**Third Grade Science Essential Standards Resource Guide 2012**

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| **Unit** | **Suggested Pacing** | **Quarter** |
| Scientific Method and Science Notebooks | 2 weeks | 1 |
| Matter | 3 weeks | 1 |
| Energy | 3 weeks | 1 |
| Review Qtr 1 | 1 week | 1 |
| Earth/Moon/Sun | 4 weeks | 2 |
| Earth Systems | 4 weeks | 2 |
| Review Qtr 2 | 1 week | 2 |
| Structure and Function | 4 weeks | 3 |
| Ecosystems | 4 weeks | 3 |
| Review | 1 week | 3 |
| Force and Motion | 4 weeks | 4 |
| Review | 5 weeks | 4 |

**\*It was suggested that there be review weeks built into the pacing guide. Third grade would teach the first two units and then have a 1 week review after each new unit. The review would be accumulating, for extension activities or a chance to complete a project.**

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| **Topic** | **Suggested Resources and Activities** |
| **Scientific Method** | [**http://thecraftyclassroom.com/blog/2011/08/11/scientific-method-printables/**](http://thecraftyclassroom.com/blog/2011/08/11/scientific-method-printables/)  [**http://www.teach-nology.com/worksheets/science/scientificmethod/outline.html**](http://www.teach-nology.com/worksheets/science/scientificmethod/outline.html)  [**http://www.sciencebuddies.org/Files/340/4/scientific-method-handout.pdf**](http://www.sciencebuddies.org/Files/340/4/scientific-method-handout.pdf)  [**http://sciencespot.net/Pages/classgen.html#Anchor3**](http://sciencespot.net/Pages/classgen.html#Anchor3)  [**http://www.teachnology.com/worksheets/science/scientificmethod/stepsofscientificmethod.html**](http://www.teachnology.com/worksheets/science/scientificmethod/stepsofscientificmethod.html)  [**http://cf.ltkcdn.net/kids/files/627-Elementary-Science-Lab.pdf**](http://cf.ltkcdn.net/kids/files/627-Elementary-Science-Lab.pdf)  [**http://havefunteaching.com/worksheets/science-worksheets/scientific-method-worksheets/**](http://havefunteaching.com/worksheets/science-worksheets/scientific-method-worksheets/)  [**http://www.science-fair-projects-and-more.com/scientific-method-quiz.html**](http://www.science-fair-projects-and-more.com/scientific-method-quiz.html)  [**http://www.rockingham.k12.va.us/resources/elementary/4science.htm**](http://www.rockingham.k12.va.us/resources/elementary/4science.htm)  [**http://science.pppst.com/scientificmethod.html**](http://science.pppst.com/scientificmethod.html) |

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| **Science Notebooks** | [**www.sciencenotebooks.org**](http://www.sciencenotebooks.org)  [**http://www.sciencenotebooking.blogspot.com/**](http://www.sciencenotebooking.blogspot.com/)  [*www.slideshare.net/ageller/****interactive****-****science****-****notebooks****-explained*](http://www.slideshare.net/ageller/interactive-science-notebooks-explained) |

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| **STRAND Matter: Properties and Change** |
| **Essential Standard:**  **3.P.2** Understand the structure and properties of matter before and after they undergo a change. |
| **Clarifying Objective:**  3.P.2.1 Recognize that air is a substance that surrounds us, takes up space and has mass.  3.P.2.2 Compare solids, liquids, and gases based on their basic properties.  3.P.2.3 Summarize changes that occur to the observable properties of materials when different degrees of heat are applied to them, such as melting ice or ice cream, boiling water or an egg, or freezing water. |
| **Unpacking: What does this standard mean that a student will know and be able to do?**  3.P.2.1 Recognize that air is a substance that surrounds us, takes up space and has mass.  3.P.2.2 Compare solids, liquids, and gases based on their basic properties.  3.P.2.3 Summarize changes that occur to the observable properties of materials when different degrees of heat are applied to them, such as melting ice or ice cream, boiling water or an egg, or freezing water. |
| **Essential Vocabulary: 3rd Grade**  Solid, Liquid, Gas, Mass, Air, Particles |

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| **Essential Questions** | **Criteria for Success: “I Will”** | **Suggested Resources/Activities** |
| 1. Can you create a visual to explain what a gas is, if you are unable to see it? | ‐ I will blow up a balloon and squeeze it to prove that it has air in it.  ‐ I will hold my hand tightly over the top of a bottle and then hold it under the water. When I take my hand off, I will see that the air in the bottle takes up space because the water can’t get into the bottle. | <http://classroom.jc-schools.net/sci-units/matter.htm>  <http://www.teachersdomain.org/resource/phy03.sci.phys.descwrld.air/>  Put baking soda inside a balloon. Put vinegar in a plastic bottle. Put the balloon on the top and tip it up so the baking soda pours into the vinegar. Make sure to hold the balloon on the top of the bottle.  Can also do alkezelter in a plastic bag with water. Put the alkezelter tablet in a tissue. Place the tissue in a bag of water and close quickly. Then stand back. |

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| 2. How can you represent the different states of matter (solid, liquid, and gas)? | ‐ I will act out, with other students, the movement of solid, liquid, and gas particles using a hula hoop. (Students = Particles)  ‐ I will act out solid particles by standing inside the hula hoop with as many other students as we can get squashed inside, so no one can move.  ‐ I will act out liquid particles by standing inside the hula hoop with ½ as many students as were in the solid hula hoop. We will move around slowly within the hula hoop.  ‐ I will act out gas particles by standing inside the hula hoop with ½ as many students as were in the liquid hula hoop. We will move around quickly within the hula hoop.  ‐ I will discuss, with my peers, why the particles in liquids move faster than solids and why gas particles move faster than both solids and liquids. | <http://www.harcourtschool.com/activity/states_of_matter/molecules.swf>  <http://www.svsu.edu/mathsci-center/uploads/science/ePS3_Properties.htm>  [www.superteacherworksheets.com](http://www.superteacherworksheets.com)  Have students use baby pampers to create jelly marbles. <http://www.youtube.com/watch?v=Wr0s8lin_k8&feature=related>  Make crystals grow from Epson Salt and warm water.  Make silly puddy with Elmers glue, Borax, food coloring, and water. |
| 3. What are the effects of heating/cooling have on matter? | ‐ I will change a solid to a liquid by melting an ice cube with my hands  ‐I will observe a liquid changing to a gas by as water boils, turning into steam. | <http://www.slideshare.net/allsaintsscience/3rd-grade-ch-11-lesson-1-what-are-physical-changes-in-matter>  Melting ice cubes of different colors of paper.  Measuring the temperature change in water as you mix warm water (dyed red) into cold water (dyed blue) vs. pouring cold water into hot.  <http://galaxy.net/~k12/phases/moving.shtml> |
| Writing Prompt | **Matter**:  Our school is having a State of Matter Contest. Each type of matter is to give a speech as to why they are better than the other two types of matter. Pick one type of matter and create the speech that tells why you should win the State of Matter Contest.  You are working for Ben and Jerry’s Ice Cream company as an ice cream inventor. Your group has been discussing making ice cream that is not a solid but a gas or liquid. You are to present an argument that supports why all ice cream needs to be a solid.  At the science lab today, your teacher was talking about items that can change from a solid to a liquid, a liquid to a gas, or go through all three stages of matter. She used water as an example. Identify another item that can change its state of matter and how it can do that.  If you could be any object-solid, liquid or gas, why would you be that object, and what would you be able to do? |  |

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| **STRAND Energy: Conservation and Transfer** |
| **Essential Standard:**  3.P.3 Recognize how energy can be transferred from one object to another. |
| **Clarifying Objective:**  3.P.3.1 Recognize that energy can be transferred from one object to another by rubbing them against each other.  3.P.3.2 Recognize that energy can be transferred from a warmer object to a cooler one by contact or at a distance and the cooler object gets warmer. |
| **Unpacking: What does this standard mean that a student will know and be able to do?**  3.P.3.1  Students know that rubbing objects together results in friction which releases heat energy.  3.P.3.2  Students know that objects can transfer energy by touching or by giving off or receiving energy waves. Heat can move from one object to another in more than one way. Convection (more commonly gasses and liquids) and conduction (more commonly solids) are best understood at this level not as vocabulary terms, but rather through effects that may be observed using everyday materials such as water, air, cooking and heating utensils. |

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| **Essential Vocabulary: 3rd Grade**  **Transfer, Energy, heating, cooling, friction, convection, conduction, conductor, insulator, static electricity, positive charge, negative charge, solar energy, kinetic energy, potential energy**  **\*\*Remember Energy is neither created or destroyed, but it can be converted to different forms!\*\*** | | |
| **Essential Questions** | **Criteria for Success: “I Will”** | **Suggested Resources/Activities** | |
| 1. What are 2 ways energy can be transferred from one object to another? | ‐ I will rub a balloon against my shirt and then my hair. As I pull the balloon away from my hair, the static energy from the balloon will make my hair  stand up.  ‐ I will rub my hands together to create heat, and then place my hands on my face to feel the warmth. | Intro Activities  <http://www.bbc.co.uk/schools/ks3bitesize/science/energy_electricity_forces/energy_transfer_storage/activity.shtml>  <http://www.wisc-online.com/Objects/ViewObject.aspx?ID=sce304>  <http://education.jlab.org/beamsactivity/6thgrade/coldstuff/tra01.l.html>  Melt crayon shavings in a pan on a warming plate. Pour the crayon liquid into muffin  tins, pop out the new crayons and color. Place your hand over the tin and feel the  heat rising.  -Students can cook a hotdog using solar power, a Pringles can, wooden Kabob  skewer, transparency film.  (See solar matters II at the bottom of the following webpage).  <http://www.solarcooker-at-cantinawest.com/pizza_box_solar_oven.html> | |

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| 2. How is energy transferred from one object to another? | ‐ I will place my hands on a warm object and record how it feels.  ‐ I will hold my hands near, but not touch the warm object and discuss with my classmates how the temperature feels different from when I touched the warm object.  ‐ I will feel plastic, wood, and metal spoons that have been in a bowl of hot water and compare the temperature of each to the bowl of hot water.  -starting with an ice cube, have students see who can melt the ice cube the fastest. Here’s the trick: They must use the melted ice (water) to soak a paper towel and then dry the paper towel using heat they generate. See who can do it first. | [http://www.sciencekids.co.nz/gamesactivities/keepingwarm.htm l](http://www.sciencekids.co.nz/gamesactivities/keepingwarm.htm%20l)  Observe Ice cubes as they are added to warm water.  Experiments:  <http://suite101.com/article/convection-and-conduction-experiments-a164744>  <http://www.sciencekids.co.nz/experiments.html>  <http://www.woodrow.org/teachers/esi/2001/Princeton/Project/zerba/activities/activities.htm>  <http://galaxy.net/~k12/phases/> |

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| Websites for explaining what energy is, and the different kinds of energy | <http://www.eia.gov/kids/>  <http://www.kids.esdb.bg/>  <http://www.getenergyaware.org/classroom-games.asp>  <http://www.kathimitchell.com/energy.htm>  <http://tiki.oneworld.net/energy/energy.html>  <http://www.alliantenergykids.com/EnergyandTheEnvironment/RenewableEnergy/index.htm>  <http://www.dasolar.com/solar-energy/solar-energy-for-kids>  <http://www.bbc.co.uk/schools/ks3bitesize/science/energy_electricity_forces/energy_transfer_storage/revise2.shtml>  <http://www4.uwsp.edu/cnr/wcee/keep/Mod1/Rules/EnTransfer.htm>  <http://classroom.jc-schools.net/sci-units/energy.htm>  <http://www.kidsgeo.com/geography-for-kids/0061-transferring-heat.php>  <http://www.energyeducation.tx.gov/pdf/1100_lesson.pdf> | Worksheet and teacher notes:  [http://www.cain.lsu.edu/msp/files/EBR%20Algebra%201%20Physical%20Science%20Year%202%20Allie%20and%20Mark/ice\_cold\_lemonade\_probe\_00038[1].pdf](http://www.cain.lsu.edu/msp/files/EBR%20Algebra%201%20Physical%20Science%20Year%202%20Allie%20and%20Mark/ice_cold_lemonade_probe_00038%5b1%5d.pdf)  Misconceptions  <http://beyondpenguins.ehe.osu.edu/issue/keeping-warm/common-misconceptions-about-heat-and-insulation>  Games:  <http://www.energyquest.ca.gov/>  <http://www.kidsenergyzone.com/>  <http://www.energystar.gov/index.cfm?c=kids.kids_index>  <http://science.k12flash.com/heatandtemperature.html>  Books for formative assessments:  *Uncovering Student Ideas in Science*  Discovery Ed:  Harnessing Energy  The Basics: Energy  Energy in Systems (exploration) |

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| Writing Prompts | Advocating efficient energy transfer is a means of using energy resources wisely and alternative sources in the community.  What is the difference of potential and kinetic energy?  What does it mean to transfer energy? How can we do it efficiently?  How can we minimize energy waste?  What do you do on a daily basis to contribute to energy efficiency?  What are some alternative energy sources (renewable) compared to non-renewable resources? | <http://www.bse.ph/download/BSE%20site_/BSE%20WEBSITE%202010/2010SEC/Sci/TGScienceQ2%20-%20Efficient%20Energy%20Transfer.pdf>  <http://scienceideas.org/TeacherResources/BinderEnergy/Tab3/Writing-prompts.pdf> |

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| **STRAND: Earth in the Universe** |
| **Essential Standard:**  **3.E.1** Recognize the major components and patterns observed in the earth/moon/sun system. |
| **Clarifying Objectives:**  3.E.1.1 Recognize that the earth is part of a system called the solar system that includes the sun (a star), planets, and many moons and the earth is the third planet from the sun in our solar system.  3.E.1.2 Recognize that changes in the length and direction of an object’s shadow indicate the apparent changing position of the Sun during the day although the patterns of the stars in the sky, to include the Sun, stay the same. |
| **Unpacking: What does this standard mean that a student will know and be able to do?**  3.E.1.1  Students know that we live on a planet that is part of a solar system. Students know that a solar system includes a star and planets, and other  objects. The planets and other objects revolve around the star. Students know that in our solar system Earth is the third planet from the sun.  3.E.1.2  Students know that the Sun and stars in the sky move in consistent patterns. Students know that shadows are created by objects blocking the  light. Students know that as the Sun changes its apparent position in the sky, the shadows cast by objects will change. Students know that the  Earth rotates on its axis and revolves around the Sun. |
| **Essential Vocabulary:**  **Solar system, Planet, Sun, Star, Moon, Earth, Constellations, Shadows, Rotation, Revolution** |

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| **Essential Questions** | **Criteria for Success: “I Will”** | **Suggested Resources/Activities** |
| How can I label and diagram the parts in the solar system? | ‐I will name the nine planets in order.  ‐I will draw a diagram of the nine planets and label them.  ‐I will place the sun at the center of the solar system.  ‐ I will draw one moon for planet Earth | Multimedia presentation:  <http://kids.nineplanets.org/>  Worksheets :  <http://www.superteacherworksheets.com/solar-system-planets.html>  <http://www.education.com/worksheets/third-grade/science/>  Activities and student journals:  <http://chamberlin.sbschools.net/users/cmilliken/solarsystem/index.htm>  <http://www.classroomjr.com/solar-system-for-kids/>  Edible sun cookies:  <http://solarsystem.nasa.gov/docs/Solar_Cookies.pdf>  Hands-on activities  <http://lunar.arc.nasa.gov/education/activities/index.htm>  \*\*\*\*Join the NASA online educators network (NEON)\*\*\*\* |

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| How can I describe how the planets revolve around the sun? | ‐I will act out, with other students, the movements of the planets as they move around the sun and explain what I’m doing. | Everything you need:  <http://www.ala.org/gwstemplate.cfm?section=greatwebsites&template=cfapps/gws/displaysection.cfm&sec=27>  <http://utahscience.oremjr.alpine.k12.ut.us/Sciber06/6th/moon/html/rotate.htm>  Discovery Ed Streaming:  The Story of the Solar System  Phases of the Moon  The Sky Above  What is Space  Discovery Ed Science Elementary  Earth, Sun and Moon system |

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| How can I explain how day and night are caused by Earth’s rotation. | I will act out, with other students, how the Earth rotates on its axis to cause day and night. | Animation:  <http://jove.geol.niu.edu/faculty/stoddard/JAVA/moonphase.html>  <http://www.youtube.com/watch?v=W47Wa7onrIQ>  <http://www.youtube.com/watch?v=lkWyM-M8o0c>  Intro:  <http://www.msnucleus.org/membership/html/k-6/uc/earth/1/uce1_1a.html>  <http://www.woodlands-junior.kent.sch.uk/time/>  <http://classroom.jc-schools.net/sci-units/earth.htm>  Activities:  <http://www.unawe.org/resources/education/unawe_edu_as_the_world_turns/>  <http://library.thinkquest.org/3645/page2.html>  <http://www.lpi.usra.edu/education/resources/s_system/s_system.shtml>  <http://www.classzone.com/books/earth_science/terc/content/visualizations/es0408/es0408page01.cfm>  <http://www.lessonpathways.com/Pathways/Detail?path=%2F02_Science%2F10Exploring_Our_World-_Science_Pathways_for_Early_Elementary%252c_Year_1%2F30Day_and_Night>  <http://www.enchantedlearning.com/subjects/astronomy/moon/> |

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| How can I use evidence to discuss the movement of constellations in the night sky. | ‐ I will use props to act out where I’ll see constellation at different times of  the night as I explain what I’m doing. | <http://www.lessonpathways.com/Pathways/Detail?path=%2F02_Science%2F10Exploring_Our_World_Science_Pathways_for_Early_Elementary%252c_Year_1%2F30Day_and_Night>  <http://www.lpi.usra.edu/education/skytellers/constellations/activities/celestial.shtml>  History of constellations: <http://www.freewebs.com/benatargrl/constellations.htm>  Tons of resources-teachers will have to pick what they like!!  <http://goodsitesforkids.org/Astronomy.htm>  <http://www.nakedeyeplanets.com/movements.htm>  <http://earthsky.org/brightest-stars/bright-orange-arcturus-use-the-big-dipper-to-find-it>  <http://www.crystalinks.com/orion.html>  <http://www.kidsastronomy.com/>  <http://www.frontiernet.net/~kidpower/astronomy.html>  <http://www.astronomy.com/> |
| How can I compare the length of shadows as the sun moves across the sky during the day. | ‐ I will work with a partner to trace my shadow several times during the day.  ‐I will record the time and where the sun is in the sky each time I trace my shadow.  ‐ I will describe how the length of my shadow changed each time and compare it to where the sun was in the sky. | Activities:  <http://kenanfellows.org/kfp-cp-sites/earth-sun-moon/index-4768.php.html>  <http://hea-www.harvard.edu/ECT/the_book/Chap1/Chapter1.html>  <http://www.learnnc.org/lp/editions/earth-sun/6565>  <http://coolcosmos.ipac.caltech.edu/cosmic_kids/AskKids/index.shtml>  <http://www.skyandtelescope.com/letsgo/familyfun/Make_Your_Own_Sundial.html>  <http://www.ehow.com/how_2046019_make-simple-sundial.html>  <http://www.sciencekidsathome.com/science_experiments/sundial-1.html> |

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| Writing Prompts | Page 13 and 14-great ideas to write from experience and imagination  Write 10 things you know about the solar system and what you would do to change it.  How do the Earth, Moon and Sun interact?  Write a poem about the Sun…the Moon…The Earth…anything in space.  Write about the patterns you see in the sky during the day or at night. | http://www.anchoragemuseum.org/images/downloads/ED\_Earth\_Moon\_Sun\_Guide.pdf |

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| STRAND: **Earth Systems, Structures and Processes** |
| **Essential Standard:**  **3.E.2** Compare the structures of the Earth’s surface using models or three‐dimensional diagrams. |
| **Clarifying Objectives:**  3.E.2.1 Compare Earth’s saltwater and freshwater features (including oceans, seas, rivers, lakes, ponds, streams, and glaciers).  3.E.2.2 Compare Earth’s land features (including volcanoes, mountains, valleys, canyons, caverns, and islands) by using models, pictures,diagrams, and maps. |
| **Unpacking: What does this standard mean that a student will know and be able to do?**  3.E.2.1  Students know that there are bodies of water on the surface of the earth and that they are often named based on their characteristics and location. Some bodies of water are salty, some are ‘fresh’, some are ‘brackish’, and some are frozen in ice sheets and glaciers. Different typesof organisms have developed to live in these different bodies and types of water.  3.E.2.2  Students know that the surface of the earth has many different types of physical features and that these features are named according to their structure. There are many representations for any given land feature and these possess correspondences consistent with their attributes.  (models, maps, etc.). |
| **Essential Vocabulary: (K) Saltwater, Freshwater,** Water feature**,** Brackish**, Landform, Volcano,** Mountain, Valley**, Canyon, Caverns, Islands,**  Oceans**, Seas,** Rivers**, L**akes, Ponds, Streams**, Glaciers** |

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| **Essential Questions** | **Criteria for Success: “I Will”** | **Suggested Resources/Activities** |
| How can I distinguish between bodies of saltwater and freshwater? | ‐ I will use a graphic organizer to show the differences and similarities  between saltwater and freshwater bodies  ‐I will sort bodies of water based on their saltwater or fresh water contents  or a combination if salt and fresh water.  ‐ I will classify animals based on whether they live in salt or fresh water.  ‐ I will research saltwater or fresh water organisms.  ‐ I will write a passage that introduces the saltwater or freshwater organism  I researched and provides supporting facts and details.  ‐ I will examine the characteristics of ice sheets and glaciers. | <http://www.enchantedlearning.com/geography/landforms/glossary.shtml>  <http://www.visuallearningco.com/guides/Elementary/Landforms_Guide_FIN.pdf>  <http://www.eduplace.com/ss/socsci/books/content/ilessons/3/ils_gr3_u1_c2_l1.pdf>  <http://www.hannahigh.org/ourpages/auto/2010/10/1/53229382/wg%20ch%202%20sec%202.pdf>  <http://msnucleus.org/membership/html/k-6/wc/oceans/1/wcoc1_1a.html>  <http://ga.water.usgs.gov/edu/watercyclefreshstorage.html>  <http://www.lenntech.com/water-trivia-facts.htm>  <http://www.grow.arizona.edu/Grow--GrowResources.php?ResourceId=163>  <http://www.infoplease.com/cig/science-fair-projects/objects-float-better-salt-water-fresh-water.html>  <http://www.youtube.com/watch?v=U7e6bmqYoS8>  <http://sciencespot.net/Pages/classearth.html>  <http://sqworl.com/sx8c5j>  <http://www.exploringnature.org/db/subcat_index.php?dbID=44>  [saltwater biomes](http://www.kidcyber.com.au/topics/ocean.htm)  [Saltwater](http://rrms-biomes.tripod.com/id12.html)  [powerpoint saltwater](http://www.luxcasco.k12.wi.us/IntermediateSchool/FacultyStaff/dotradovec/Documents/PwrPtPDF/Second/Saltwater2.pdf)  [biomes ppt](http://sms.iwcs.k12.va.us/iprojectbiomes/ecosystemsbiomes/waterbiomes.ppt)  [aquatic biomes](http://www.kidzworld.com/article/1951-biomes-of-the-world-aquatic)  [buzzle](http://www.buzzle.com/articles/marine-biome-facts.html)  [freshwater](http://www.ucmp.berkeley.edu/exhibits/biomes/freshwater.php)  [fresh](http://www.kidcyber.com.au/topics/biomewater.htm)  [freshwater climate](http://www.idiotica.com/cranium/encyclopedia/content/Freshwater.htm)  [animals](http://www.wisegeek.com/what-animals-are-most-common-in-a-freshwater-biome.htm)  [plants](http://kids.nceas.ucsb.edu/biomes/freshwater.html)  Experiments/Hands-on Activities:  Salt water vs. fresh water  <http://www.msnucleus.org/membership/html/k-6/wc/oceans/k/wcock_2a.html>  <http://tlc.howstuffworks.com/family/beach-activities7.htm>  Egg in salt water  <http://www.experiment-resources.com/salt-water-egg-experiment.html>  Make fresh water out of salt water (solar still)  <http://pbskids.org/zoom/activities/sci/solarstill.html> |

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| I can compare and contrast land features by using models, pictures, and diagrams, and maps. | ‐ I will build models of land forms using everyday materials.  ‐ I will use graphic organizers to compare and contrast characteristics of these land forms. | Websites:  <http://bogglesworldesl.com/kids_worksheets/landforms.htm>  <http://classroom.jc-schools.net/sci-units/earth-features.htm>  <http://www.schoolexpress.com/fws/cat.php?id=2595>  <http://geography.mrdonn.org/landforms.html>  <http://geography.pppst.com/landforms.html>  <http://www.eduplace.com/kids/socsci/books/applications/imaps/maps/g2_u2/index.html>  <http://www.proteacher.org/c/320_Landforms.html>  <http://www.mrnussbaum.com/wlandforms.htm>  <http://teachers.sheboygan.k12.wi.us/zking/webquest.html>  <http://spaceplace.nasa.gov/topomap-clay/>  <http://www.compassdude.com/topographic-maps.shtml>  <http://www.ghosttowns.com/topotmaps.html>  <http://geography.pppst.com/landforms.html>  <http://www.eduplace.com/kids/socsci/books/applications/imaps/maps/g2_u2/index.html>  <http://www.nisk.k12.ny.us/birchwood/links/grade3links/landforms.html>  <http://www.mrnussbaum.com/wlandforms.htm>  <http://www1.center.k12.mo.us/edtech/resources/kidfriendly.html>  <http://www.kidsgeo.com/geology-for-kids/0031-what-are-landforms.php>  Worksheets  [worksheets](http://www.superteacherworksheets.com/landforms.html)  [worksheets](http://www.superteacherworksheets.com/rocks.html)  [songs](http://www.totally3rdgrade.com/landforms.html)  [webquest](http://edujourney.net/Webquests/Landforms/landforms.htm)  <http://www.livebinders.com/play/play_or_edit?id=46739>  <http://science.nationalgeographic.com/science/earth/surface-of-the-earth/>  [quiz](http://landsat.gsfc.nasa.gov/pdf_archive/landform_quiz_worksheet.pdf)  [http://www2.needham.k12.ma.us/eliot/technology/lessons/landforms](http://www2.needham.k12.ma.us/eliot/technology/lessons/landforms/landforms.html)  Videos:  <http://www.youtube.com/watch?v=7v7R2bALbgI>  <http://www.youtube.com/watch?v=6mVOY8y5gQ4&feature=related>  <http://www.youtube.com/watch?v=8pEzf0OZBMs&feature=fvwrel>  Experiments  <http://www.ehow.com/info_7841341_landforms-erosion-experiments-kids.html>  <http://www.proteacher.org/c/320_Landforms.html>  <http://www.lincoln.dubuque.k12.ia.us/School-Wide/internet_resources/expeditions/3rdgrade/landforms.htm>  <http://ethemes.missouri.edu/themes/1240>  <http://www.lessonpathways.com/Pathways/Detail?path=%2F02_Science%2FYear_5_Science_Guided_Journey%2F09Changes_in_Landforms>  Discovery Ed:  Landforms: Number One  Land on Earth  Geography for Everyone  The Ultimate Geography Starter Collection  Landforms (Exploration-Science Elementary)  <http://askabiologist.asu.edu/podcasts/flora-delaterre-plant-detective> |

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| Writing Prompt | Persuade members of another solar system to come to Earth for a vacation  Promote your palnet as a travel destination. Make a brochure for taking a trip to any or all of the other planets-advertising, marketing…  You have the chance to be the first student astronaut to explore another planet. Would you accept the job? Give reasons why or why not. | <http://www.gwinnett.k12.ga.us/LanguageartsMS.nsf/vWebPrint/ContentAreaPromptsScience-Grade60~ContentAreaPrompts>  <http://www.webquestuk.org.uk/Solar%20System/astronomy.html>  <http://www.asdk12.org/depts/science/planetwalkwebquest.htm>  Creative Writing  <http://www.teach-nology.com/worksheets/science/plants/group/>  <http://beyondpenguins.ehe.osu.edu/issue/polar-plants/polar-plants-unit-outlines> |

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| **STRAND: Structures and Functions of Living Organisms** |
| **Essential Standard:**  **3.L.1** Understand human body systems and how they are essential for life: protection, movement and support. |
| **Clarifying Objectives:**  3.L.1.1 Compare the different functions of the skeletal and muscular system.  3.L.1.2 Explain why skin is necessary for protection and for the body to remain healthy. |
| **Unpacking: What does this standard mean that a student will know and be able to do?**  3.L.1.1  Students know that the muscles and the skeleton provide a structural framework that protects and supports mobility of the human body.  Students know that the skeletal system is comprised of bone. Bone is a hard material that provides support and protection to the body’s soft  tissues. Students know that muscles are formed from tissues that contract and relax, producing motion. Muscles are attached to bones and  initiate and regulate movement. Muscles are also found in internal organs that are responsible for essential life processes (heart, stomach,intestines).  3.L.1.2  Students know that the skin is the largest organ of the human body, that it covers and protects the human body from external conditions andforces. Students know that the skin contains nerve receptors that provide information about external conditions. |
| **Essential Vocabulary: Bones, Muscles, Skin, Support, Protect, Tissue, Organs**, Contract, Relax, Frame, Movement, Internal, External,  Nerves |

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| **Essential Questions** | **Criteria for Success: “I Will”** | **Suggested Resources/Activities** |
| How can I explain how the skeleton and muscles create a frame for the body. | ‐ I will explain that bones are made of hard material.  ‐ I will describe how bones give my body shape. | <https://homes.bio.psu.edu/faculty/strauss/anatomy/skel/skeletal.htm>  <http://hes.ucfsd.org/gclaypo/skelweb/skel01.html>  <http://yucky.discovery.com/flash/body/pg000124.html>  <http://www.abcya.com/skeletal_system.htm>  <http://library.thinkquest.org/5777/ske1.htm>  <http://getbodysmart.com/ap/skeletalsystem/skeleton/menu/menu.html>  <http://www.nsbri.org/EDUCATION-and-TRAINING/Teaching-Resources/Elementary/Muscles-and-Bones/> |
| How can I describe how the muscles and skeleton protect the body  and allow it to move? | ‐ I will flex and relax my arm and leg muscles and describe how they move the body.  ‐I will explain that muscles work in pairs to push and pull bones to move the body.  ‐ I will feel my rib cage and compare how it feels different from the soft part of my belly.  ‐ I will describe how my ribs protect my soft internal organs by comparing my ribs to hard protective things like a bike helmet. | <http://kidshealth.org/kid/htbw/muscles.html>  <http://www.kidsbiology.com/human_biology/index.php>  [www.sciencetoymaker.com](http://www.sciencetoymaker.com)  <http://www.cyh.com/HealthTopics/HealthTopicDetailsKids.aspx?p=335&np=152&id=2457>  <http://www.educationworld.com/a_lesson/lesson065.shtml>  <http://science.pppst.com/humanbody/human-muscular-system.html>  <http://www.youtube.com/watch?v=J7CZGwqbGBM> |

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| How can I explain that internal organs are made of muscles? | ‐ I will demonstrate the muscle movement of the heart with my hands as I describe how muscles make my heart beat.  ‐I will demonstrate and describe using objects, how muscles move food  through my stomach and intestines. | <http://www.neok12.com/Skeletal-System.htm>  <http://www.teachpe.com/anatomy/types_of_muscle.php>  <http://www.clccharter.org/donna/medschool/systems/system%20research/muscular/Muscular%20System/Muscular%20Facts.html>  <http://edtech.kennesaw.edu/web/humanbo.html> |
| How can I describe how skin protects my body? | ‐I will brush my hands over surfaces with different textures and  temperatures and describe how my skin felt.  ‐ I will explain how what my skin senses protects me. | <http://idahoptv.org/dialogue4kids/season5/skin/facts.cfm>  <http://www.sciencekids.co.nz/sciencefacts/humanbody/skin.html>  <http://www.ducksters.com/science/skin.php>  <http://www.webmd.com/skin-problems-and-treatments/picture-of-the-skin>  <http://www.cyh.com/HealthTopics/HealthTopicDetailsKids.aspx?p=335&np=152&id=1766>  <http://worksheetsforkids.net/tag/skin-parts/> |
| Writing Prompts | **Skin :**  You are outside with your friend when she says "I think I have a fever today because it is so hot out here today!" What would you tell her? Make sure you can prove your answer.  Doctors always have pamphlets about health in their office for you to look at while you wait. You are to create a pamphlet about skin. It must by a trifold pamphlet. Part one will tell use the benefits of skin, part 2 will talk about caring for your skin and part 3 would explain what our life would be like without skin. You may include drawings or illustrations. |  |

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| **Essential Standard:**  **3.L.2** Understand how plants survive in their environments. |
| **Clarifying Objectives:**  3.L.2.1 Remember the function of the following plant structures as it relates to the survival of plants in their environments:  • Roots – absorb nutrients  • Stems – provide support  • Leaves – synthesize food  • Flowers – attract pollinators and produce seeds for reproduction.  3.L.2.2 Explain how environmental conditions determine how well plants survive and grow.  3.L.2.3 Summarize the distinct stages of the life cycle of seed plants.  3.L.2.4 Explain how the basic properties (texture and capacity to hold water) and components (sand, clay and humus) of soil determine the  ability of soil to support the growth and survival of many plants**.** |
| **Unpacking: What does this standard mean that a student will know and be able to do?**  3.L.2.1  Students know the names and functions of major plant parts (roots, leaves, stems, flowers).  Students know that plants have special parts that perform special functions in order for the plant to survive.  3.L.2.2  Students know that how well plants grow and survive is determined by a combination of environmental conditions. For example, drought  conditions will tend to diminish plant health and growth.  3.L.2.3  Students know the distinct stages of the life cycle of seed plants (seed, germination, seedling, adult).  3.L.2.4  Students know that different soils possess different textures and capacities for the retention of water and nutrients. Students know that soil  consists of different components. Students know that these characteristics of soil influence the growth and survival of plants. |

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| **Essential Vocabulary:** Seed, Germinate, Seedling, Roots, S tem, Leaves, Flowers, Environment, Life cycle, Soil, Survive, Texture, Capacity, Retention, Drought |

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| **Essential Questions** | **Criteria for Success: “I Will”** | **Suggested Resources/Activities** |
| How can I label the parts of a plant and tell what they do. (P) | ‐ I will draw a picture of a plant and name the part.  ‐ I will describe what each part does. | <http://worksheetplace.com/index.php?function=DisplayCategory&showCategory=Y&links=2&id=242&link1=241&link2=242>  <http://www.learningtreasures.com/parts_of_a_plant_worksheet.htm>  <http://www.crickweb.co.uk/ks1science.html>  The great plant escape!  <http://urbanext.illinois.edu/gpe/gpe.html>  <http://urbanext.illinois.edu/gpe/case1/c1m1app.html>  [www.primaryresources.co.uk/online/powerpoint/flower.ppt](http://www.primaryresources.co.uk/online/powerpoint/flower.ppt)  <http://plants.pppst.com/plantparts.html>  <http://www.vrml.k12.la.us/curriculum/quicktip/science/plants/plants.htm>  <http://its.guilford.k12.nc.us/webquests/plantquest/>  <http://www.softschools.com/science/plants/plant_parts/>  <http://www.bbc.co.uk/schools/scienceclips/ages/9_10/life_cycles.shtml>  worksheets  <http://worksheetplace.com/index.php?function=DisplayCategory&showCategory=Y&links=2&id=242&link1=241&link2=242>  Videos  <http://www.youtube.com/watch?v=xO8hrqDuMmY>  <http://www.youtube.com/watch?v=CX2m2n2uDAE>  Experiments  <http://www.carrotmuseum.co.uk/experiment.html>  <http://www.sciencekids.co.nz/plants.html>  <http://www.kids-science-experiments.com/plantlifefacts.html>  <http://voices.yahoo.com/turn-kitchen-into-science-lab-these-fun-209052.html?cat=25> |

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| How can I compare how plants react to different amounts of light,  water, and nutrients. | ‐ I will observe plants growing with normal amounts of light, water, and nutrients and record my observations.  ‐ I will observe plants growing with too much or too little light, water, and nutrients and record my observations.  ‐ I will compare the differences in my observations. | <http://www.kids-science-experiments.com/growaplant.html>  <http://www.carrotmuseum.co.uk/experiment.html>  <http://www.agclassroom.org/teen/science/idealab.htm>  <http://www.sciencebuddies.org/science-fair-projects/project_ideas/PlantBio_p041.shtml>  <http://www.ehow.com/about_6330343_do-sources-affect-plant-growth_.html>  <http://www.lessonpathways.com/Pathways/Detail?path=%2F02_Science%2F01_Year_K_-_Exploring_Our_World%2F24Taking_Care_of_Plants>  <http://www.ncagr.gov/cyber/kidswrld/plant/nutrient.htm>  Experiments  <http://www.ehow.com/how_2109198_do-celery-science-experiment.html>  <http://www.stevespanglerscience.com/experiment/colorful-carnations>  <http://whyzz.com/how-do-plants-make-food> |

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| How can I give examples of the stages of a plant’s life cycle. (P) | ‐ I will make a graphic organizer to illustrate and describe the stages of a plants life. | <http://www.sciencekids.co.nz/gamesactivities/lifecycles.html>  <http://plants.pppst.com/growthcycles.html>  <http://www.classroomjr.com/plant-life-for-kids/>  <http://www.youtube.com/watch?v=LxaELwrTChs>  <http://www.craftjr.com/plant-life/>  <http://www.thepotatostory.com/>  Craft:  <http://www.dltk-holidays.com/spring/mflower.html> |

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| How can I compare the different types of soil. (R) | ‐ I will observe and describe the texture of different kinds of soil.  ‐ I will list the things that make up soil.  ‐ I will observe and record how much water different kinds of soil hold. | <http://www.blm.gov/nstc/soil/Kids/>  <http://www.childrenoftheearth.org/soil-facts-for-kids/soil-facts-for-kids-intro.htm>  <http://www.kidsgeo.com/geology-for-kids/0002-the-earths-soil.php>  <http://school.discoveryeducation.com/schooladventures/soil/>  <http://www.soil-net.com/>  <http://www.realtrees4kids.org/ninetwelve/soil.htm>  <http://www.epa.gov/gmpo/edresources/soil.html>  <http://www.brainpopjr.com/science/land/soil/grownups.weml>  <http://www.historyforkids.org/learn/environment/soiltypes.htm>  <http://www.thekidsgarden.co.uk/teachingkidsaboutsoil.html>  <http://www.youtube.com/watch?v=eaHtCJ-9DQ0>  <http://school.discoveryeducation.com/schooladventures/soil/>  Activities and downloads:  <http://www.soil-net.com/dev/page.cfm?pageid=activities_sheets&loginas=anon_activities>  <http://www.growingthenextgeneration.com/documents/Soil-worksheet-3_single-page.pdf>  <http://www.lessonplanet.com/search?keywords=different+types+of+soil&media=worksheets>  <http://www.michigan.gov/mdard/0,4610,7-125-2961_2971-65293--,00.html>  Quizzes:  <http://www.softschools.com/quizzes/science/soil/quiz361.html> |

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| How can I compare how plants grow in different soil types. (R) | ‐ I will observe plants growing in different soil types and record my observations.  ‐ I will compare the differences in my observations. | <http://www.brainpopjr.com/science/land/soil/grownups.weml>  <http://www.rain.org/global-garden/soil-types-and-testing.htm>  <http://www.buzzle.com/articles/different-types-of-soil.html>  <http://www.agclassroom.org/kids/science_ideas.htm>  <http://www.funsci.com/fun3_en/exper1/exper1.htm>  <http://agverra.com/blog/soil-types/>  Experiments  <http://www.econedlink.org/lessons/docs_lessons/453_Soil1.pdf>  <http://www.ehow.com/facts_7993566_project-plants-growing-different-soils.html>  <http://archive.fieldmuseum.org/undergroundadventure/kidzone/soil_properties.shtml>  **DiscoveryEd**  Living World: Plants  Seeds and Plants  A first look: Plants  How plants grow  Exploration (virtual labs):  How Plants Grow  How does your garden grow  Life cycle stages  Response to Environment  Basic Need  Roots  Leaves  Stems  Flowering Plants |

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| Writing Prompts | **Prompt:**  Explain the factors (conditions) that plants need to grow. Describe why each of these factors (conditions) is important in plant development.  **Write** a story about things in your home that are made from plants.  **Discuss** different types of plants, such as trees, crops, herbs, flowers, and all the parts of a plant.  **Imagine** what it would be like without plants. Describe all the benefits -- oxygen, food, and materials -- that plants provide.  If you were a plant, what kind would you be and why?  Journaling in science notebook | [www.pps.k12.or.us/files/curriculum/3-5\_Science\_**Writing**\_**Prompts**.doc](http://www.pps.k12.or.us/files/curriculum/3-5_Science_Writing_Prompts.doc)  [www.rialtoschools.org/download.axd?file=fb143073-0ae5-4d15](http://www.rialtoschools.org/download.axd?file=fb143073-0ae5-4d15) |

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| **STRAND Force and Motion** |
| **Essential Standard:**  **3.P.1** Understand motion and factors that affect motion. |
| **Clarifying Objective:**  3.P.1.1 Infer changes in speed or direction resulting from forces acting on an object.  3.P.1.2 Compare the relative speeds (faster or slower) of objects that travel the same distance in different amounts of time.  3.P.1.3 Explain the effect of earth’s gravity on the motion of any object on or near the earth. |
| **Unpacking: What does this standard mean that a student will know and be able to do?**  3.P.1.1  Students know that when a force acts on an object it will result in a change of speed and / or direction.  3.P.1.2  Students know that speed can vary. Students know that varying the speed of a moving object will affect the time it takes for the object to travel a particular distance.  3.P.1.3  Students know that the earth ‘pulls’ on all objects on or near the earth without touching those objects. |

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| **Essential Vocabulary: 3rd Grade**  **Forces** are all around us and can change an object’s motion.  A force is a push or a pull.  Pushes move away from you. Pulls move toward you.  When forces are equal, or balanced there is no change in motion.  Unequal forces cause a change in motion.  The heavier an object, the more force you need to move it.  Forces work in pairs.  Whenever you push or pull on something, it pushes or pulls on you.  The push or pull that you feel is a force in the opposite direction.  Many things can create forces (example a magnet).  Some forces push or pull on objects without even touching them.  **Change** in motion occurs when an object starts moving or stops moving, speeds up, slows down or changes direction.  **Direction** is the line or course along which a person or thing moves. When a batter hits the ball it changes direction.  **Position** is the location of an object. People often describe a position by comparing it with the positions of other objects. Words like below and above, right and left, behind and ahead give clues about position.  **Speed** is how fast an object moves over a certain distance. To measure speed you need to measure time and distance. The distance an object travels in a period of time tells you its speed. An equation we can use is: speed equals distance divide by time.  **Gravity** is a force which pulls two objects toward each other. Anything which has mass also has a gravitational pull. The closer you are to an object, the stronger its gravitational pull is. Often when we think of gravity we think of the gravitational pull of the Earth on us and everything around us. When a person throws a ball up towards the sky, gravity pulls it back down.  **Weight** is how much pull gravity has on an object. Gravity is what gives you weight. I would weigh much less on the moon! This is due to the fact that the moon has much less gravitational pull.  **Mass** isdefined as the measure of the amount of "stuff" in something. The more mass something has, the harder it is to move or, the more sluggish it is. If we were on the moon our mass would be the same, but our weight will have changed.  **Friction** is the force that occurs when one objects rubs against another. Different materials produce different amounts of friction. Ice produces very little friction while sandpaper creates much friction. Friction slows things down.  **Momentum** can be defined as "mass in motion." All objects have mass; so if an object is moving, then it has momentum. The amount of momentum that an object has is dependent upon two variables: how much stuff is moving and how fast the stuffis moving. In terms of an equation, the momentum of an object is equal to the mass of the object times the velocity of the object. A ten pound bowling ball moving at 1 mile an hour has as much momentum, or striking force, as a five pound bowling ball moving at 2 miles an hour |

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| **Essential Questions** | **Criteria for Success: “I Will”** | **Suggested Resources/Activities** |
| 1. How does the direction or speed of a moving object  change if it is pushed or pulled. | ‐ I will observe the speed and direction of a moving object.  ‐ I will observe and record how the direction or speed changes when I push  or pull it.  ‐ I will compare the change in speed or direction to the original speed or  direction.  \* Awesome Experiments in Force and Motion, Michael DiSpezio, Sterling Publishing Co., Inc. ISBN 0-8069-9821-0.  \* Forces, Karen Bryant Mole, Rigby Interactive Library, 1997. ISBN 1-57572-108-2.  \* Magic School Bus Plays Ball, Scholastic Inc. 1997 ISBN 0-590-92240-8. (Discovery Education) \* Push and Pull, by Patricia J. Murphy (Scholastic Library Publishing).  \* Pushing and Pulling (Science For Fun), by Gary Gibson (Copper Beach Books).    Finding Forces Tri- Fold Identify items that move in the first column. In the second column, classify the forces used as a push or a pull. In the 3rd column identify how the direction or speed changes.  <http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml>  Have students predict the outcome of each of the trial runs as the variables change. Have students create their own chart in their Science Journals. Have students take the quiz. | * *Awesome Experiments in force and Motion*, Michael DiSpezio, Sterling Publishing Co., Inc. ISBN 0-8069-9821-0. * *Forces*, Karen Bryant Mole, Rigby Interactive Library, 1997. ISBN 1-57572-108-2. * *Magic School Bus Plays Ball*, Scholastic Inc. 1997 ISBN 0-590-92240-8. * *Push and Pull*, by Patricia J. Murphy (Scholastic Library Publishing). * *Pushing and Pulling (Science For Fun)*, by Gary Gibson (Copper Beach Books).   Finding Forces  Identify items that move in the first column. In the second column, classify the force used as a push, a pull, or both, 3rd column will identify how the direction or speed changes.  <http://www.bbc.co.uk/schools/scienceclips/ages/10_11/science_10_11.shtml> |

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| 2. How does the speed of an object affect how it travels? | ‐ I will roll an object a short distance and record how long it takes.  ‐ I will throw an object the same distance and record how long it takes.  ‐ I will compare the different speeds by creating a graph.  How does the speed of an object affect how it travels? ‐ I will roll an object a short distance and record how long it takes.  ‐ I will throw an object the same distance and record how long it takes.  ‐ I will compare the different speeds by creating a graph. <http://www.iknowthat.com/com/L3?Area=Science+lab&COOK> | <http://www.iknowthat.com/com/L3?Area=Science+lab&COOK> |

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| 3.How does the Earth’s gravity affect objects as they move? | ‐ I will drop different size and shaped objects and recognize that they all land back on the ground /Earth’s surface.  How does the Earth's gravity affect objects as they move? ‐ I will drop different size and shaped objects and recognize that they all land back on the ground /Earth's surface. Table cloth trick (use paper and heavy washers)  Toss balls in the air to try and get them to stop falling back down.  Drop items from your seat, desk top, standing on your seat etc, make observations about each drop. | Table cloth trick (use paper and heavy washers)  Toss balls in the air to try and get them to stop falling back down.  Drop items from your seat, desk top, standing on your seat etc, make observations about each drop. |
| Writing Prompts | **Force and Motion:**  You are the new engineer for Carowinds Amusement park and have been asked to present a report on some of the new games they have in the park.  **You can discuss**  1: how the weigh of the object will affect the speed for the game that has the ball bounce into the basket;  2. Why the rings for the ring toss need to all weigh the same amount, or  3. Why the baseball throw should have heavier/lighter balls than the current baseballs they are using.  Write a paragraph to the new golf coach explaining what would happen if a golf team decided to practice with a golf club and a ping pong ball instead of a golf blub and golf ball. |  |