

Eighth Grade Science Curriculum

Strand One is taught through the use of life science and/or Holt Physical Science Text.

Az Standard and Concept	Performance Objective	Aligned Textbook resources	Aligned Supplemental Materials	Aligned Resources/Activities/Links
<p>Strand 1 Concept 1: Observations, Questions, and Hypotheses</p> <p>Formulate predictions, questions, or hypotheses based on observations. Locate appropriate resources.</p> <p><i>NOTE: Strand One is implemented throughout the science curriculum. It is suggested that you assess for knowledge of the scientific method and use of lab equipment and review as needed.</i></p>	<p>PO 1. Formulate questions based on observations that lead to the development of a hypothesis.</p> <p>See M08-S2C1-01</p>	<p>Holt Life Science Text Chapter 1</p>	<p>Lab book 698-699 “The Perfect Taters Mystery”</p> <p>Lab book Pages 708-709 “Mystery Footprints”</p>	<p>Science Experiments BY: Tammy K. Williams. Published By: Mark Twain Media http://learning.usd383.org/tlcf/tlcf2000/webquest/kathleens_web/webquest.htm AIMS Digital Module: Scientific Method</p>
	<p>PO 2. Use appropriate research information, not limited to a single source, to use in the development of a testable hypothesis.</p> <p>See R08-S3C2-03 and W-E8-01</p>		<p>Lab book 698-699 “The Perfect Taters Mystery”</p>	<p>http://learning.usd383.org/tlcf/tlcf2000/webquest/kathleens_web/webquest.htm</p>

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	PO 3. Generate a hypothesis that can be tested.		Lab book 698-699 “The Perfect Taters Mystery” Lab book page 686 “Does it all Add up” Lab book pages 708-709 “Mystery Footprints”	http://learning.usd383.org/tlcf/tlcf2000/webquest/kathleens_web/webquest.htm
Strand 1 Concept 2: Scientific Testing (Investigating and Modeling) Participate in planning and conducting investigations, and recording data. <i>Note: Many of the labs you will do incorporates these PO’s</i>	PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry.	Holt Life Science Text Chapter 1 page 27	Science Skills worksheets page21-25 Lab book pages 696 “Cells Alive” Lab book page 732-733 “Wet, Wiggly Worms”	
	PO 2. Design a controlled investigation to support or reject a hypothesis.	Holt Life Science Text Lab “Does it all Add up” page 686	Lab book pages 708-709 “Mystery Footprints” Lab book pages 734-735 Aunt Flossie and the Bumble Bee”	http://learning.usd383.org/tlcf/tlcf2000/webquest/kathleens_web/webquest.htm
	PO 3. Conduct a controlled investigation to support or reject a hypothesis.		Lab book pages 708-709 “Mystery Footprints” Lab book Page 734-735 Aunt Flossie and the Bumble Bee”	http://learning.usd383.org/tlcf/tlcf2000/webquest/kathleens_web/webquest.htm

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<p><i>Note: Assess student knowledge using scientific equipment. This may need to be re-taught or will need review</i></p>	<p>PO 4. Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers).</p>		<p>Science Skills Worksheet pages 38-41 Lab book pages 708-709 “Mystery Footprints” Lab book pages 692-693 The Best-Bread Dilemma Lab book pages 694-695 “Elephant-Sized Amoebas?” Lab book pages 686-687 “Does it all Add up?”</p>	
	<p>PO 5. Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs</p>		<p>Lab book pages 698-699 “The Perfect Taters Mystery” Lab book pages 702-703 “Bug Builders” Lab book pages 704-705 “Tracing Traits” Lab book pages 708-709 “Mystery Footprints”</p>	
<p>Strand 1 Concept 3: Analysis and Conclusions Organize and analyze data; compare to predictions.</p>	<p>PO 1. Analyze data obtained in a scientific investigation to identify trends. See M08-S2C1-08</p>		<p>Lab book pages 702-703 “Bug Builders” Lab book pages 704-705 “Tracing Traits” http://www.mcps.k12.md.us/departments/eventscience/OtherActivities/EBS.qs3sa.html</p>	

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	PO 2. Form a logical argument about a correlation between variables or sequence of events (e.g., construct a cause-and-effect chain that explains a sequence of events).		Lab book pages 704-705 “Tracing Traits” Lab book pages 708-709 “Mystery Footprints”	
	PO 3. Interpret data that show a variety of possible relationships between two variables, including: <ul style="list-style-type: none"> • positive relationship • negative relationship no relationship		Lab book pages 702-703 “Bug Builders” Lab book pages 704-705 “Tracing Traits” Lab book pages 708-709 “Mystery Footprints”	
	PO 4. Formulate a future investigation based on the data collected.			
	PO 5. Explain how evidence supports the validity and reliability of a conclusion.		Lab book pages 702-703 “Bug Builders” Lab book pages 708-709 “Mystery Footprints”	

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	PO 6. Identify the potential investigational error that may occur (e.g., flawed investigational design, inaccurate measurement, computational errors, unethical reporting).		Science Skills Worksheet Page 48-49 and 68-71 Lab book Pages 708-709 "Mystery Footprints"	
	PO 7. Critique scientific reports from periodicals, television, or other media.			
	PO 8. Formulate new questions based on the results of a previous investigation.			
Strand 1 Concept 4: Communication Communicate results of investigations.	PO 1. Communicate the results of an investigation.		Science Skills Worksheet pages 54-57 Lab book pages 698-699 "The Perfect Taters Mystery" Lab book pages 702-703 "Bug Builders" Lab book pages 704-705 "Tracing Traits"	

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	PO 2. Choose an appropriate graphic representation for collected data: <ul style="list-style-type: none"> • line graph • double bar graph • stem and leaf plot • histogram See M08-S2C1-03	Holt Life Science Text Lab Graphing Data page 688	Science Skills Worksheet pages 60-74 Lab book “Graphing Data” page 688	
	PO 3. Present analyses and conclusions in clear, concise formats. See W-E6-PO1		Science Skills worksheets pages 54-56 Lab book pages 698-699 “The Perfect Taters Mystery” Lab book pages 702-703 “Bug Builders” Lab book pages 704-705 “tracing Traits”	
	PO 4. Write clear, step-by-step instructions for conducting investigations or operating equipment (without the use of personal pronouns).		Science skills Worksheet pages 26-27	
	PO 5. Communicate the results and conclusion of the investigation.		Lab book pages 698-699 “The Perfect Taters Mystery” Lab book pages 702-703 “Bug Builders” Lab book pages 704-705 “Tracing Traits”	

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<p>Strand 1 Concept 1: Observations, Questions, and Hypotheses Observe, ask questions, and make predictions.</p>	<p>PO 1. Formulate questions based on observations that lead to the development of a hypothesis. See M08-S2C1-01</p>	<p>Holt Physical Science Text Chapter 1 Pages 11-13</p>	<p>Datasheets for Lab book: pages 626 “Exploring the Unseen”. Reinforcement Worksheet 1 “The Plane Truth”</p>	<p>An activity in which students learn about scientific testing and scientific method: http://www.teachercreated.com/lessons/000609cs.shtml</p>
	<p>PO 2. Use appropriate research information, not limited to a single source, to use in the development of a testable hypothesis. See R08-S3C2-03 and W-E8-01</p>		<p>Science Skills Worksheets, 16-21, pages. 42-50</p>	
	<p>PO 3. Generate a hypothesis that can be tested.</p>	<p>Holt Physical Science Text Chapter 1 Pages 14-15</p>	<p>Datasheets for Lab book: pages 626 “Exploring the Unseen”, Reinforcement Worksheet 1, “The Plane Truth” Science Skills Worksheet 12, “Working With Hypotheses”</p>	
<p>Strand 1 Concept 2: Scientific Testing (Investigating and Modeling) Participate in planning and conducting investigations, and recording data.</p>	<p>PO 1. Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, and organisms) in all science inquiry.</p>	<p>Holt Physical Science Text Chapter 1 Pages 27</p>	<p>Science Skills Worksheet 9 “Safety Rules” Datasheets for Lab book,pages 622. “Safety First!”</p>	

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	PO 2. Design a controlled investigation to support or reject a hypothesis.		Interactive Explorations, Disc 2 , “How’s it Growing” Science Skills Worksheet 13 , “Designing an Experiment”	
	PO 3. Conduct a controlled investigation to support or reject a hypothesis.		Interactive Explorations, Disc 2 , “How’s it Growing”	
	PO 4. Perform measurements using appropriate scientific tools (e.g., balances, microscopes, probes, micrometers).	Holt Physical Science Text Chapter 1 Pages 24-27	Datasheets for Lab book , pages 628, “Measuring Liquid Volumes” Math Skills Worksheet 27 , “What is SI?” Math Skills Worksheet 30 , “Finding Volume” Science Skills Worksheet 15 , “Measuring”.	“Metric Olympic Games” – Fun Measuring Activities http://www.iit.edu/~smile/ph9410.html
	PO 5. Keep a record of observations, notes, sketches, questions, and ideas using tools such as written and/or computer logs.			
Strand 1 Concept 3: Analysis and Conclusions Analyze and interpret data to explain correlations and results; formulate new questions.	PO 1. Analyze data obtained in a scientific investigation to identify trends. See M08-S2C1-08	Holt Physical Science Text Chapter 1 Pages 16	Datasheets for Lab book: pages 626 “Exploring the Unseen”, Reinforcement Worksheet 1 , “The Plane Truth” Science Skills Worksheet 27 , “Interpreting Your Data”	

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	PO 2. Form a logical argument about a correlation between variables or sequence of events (e.g., construct a cause-and-effect chain that explains a sequence of events).			
	PO 3. Interpret data that show a variety of possible relationships between two variables, including: <ul style="list-style-type: none"> • positive relationship • negative relationship • no relationship 		Science Skills Worksheet 11, “Understanding Variables”	
	PO 4. Formulate a future investigation based on the data collected.			
	PO 5. Explain how evidence supports the validity and reliability of a conclusion.	Holt Physical Science Text Chapter 1 Pages 17	Datasheets for Lab book: pages 626 “Exploring the Unseen”.	

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	PO 6. Identify the potential investigational error that may occur (e.g., flawed investigational design, inaccurate measurement, computational errors, unethical reporting).		Science Skills Worksheet 28, “Recognizing Bias in Graphs”	
	PO 7. Critique scientific reports from periodicals, television, or other media.			
	PO 8. Formulate new questions based on the results of a previous investigation.			
Strand 1 Concept 4: Communication Communicate results of investigations	PO 1. Communicate the results of an investigation.	Holt Physical Science Text Chapter 1 Pages 16	Datasheets for Lab book: pages 626 “Exploring the Unseen” Science Skills Worksheet 10, “Doing a Lab Write-Up”.	
	PO 2. Choose an appropriate graphic representation for collected data: <ul style="list-style-type: none"> • line graph • double bar graph • stem and leaf plot • histogram See M08-S2C1-03	Holt Physical Science Text Chapter 1 Pages	Science Skills Worksheet 25 & 26, “Introduction to Graphing” & “Grasping Graphing”	

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	PO 3. Present analyses and conclusions in clear, concise formats. See W-E6-PO1	Holt Physical Science Text Chapter 1 Pages 16-17	Reinforcement Worksheet 1 , “The Plane Truth” Science Skills Worksheet 10 , “Doing a Lab Write-Up”.	
	PO 4. Write clear, step-by-step instructions for conducting investigations or operating equipment (without the use of personal pronouns).		Science Skills Worksheet 10 , “Doing a Lab Write-Up”. Science Skills Worksheet 13 , “Designing an Experiment”	
	PO 5. Communicate the results and conclusion of the investigation.	Holt Physical Science Text Chapter 1	Datasheets for Lab book : pages 626 “Exploring the Unseen”. Science Skills Worksheet 10 , “ Doing a Lab Write-Up ”.	
Strand 2 Concept 1: History of Science as a Human Endeavor Identify individual and cultural contributions to scientific knowledge.	<i>PO 1. Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Watson and Crick [scientists], support Strand 4; Rosalind Franklin [scientist], supports Strand 4; Charles Darwin [scientist], supports Strand 4; George Washington Carver</i>	Life Science Book ▪ Darwin: pgs. 158 - 163 ▪ Watson & Crick: pg. 129 ▪ Franklin: pg. 129 Physical Science Book ▪ Newton: Pgs. 105, 126, 145, 507		This site offers an excellent lesson idea on famous scientists. It is recommended that it be modified to use the scientists listed in our standard. http://www.education.com/common/resources/lp/brt/9804137b.html http://www.education.com/common/resources/lp/brt/9804137b.pdf

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	<p><i>[scientist, inventor], supports Strand 4;</i> <i>Joseph Priestley [scientist], supports Strand 5; Sir Frances Bacon [philosopher], supports Strand 5;</i> <i>Isaac Newton [scientist], supports Strand 5).</i></p> <p>**NOTE: This PO can be covered in many different ways.</p> <p>1. Each scientist can be addressed at the appropriate time when covering the above mentioned strands. 2. Students can do a research project on the scientists. A. Assign student groups one of the above scientists. Create a “person” out of butcher paper and have the students write something about the scientist on each “part” of that person.</p> <p>(i.e. arms = where</p>			<p>Sites on Watson and Crick: http://www.time.com/time/time100/scientist/profile/watsoncrick.html</p> <p>http://library.thinkquest.org/20465/watson.html</p> <p>http://library.thinkquest.org/20465/crick.html</p> <p>Sites on Franklin http://www.strangescience.net/rfranklin.htm</p> <p>http://library.thinkquest.org/20465/franklin.html</p> <p>Sites on Darwin http://www.combose.com/Kids_and_Teens/School_Time/Science/Scientists/Darwin,_Charles/</p> <p>http://www.juliantrubin.com/biologyjokes.html</p> <p>http://www.aboutdarwin.com</p>

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	<p>scientist was born and raised; hat = accomplishments of the scientist; legs = personality and physical attributes of the scientist, etc.) (Activity adapted from one created by Wendy Davy, Cheyenne 8th grade math teacher).</p> <p>B. Student groups can be assigned one of the above scientists and use the technology lab at their school sites to complete research on them.</p>			<p>in.com/darwin/WhoWas.html Sites on Carver http://www.combose.com/Kids_and_Teens/School_Time/Science/Scientists/Carver_George_Washington/ http://www.princeton.edu/~mcbrown/display/carver.html Sites on Bacon http://www.strangescience.net/bacon.htm Sites on Priestley: http://www.woodrow.org/teachers/chemistry/institutes/1992/Priestley.html http://home.nycap.rr.com/useless/priestly/priestly.html http://www.chemheritage.org/EducationalServices/chemach/fore/jp.html Sites on Newton: http://www.sci.hkbu.e</p>

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				du.hk/scilab/math/newton.html http://www.compose.com/Kids_and_Teens/School_Time/Science/Scientists/Newton_Isaac/ http://www.education.com/common/resources/lp/sci/9712087s.html http://www.education.com/common/resources/lp/sci/9712087s.pdf
	<p>PO 2. Evaluate the effects of the following major scientific milestones on society:</p> <ul style="list-style-type: none"> • Mendelian Genetics • Newton's Laws <p>** NOTE: Discuss as part of core curriculum (Strands 4 & 5).</p>			

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	PO 3. Evaluate the impact of a major scientific development occurring within the past decade. ** Suggested topics include cloning and DNA forensics, which can be covered during strand 4.			This is a link to a lesson on artificial intelligence, which could fall into this category: http://www.teachworld.com/teachthenews/lessonplan/lessonplan_arch/lessonplan_19990215.html
	PO 4. Evaluate career opportunities related to life and physical sciences.	Life Science Text: Pgs. 199, 297, 495, 516, 652. Physical Science Text: Pgs. 32, 159, 243, 299, 371, 417.	**There is a pre-made worksheet that can be used with pages.	

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<p>Strand 2 Concept 2: Nature of Scientific Knowledge Understand how science is a process for generating knowledge.</p>	<p><i>PO 1. Apply the following scientific processes to other problem solving or decision making situations:</i></p> <ul style="list-style-type: none"> ▪ observing ▪ questioning ▪ communicating ▪ comparing ▪ measuring ▪ classifying ▪ predicting ▪ organizing data ▪ inferring ▪ generating hypotheses ▪ identifying variables 			<p>Using Scientific Method to solve any problem: http://www.howe.k12.ok.us/~jimaskew/hsimeth.htm</p>
	<p><i>PO 2. Describe how scientific knowledge is subject to change as new information and/or technology challenges prevailing theories.</i></p>	<p>Physical Science Text: Pgs. 17, 18</p>		
	<p>PO 3. Defend the principle that accurate record keeping, openness, and replication are essential for maintaining an investigator's credibility with other scientists and society.</p>			

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	<p>** NOTE: Applies to Strand 1.</p>			
	<p>PO 4. Explain why scientific claims may be questionable if based on very small samples of data, biased samples, or samples for which there was no control.</p> <p>** NOTE: Applies to Strand 1.</p>			

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<p>Strand 3 Concept 1: Changes in Environments</p> <p>Describe the interactions between human populations, natural hazards, and the environment.</p> <p><i>Note: Aligned Textbook Materials are a teacher based decision for this strand</i></p> <p>** NOTE: Possible discussions include Exxon Valdez and other noted oil spills, chemical dumping by oil refineries, pollution, etc.</p>	<p>PO 1. Analyze the risk factors associated with natural, human induced, and/or biological hazards, including:</p> <ul style="list-style-type: none"> • waste disposal of industrial chemicals • greenhouse gases 	<p>Chemical Waste Disposal Holt Physical Science Text Book: pages 409, 416</p> <p>Greenhouse Gases Holt Physical Science Text Book: pages 255</p> <p>Oil Spills, Life Science Book, pages 543</p>		<p>http://www.cln.org/the-mes/hazardous.html</p> <p>http://school.discovery.com/lessonplans/programs/finiteoceans/</p> <p>http://www.cln.org/the-mes/global_warming.html</p> <p>http://www.ucsus.org/global_environment/archive/page.cfm?pageID=551</p> <p>http://science.nasa.gov/headlines/y2000/ast26jun_1m.htm</p> <p>http://response.restoration.noaa.gov/kids/spills.html</p> <p>http://response.restoration.noaa.gov/kids/kids.html</p> <p>http://www.epa.gov/globalwarming/kids/greenhouse.html</p> <p>http://www.ucar.edu/learn/1_3_1.htm</p>
<p>Peoria Unified School District #11 Elementary Curriculum & Instruction</p>		<p style="text-align: center;">18</p>		<p style="text-align: center;">Eighth Grade Revised 7.20.04</p> <p>http://sln.fi.edu/tfi/activity/earth/earth-5.html</p> <p>http://earthguide.ucsd.edu/earthguide/diagrams/greenhouse/</p>

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	PO 2. Analyze possible solutions to address the environmental risks associated with chemicals and biological systems.	"The Mysterious Deadzone" , Life Science Book: pages 471		
Strand 3 Concept 2: Science and Technology in Society Develop viable solutions to a need or problem.	PO 1. Propose viable methods of responding to an identified need or problem.			
	PO 2. Compare solutions to best address an identified need or problem.			
	PO 3. Design and construct a solution to an identified need or problem using simple classroom materials.			
	PO 4. Compare risks and benefits of the following technological advances: <ul style="list-style-type: none"> • radiation treatments • genetic engineering See Strand 4 Concept 2-airbags See Strand 5 Concept 2	Genetic Engineering: Life Science Book, pages 141, 231		http://auto.howstuffworks.com/airbag.htm http://www.thinkquest.org/library/site_sum.html?tname=19697&url=196 97/

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<p>Stand 4 Concept 2: Reproduction and Heredity</p> <p>Understand the basic principles of heredity. Note: Before teaching this PO you will need to assess student prior knowledge of cells. See flow chart.</p> <p><i>**Strand 4 Concept 1 is not taught in 8th grade</i></p>	<p>PO 1. Explain the purposes of cell division:</p> <ul style="list-style-type: none"> • growth and repair • reproduction 	<p>Holt Life Science Text book Chapter 4 82-87</p>	<p>Lab Book pages 698 “The Perfect Taters Mystery” Lab Book pages 700 “Stayin’Alive” Science Fiction Story “Contagion”</p>	<p>http://biology.arizona.edu/sciconn/lessons2/McCandless/page1.htm Aims Digital Curriculum “The Meiosis Square Dance” http://sciencespot.net/Pages/classbio.html#Anchor-mitosis “Hands-on General Science Activities with Real-life Applications” Lesson 19: The Basic Unit of Life http://sciencespot.net/Pages/kdzbio.html</p> <p>http://sciencespot.net/Pages/classbio.html#Anchor-mitosis http://school.discovery.com/lessonplans/activities/electronmicroscope/</p>
	<p>PO 2. Explain the basic principles of heredity using the human examples of:</p> <ul style="list-style-type: none"> • eye color • widow’s peak • blood type 	<p>Holt Life Science Text book Chapter 5 104-121</p>	<p>Lab Book pages 702 “Bug Builder, Inc” Lab Book pages 704 “Tracing Traits”</p>	<p>Aims Digital Curriculum “Biologically speaking: Genetics and Heredity” “Heredity” “Making Your</p>

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				Biology/Life Science Instruction the Best it can Be” pages 84-85 http://www.kumc.edu/gec/lpbennet.html “Hands-on General Science Activities with Real-life Applications” Lesson 18: The Blueprint of Life http://www.bbc.co.uk/science/genes/who_am_i/inheriting_genes/eye_colour_interactive.shtml
	PO 3. Distinguish between the nature of dominant and recessive traits in humans.	Holt Life Science Text book Chapter 6 126-146	Lab Book pages 706 “Base Pair Basics” Science Fiction Story “Moby James” Interactive explorations #3-8 DNA Pawprints	http://www.eduref.org/cgi-bin/printlessons.cgi/Virtual/Lessons/Science/Genetics/GET0200.html “Making Your Biology/Life Science Instruction the Best it can Be” pages 78-83 and 21-24 http://www.kumc.edu/gec/lpculler.html http://www.thirteen.org/edonline/lessons/genes/genesov.html

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<p>Strand 4 Concept 3 is not taught at 8th grade</p> <p>Stand 4 Concept 4: Diversity, Adaptation and Behavior</p> <p>Identify structural and behavioral adaptations.</p>	<p>PO 1. Explain how an organism's behavior allows it to survive in an environment.</p>	<p>Holt Life Science Text book Chapter 13 section #3 Chapter 14 sections #2 and 3</p>	<p>Quick Lab page 308 Interactive Explorations #2-8 "How's it Growing" Reinforcement Worksheet Page 49 Lab Book page 732 Wet, Wiggly Worms" Lab Book page 734 "Aunt Flossie and the Bumble bee" Lab Book page 745 "Wanted: Mammals on Mars" Reinforcement Worksheet page 52 "Animal Interviews"</p>	<p>http://biology.arizona.edu/sciconn/lessons2/Shindelman/Objectives.htm</p> <p>http://www.eduref.org/cgi-bin/printlessons.cgi/Virtual/Lessons/Science/Animals/ANM0040.html</p> <p>Making Your Biology/Life Science Instruction the Best it can Be" page 65 http://school.discovery.com/lessonplans/programs/adaptingworld/</p>
	<p>PO 2. Describe how an organism can maintain a stable internal environment while living in a constantly changing external environment.</p>	<p>Holt Life Science Text book chapter 2 section #1</p>		<p>http://www.accessexcellence.org/AE/ATG/data/released/0187-LeslieTong/index.html http://www.reachoutmichigan.org/funexperiments/quick/other/blubber.html</p>

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				Aims Digital Curriculum Evolution
	PO 3. Determine characteristics of organisms that could change over several generations.	Holt Life Science Text book Chapter 7	Lab Book pages 708-711 Mystery Footprints, Survival of the Chocolates, and Out Of Sight Marshmallows	Aims Digital Curriculum Evolution http://www.thirteen.org/edonline/lessons/evolution/index.html
	PO 4. Compare the symbiotic and competitive relationships in organisms within an ecosystem (e.g., lichen, mistletoe/tree, clownfish/sea anemone, native/non-native species).	Holt Life Science Text book Chapter 18 section #3 444-449	Lab Book page 746 “Adaptations it’s a Way of Life” Reinforcement Worksheet page 66 “Symbiotic Relationships” Interactive explorations #2-1 “What’s Bugging You”	“Hands-on General Science Activities with Real-life Applications” Lesson 22: Ecology
	PO 5. Analyze the following behavioral cycles of organisms: <ul style="list-style-type: none"> • hibernation • migration • dormancy (plants) 	Holt Life Science Text book chapter 14 page 329 Chapter13 page 310		Aims Digital Curriculum “Hibernation”

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	PO 6. Describe the following factors that allow for the survival of living organisms: <ul style="list-style-type: none"> • protective coloration • beak design • seed dispersal • pollination 		Life Science Text: Lab book “Travelin’Seed”	http://biology.arizona.edu/sciconn/lessons2/Roxane/page1.htm Aims Digital Curriculum “Ecosystems: Adaptations” “Hands-on General Science Activities with Real-life Applications” Lesson 20: Changes and Adaptations (plants and Animals) Aims Digital Curriculum How Animals Survive http://www.thirteen.org/edonline/ntti/resources/lessons/pikachew/index.html http://www.thirteen.org/edonline/ntti/resources/lessons/change/index.html

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<p>Strand 5 Concept 1: Properties of Objects and Materials</p> <p>Classify objects and materials by their observable properties.</p> <p><i>**NOTE: It is recommended that students be pre-assessed on their knowledge of atoms prior to teaching this concept.</i></p>	<p>PO 1. Identify different kinds of matter based on the following physical properties:</p> <ul style="list-style-type: none"> • states • density • boiling point • melting point • solubility 	<p>Holt Physical Science Text</p> <p>Chapter 2-4 Pages 34-98</p>	<p>STATES Reinforcement worksheets, “Make a State-ment” & “Know Your State”, pages 9.</p> <p>Whiz Bang Demonstrations, “Demonstrations with a Crunch”, pages 41.</p> <p>DENSITY Datasheets for Lab book, Skill Builder Lab, “Determining Density” pages 632.</p> <p>Datasheets for Lab book, Discovery Lab, “Layering Liquids”, pages 633.</p> <p>BOILING/MELTING POINTS Datasheets for Lab book, Discovery Lab, “A Hot and Cool Lab”, pages 638.</p> <p>SOLUBILITY Datasheets for Lab book, Discovery Lab, “A Sugar Cube Race!”, pages 642.</p>	<p>States of Matter Online Quiz http://www.1001-periodic-table-quiz-questions.com/quiz/k-12/states_of_matter_3.html</p> <p>States of Matter Demonstrations http://www.iit.edu/%7Esmile/ch9525.html</p> <p>States of Matter Activities http://www.iit.edu/%7Esmile/ch9418.html http://www.galaxy.net/~k12/matter/index.shtml http://www.teachercreated.com/lessons/020412is.shtml</p> <p>States of Matter Interactive Animation http://www.miamisci.org/af/sln/phases/index.html</p> <p>States of Matter Power Point http://www.karentimberlake.com/energy.htm</p>

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				Density Labs Volume, Density and Cola http://student.biology.arizona.edu/sciconn/density/density_coke.html Density and Breakfast Cereal http://student.biology.arizona.edu/sciconn/density/density_cereal.html States of Matter & Boiling Point/Freezing Point Labs http://www.kcts.org/learns/resources/lessons/96sciMiddleBoiling.asp Solubility Lab http://www.iit.edu/%7Esmile/ch9401.html “A Tasty Solution” Lab http://sciencespot.net/Media/tastysoln.pdf Mixtures Activity (Solubility) http://www.eduref.org/Virtual/Lessons/Science/Chemistry/CHMO026.html

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	PO 2. Identify different kinds of matter based on the following chemical properties: <ul style="list-style-type: none"> • reactivity • pH • oxidation (corrosion) 	Holt Physical Science Text Chapter 2 Pages 47 Chapter 15 Pages 377,380-381	REACTIVITY Interactive Explorations , Disc 1, “Elements of Surprise” pH Datasheets for Labbook , Skill Builder Lab, “Cabbage Patch Indicators”, pages 688. Interactive Explorations , Disc 2, “Moose Malady”	Reactivity Lab: “Activity Series of Metals” http://www.upenn.edu/ccp/AccessScience/docs/labs/high%20school/chemistry%20-%20activity%20series%20of%20metals%202.pdf Reactivity Demonstration http://www.upenn.edu/ccp/AccessScience/docs/labs/misc/reactivity%20of%20elements.pdf Reactivity Video Clip – AIMS Digital Curriculum Video Title: “Chemical Properties of Matter: Reactivity, Acids, Bases, Combustibility and Flammability” Metal Reactivity Lab http://www.sasta.asn.au/qualityscience/middleyears/McCluremreact.html

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				<p>Testing pH Activities http://www.iit.edu/%7Esmile/ch9513.html http://www.bced.gov.bc.ca/irp/sciencek7/7phyenv.htm</p> <p>“Color Changes Involving Acids and Bases” Lab http://chemsrvr2.fullerton.edu/HES/acid_base/acid_base.htm#act5_acids_bases</p> <p>“Testing the pH of Household Liquids and Solids” Labs http://chemsrvr2.fullerton.edu/HES/acid_base/acid_base.htm#act3_acids_bases</p> <p>http://chemsrvr2.fullerton.edu/HES/acid_base/acid_base.htm#act4_acids_bases</p> <p>“Where do Acids Come From? What is Acid Rain?” Lab http://chemsrvr2.fullerton.edu/HES/acid_base/acid_base.htm#act7_acids_bases</p>

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				<p>“The pH Factor”: A Website all about pH http://www.miamisci.org/ph/ Observing Oxidation Lab http://www.geocities.com/CapeCanaveral/Hall/1410/lab-P-09.html “Rust and Corrosion” Labs http://www.sciencenetlinks.com/lessons.cfm?DocID=404 http://www.teachercreated.com/lessons/030117is.shtml</p>
	<p>PO 3. Identify the following types of evidence that a chemical reaction has occurred:</p> <ul style="list-style-type: none"> • formation of a precipitate • generation of gas • color change • absorption or release of heat 	<p>Holt Physical Science Text Chapter 14 Pages 350-351</p>	<p>Inquiry Lab, “Curses, Foiled Again!” Lab#21, pages 105.</p>	<p>Precipitate Lab http://www.geocities.com/CapeCanaveral/Hall/1410/lab-GS-34.html Precipitate Lab II http://www.geocities.com/CapeCanaveral/Hall/1410/lab-GS-35.html</p>

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				<p>Chemical Reaction on a Penny Lab http://www.geocities.com/CapeCanaveral/Hall/1410/lab-GS-32.html</p> <p>“Baggie Science” – Lab that shows evidence of a chemical reaction http://www.reachoutmichigan.org/funexperiments/quick/eric/baggie.html</p> <p>“Chemistry of Fireworks” – Webquest http://www.glencoe.com/sec/science/webquest/content/fireworks.shtml</p>
	PO 4. Classify matter in terms of elements, compounds, or mixtures.	Holt Physical Science Text Chapter 4 Pages 80-103	Concept Mapping Transparency/Worksheet #4, “Elements, Compounds, and Mixtures”. Inquiry Lab , “Separation Anxiety”, Lab #16, pages 78. Science Fiction Anthology , “The Strange Case of Dr. Jekyll and Mr. Hyde”.	Elements. Compounds and Mixtures Demo and Activity http://www.iit.edu/~smile/ch9021.html Size of an atom activity http://www.miamisci.org/af/sln/phantom/papercutting.html

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				Molecule Construction http://www.miamisci.org/af/sln/phantom/papercutting.html “Chemicals: What’s in a Name?” Activity http://www.nsta.org/Energy/find/lessons/928/928ta3.html
	PO 5. Classify mixtures as being homogeneous or heterogeneous.	Holt Physical Science Text Chapter 4 Pages 92-96		“Homogeneous and Heterogeneous Mixtures” Activity http://atozteacherstuff.com/lessons/science_mixtures.shtml “Messing With Mixtures: Hit the Trail” An Edible Classroom Activity http://sciencespot.net/Pages/classchem.html#Anchormixtures
	PO 6. Explain the systematic organization of the periodic table.	Holt Physical Science Text Chapter 12 Pages 300-323	Datasheets for Labbook , “Create a Periodic Table”, Lab #38, pages 98. Reinforcement Worksheet , “Placing all your Elements on the Table” & “Bringing it to the Periodic Table”, pages 39. Critical Thinking Worksheet , “Believe it or Not”, pages 23. Interactive Explorations , Disc	Interactive Periodic Table of Elements http://www.chemicalelements.com/ Online Virtual Periodic Table I http://www.kidzworld.com/site/rq76-6.asp Online Periodic Table Quizzes

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			1, "What's the Matter?"	http://www.1001-periodic-table-quiz-questions.com/quiz/k-12/periodic_table_1.html Another Periodic Table Link http://web.jjay.cuny.edu/~acarp/NSC/index.htm Discovery School "Elements" Lesson http://school.discovery.com/lessonplans/programs/elements/ "Our Favorite Element" – Periodic Table Cooperative Learning Activity http://www.scitech.org/curriculum/Samples/element_les.htm Element Song and Animation http://www.scitech.org/curriculum/Samples/element_les.htm David's Whizzy Periodic Table http://www.colorado.edu/physics/2000/applets/a2.html

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				Periodic Table and Elements Power Points http://www.karentimberlake.com/atomsand.htm AIMS Digital Curriculum “Atoms and Molecules” “Adopt an Element” Activity http://sciencespot.net/Pages/classchem.html#Anchortdc “Periodic Table Puns” printable worksheet http://sciencespot.net/Media/elempuns.pdf “Periodic Table Puns 2” printable worksheet http://sciencespot.net/Media/elempuns2.pdf Periodic Puns Answer Keys http://sciencespot.net/Media/elempnsansw.pdf Tips for Students for Remembering Elements http://sciencespot.net/Media/elementtips.pdf

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				<p>“Periodic Table Adventure” Webquest http://web.buddyproject.org/web017/web017/</p> <p>Student-Made Virtual Elements Posters http://pittsford.monroe.edu/pittsfordmiddle/rountree/sciporfolios.htm</p>
	<p>PO 7. Investigate how the transfer of energy can affect the physical and chemical properties of matter.</p>	<p>Holt Physical Science Text Chapter 10 Pages 251-262</p>	<p>Datasheets for Labbook, “Save the Cube”, Lab #35, pages 91. Critical Thinking Worksheet, “Try & Try Again”, pages 19. Interactive Explorations, Disc 1, “Teach it While its Hot”</p>	<p>Dancing Penny Activity http://www.reachoutmichigan.org/funexperiments/agesubject/lessons/whelmer/dancingpenny.html</p> <p>Transfer of Energy Activity http://www.teachercreated.com/lessons/001027is.shtml</p>
<p>Strand 5 Concept 2: Position and Motion of Objects Understand spatial relationships and the way objects move.</p>	<p>PO 1. Demonstrate velocity as the rate of change of position over time.</p>	<p>Holt Physical Science Text Chapter 5 Pages 110-114 Chapter 6 Pages 138-144</p>	<ul style="list-style-type: none"> Reinforcement Worksheet, “Falling Fast”, pages 17. <p>Inquiry Lab, “On the Fast Track”, pages 89.</p>	<p>Sports in Physics Activities http://www.iit.edu/~smile/ph9206.html</p> <p>The Luge and Velocity Demonstration & Animation http://btc.montana.edu/olympics/physbio/p</p>

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				hysics/kin03.html
	PO 2. Identify the conditions under which an object will continue in its state of motion (Newton's 1 st Law of Motion).	Holt Physical Science Text Chapter 6 Pages 137-147	Datasheets for Labbook , "Inertia-Rama", Lab#22, pages 50. Whiz-Bang Demonstrations , "Newton's Eggciting Experiment", Lab #43, pages 63. Whiz-Bang Demonstrations , "Inertia Can Hurt Ya", Lab #44, pages 64. Datasheets for Labbook , "Blast Off", Lab 21, pages 48. Interactive Explorations , Disc3, "Stranger Than Friction".	Newton's Laws Website http://www.teachercreated.com/lessons/001027is.shtml Coolstuff Website – contains activities on Newton's 1 st Law http://www.arborsci.com/CoolStuff/cool6.htm Newton's 1 st Law Animation Webpage: "The Car and the Wall" http://www.glenbrook.k12.il.us/gbssci/phys/mmedia/newtlaws/ci.html Newton's 1 st Law Website http://www.glenbrook.k12.il.us/gbssci/phys/Class/newtlaws/u211a.html Newton's Laws Concept Maps & Examples http://hyperphysics.phy-astr.gsu.edu/hbase/newt.html

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				<p>Discovery School “Forces and Motion” Lesson http://school.discovery.com/lessonplans/programs/forcesandmotion/</p> <p>Aims Digital Curriculum “Forces and Motion, Getting to Know Newton”Video 1st Law Resources Links http://www.science-house.org/learn/Physics/4objective1.html</p> <p>Air Bags and Collisions http://www.reachoutmichigan.org/funexperiments/agesubject/lessons/newton/airbags.html</p>
	<p>PO 3. Describe how the acceleration of a body is dependent on its mass and the net applied force (Newton’s 2nd Law of Motion).</p>	<p>Holt Physical Science Text Chapter 6 Pages 148-149</p>	<p>Datasheets for Labbook, “Blast Off”, Lab 21, pages 48. Math Skills Worksheet, #48, “Newton: Force and Motion”, pages 74. Interactive Exploration, Disc 2, “Force in the Forest”.</p>	<p>Coolstuff Website – contains activities on Newton’s 2nd Law http://www.arborsci.com/CoolStuff/cool6.htm</p>

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				2 nd Law Resources Links http://www.science-house.org/learn/Physics/4objective2.html Discovery School “Force Counterforce” Lesson http://school.discovery.com/lessonplans/programs/airforces/ Newton Car Activity http://www.reachoutmichigan.org/funexperiments/agesubject/lessons/other/newton_car.html Discovery School, “The Ultimate Rollercoaster Contest” Lesson http://school.discovery.com/lessonplans/programs/rollercoaster/ “Tubes and Spheres Rollercoaster” Activity http://www.reachoutmichigan.org/funexperiments/quick/thinkingfountain/tubesandspheres.html

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	PO 4. Describe forces as interactions between bodies (Newton's 3 rd Law of Motion).	Holt Physical Science Text Chapter 6 Pages 150-153	Datasheets for Labbook , "Blast Off", Lab 21, pages 48. Datasheets for Labbook , #23, "Quite a Reaction", pages 54. Whiz-Bang Demonstrations , #45, "Fountain of Knowledge", pages 65.	Third Law Activities http://www.iit.edu/~smile/index.html http://www.iit.edu/~smile/ph9116.html http://www.teachercreated.com/lessons/010216is.shtml Coolstuff Website – contains activities on Newton's 3 rd Law http://www.arborsci.com/CoolStuff/cool6.htm "Up, Up and Away with Bottles" Activity http://www.reachoutmichigan.org/funexperiments/quick/questacon/rocket.html 3 rd Law Resources Links http://www.science-house.org/learn/Physics/4objective3.html

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	PO 5. Create a graph devised from measurements of moving objects and their interactions, including: <ul style="list-style-type: none"> • position-time graphs • velocity-time graphs 			Describing Motion with Position-Time Graphs http://www.glenbrook.k12.il.us/gbssci/phys/Class/1DKin/U1L3a.html Describing Motion with Velocity-Time Graphs http://www.glenbrook.k12.il.us/gbssci/phys/Class/1DKin/U1L4b.html