Websites for parents	Gene School http://library.thinkquest.org/19037/heredity.html Metamorphosis: http://www.gadgetscience.com/complete-and-incomplete-metamorphosis-in-insects/
Websites for kids	Match the baby animal to its mother http://www.teachnet.ie/dcorcoran/motherandbaby.htm Life Cycles: http://www-rci.rutgers.edu/~insects/lcycle.htm Metamorphosis: http://www.harcourtschool.com/activity/science_up_close/315/deploy/interface.html

Standard	Biodiversity and Change
What are the big ideas?	Students need to know that animals have features that help them survive. These are adaptations. Such as a frog's webbed feet. There are also behaviors that animals use to survive such as migration. These are behavioral adaptations. Students need to understand that environment changes can cause the extinction of various animal species.
How can I help my child?	Look at books or other media and discuss how the animals need certain characteristics to live in their environment. Use the websites below to research extinct animals. Discuss what factors it takes for an animal to become endangered or extinct.
Vocabulary Words	Behavioral adaptations, physical adaptations, endangered, extinct, species, organism, Habitat, fossil, mimicry, camouflage, investigate, environment , migration, hibernation,
Websites for parents	Endangered and Extinct : http://www.animalport.com/extinct-animals/Extinct-Animals.html Physical and Behavioral Adaptations: http://www.nhptv.org/natureworks/nwep1.htm
Websites for kids	National Geographic for Kids: http://kids.nationalgeographic.com/kids/animals/creaturefeature/ Animal Adaptations: http://www.ecokids.ca/pub/eco_info/topics/climate/adaptations/index.cfm

Standard	The Universe
What are the big ideas?	Put the moon phases in correct sequence. Understand the relationship of the earth moon and sun's movements. Understand that the moon phases are caused by the revolution of moon and earth around the sun.
How can I help my child?	• Make a picture of the moon on a calendar and talk about that the moon seems to change. • The moon reflects the sun's light. • Create a model of the earth, moon and sun and role play the movement.
Vocabulary Words	Moon phases, revolution, rotation, axis, tilt, reflection, lunar eclipse, solar eclipse, lunar cycle, new moon, planet, full moon, waxing , waning, new moon
Websites for parents	The Night Sky http://nightskylive.net/index.php Astronomy for Kids http://www.kidsastronomy.com/solar_system.htm Moon Phases Calendar http://www.moonconnection.com/moon_phases_calendar.phtml
Websites for kids	Moon Phases Rap http://www.schooltube.com/video/bf0e5ada3fb0ea880ecb/Phases-of-the-Moon-a-kids-funky-version The Moon http://www.woodlands-junior.kent.sch.uk/time/moon/phases.html Earth, Moon and Sun http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/earth_sun_moon/play.shtml
Children's Literature	The Moon Book by Gail Gibbons

Standard	The Earth
What are the big ideas?	Students need to understand that the Earth's features change as a result of wind and water. Students need to understand the difference between weathering and erosion. Students need to understand that earth materials enhance the quality of life and solve human problems.
How can I help my child?	• Collect rocks or soil samples around the area and compare and contrast them. • Observe familiar environments and make a list of natural and manmade objects. • Identify ways your family can reuse and recycle resources. • Notice everyday tools that are made of earth materials.
Vocabulary Words	Weathering, erosion, geological features, deposition
Websites for parents	Earth Materials http://www.rocksforkids.com/RFK/uses.html
Websites for kids	Rocks and Soil http://www.bbc.co.uk/schools/scienceclips/ages/7_8/index_noflash.shtml Rocks Field Journal : http://www.amnh.org/nationalcenter/online_field_journal/fj/fjrk/fjrkmain.html

Standard	The Atmosphere
What are the big ideas?	Students need to understand the water cycle process. Students need to be able to list ways that climate and weather are different.
How can I help my child?	Show your child how weather changes day to day by looking at the news and newspaper. Get an outdoor thermometer and record data with your child. Make your own rain gauge. http://teacher.scholastic.com/activities/wwatch/gather_data/raingauge.htm
Vocabulary Words	Condensation, infiltration , collection, climate, weather, run off, precipitation, evaporation,
Websites for parents	Weather and Climate http://www.climateandweather.net/ NASA http://www.nasa.gov/mission_pages/noaa-n/climate/climate_weather.html
Websites for kids	Interactive Weather for Kids: http://www.theweatherchannelkids.com/ The Water Cycle Fun Facts: http://www.kidzone.ws/water/

Standard	Matter
What are the big ideas?	Students need to understand what are physical properties of various solids and liquids. Use a scale to measure weight, magnifying glass, length and volume. Students need to explore different types of physical changes to matter.
How can I help my child?	Use water displacement to show that matter takes up space. Measure using a ruler..review how to do this. Find different types of matter and list physical properties such as texture, color, shape, size and mass.
Vocabulary Words	Matter, physical properties, physical changes, transparent, translucent, opaque, objects, solid, liquid, gas, scale, mass, volume, weight
Websites for parents	Matter Facts http://www2.mcdaniel.edu/Graduate/TI/pages/LEWIS/matterweb.htm Matter http://www.nyu.edu/pages/mathmol/textbook/4gradecover.html Vocabulary, Matter Song, Video http://teacher.scholastic.com/activities/studyjams/matter_states/
Websites for kids	Matter Games and Activities http://www.wartgames.com/themes/science/matter.html Matter Matching http://www.quia.com/mc/1204385.html Strange Matter http://www.strangematterexhibit.com/

Standard	Energy
What are the big ideas?	Students need to see what types of surfaces reflect, refract and absorb light. Students need to classify items as translucent, transparent, and opaque. Students need to understand there are different forms of energy such as heat, light and chemical.
How can I help my child?	Let your child classify things around the house into transparent, translucent and opaque. Using a flashlight or laser light let your child experiment with reflection, refraction and absorption. (Safety: do not ever shine laser light in eyes.)
Vocabulary Words	Light energy, heat energy, primary source, radiate heat, temperature, translucent, transparent, opaque, reflect, refract, absorb, chemical energy
Websites for parents	Reflection and Refraction Content Background: http://library.thinkquest.org/28160/english/reflection/index.html
Websites for kids	Reflection Game: http://studyjams.scholastic.com/studyjams/jams/science/energy-light-sound/light-absorb-reflect-refract.htm Light Absorption: http://studyjams.scholastic.com/studyjams/jams/science/energy-light-sound/light-absorb-reflect-refract.htm

Standard	Motion
What are the big ideas?	Describe the position of an object from a fixed reference point. Determine the relationship of speed and distance over time traveled. Identify what are factors that influence the motion of an object.
How can I help my child?	Talk about friction working in everyday life. Ice on ground, rocky driveway vs. smooth cement Identify a fixed point on a map. Talk about the rate of speed you are driving and how the acceleration directly effects the time.
Vocabulary Words	Fixed point of reference, position, speed, acceleration, distance, mass, friction
Websites for parents	Speed Challenge http://sciencespot.net/Pages/classphys.html#Anchor-49575
Websites for kids	Motion Games for kids: http://www.wartgames.com/themes/science/motion.html

Standard	Forces of Nature
What are the big ideas?	Magnets attract and repel one another. Electrically charged materials interact with other materials. Explain a **simple circuit** and how it requires a complete loop where a current can pass.
How can I help my child?	Let your child notice where magnets are found and identify the poles. Let them interact with the magnets. Talk with your child about lights and other electrical items. How do they work? What would happen if the circuit was broken?
Vocabulary Words	Gravity, magnets, poles, attract, repel, battery, wire , switch , bulb, electromagnet
Websites for parents	Magnet Quiz http://www.quia.com/quiz/100825.html Magnets Pop up information http://www.quia.com/pop/36671.html Frankenstein's Light Laboratory http://www.thetech.org/exhibits/online/topics/13l_link4.html Static Electricity http://www.sciencemadesimple.com/static.html
Websites for kids	Magnets Virtual Lab: http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/magnet_springs/play.shtml Electricity Game http://www.bbc.co.uk/schools/ks2bitesize/science/physical_processes/circuits_conductors/play.shtml