

Lenoir County Public School
Curriculum and Pacing Guide 2006-2007

Subject Science Grade Level 8 3rd 9 weeks

COMPETENCY GOAL 3: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.

Days 19	Objective	Vocabulary	Essential Questions and Tasks:	Resources
3 days	<p>3.01 Analyze the unique properties of water including:</p> <ul style="list-style-type: none"> • Universal solvent. • Cohesion and adhesion. • Polarity. • Density and buoyancy. • Specific heat. <p>Benchmarks:</p> <ul style="list-style-type: none"> • Students will understand water is a universal solvent and materials dissolved in it can be removed by physical means. 	<p>Solvent Cohesion Adhesion Polarity Density Buoyancy Specific heat Surface tension Universal solvent</p>	<ul style="list-style-type: none"> • What are the unique properties of water? • How does the structure of water account for its unique properties? • Demonstrate/model properties of water. • Evaluate unknown solutions to determine if they are water. 	<p>Unit C Chapter 3 p76-79 Unit D Chapter 2.2; 4.2</p> <p><i>NC Handbook</i> p. 21 <i>Support Documents</i> pgs. 5-6 <i>w/Labs</i> pgs 16-31</p> <p>See also Goal 4.05 www.classzone.com</p> <p>EZ Planner cd Rom contains worksheets, labs, and tests for each section</p>
2 days	<p>3.02 Explain the structure of the hydrosphere including:</p> <ul style="list-style-type: none"> • Water distribution on earth. • Local river basin. • Local water availability. <p>Benchmarks:</p> <ul style="list-style-type: none"> • Be able to make a pie graph showing how water is distributed on Earth. • Be able to label your local river basin on a map of North Carolina. 	<p>Hydrosphere Water cycle River basin Watershed Groundwater Runoff Aquifer Permeable Impermeable</p>	<ul style="list-style-type: none"> • What are the major parts of the hydrosphere? • How is water distributed on Earth? • What aquifers are located in NC? • When observing local river basins what could be predicted about the availability of fresh water in the future? • What is your local river basin and why do we need to monitor it? 	<p>Unit C Chapters 1 & 2 Unit Project –Unit C p.5 <i>Track a Drop of Water</i></p> <p><i>NC Handbook</i> p. 9-11 <i>Support Documents</i> p. 7-8 <i>w/Labs</i> p. 32-40</p> <p>http://www.discoverawatershed.org/</p> <p>www.Scilinks.com Code MDL018 Water cycle</p> <p>www.classzone.com</p> <p>http://kids.earth.nasa.gov/droplet.html</p>
3 days	<p>3.03 Evaluate evidence that Earth's oceans are a reservoir of nutrients, minerals, dissolved gases, and life forms:</p> <ul style="list-style-type: none"> • Estuaries. 	<p>Erosion Deposition Salinity Estuaries Kelp Forest</p>	<ul style="list-style-type: none"> • What are unique properties of salt water? • In what ways are our oceans a critical resource to support life on Earth? • List the major types of nutrients, minerals, dissolved gases and life forms in the 	<p>Unit C Chapters 3 & 4</p> <p><i>Support Documents</i> p.9-10 <i>w/Labs</i> p 44-54</p>

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	<ul style="list-style-type: none"> Marine ecosystems. Upwelling. Behavior of gases in the marine environment. Value and sustainability of marine resources. Deep ocean technology and understandings gained. <p>Benchmarks:</p> <ul style="list-style-type: none"> Be able to list five things the ocean provides for organisms. Identify the importance of estuaries, upwelling, and marine ecosystems. 	Marine ecosystem (only) Wetlands Upwelling Marine resources Hydrothermal vents Chemosynthesis Tides and Waves Currents Diversity of life Plankton, Nekton Benthos Abyssal Plain Neritic Zone Coral Reef	ocean. <ul style="list-style-type: none"> How do life forms in the oceans and estuaries compare/contrast? Describe the different life forms in the layers of the ocean. Compare and contrast the gases and nutrients in oceans and estuaries? What knowledge has been gained through the use of deep ocean technology? How could you determine if a marine environment is healthy? What factors influence this? Use graphs, tables and charts to demonstrate your answer. 	Lab Manual- Oxygen in Water p 107 Scientific American Frontiers video <i>"Into the Deep"</i> segment
1 day	3.04 Describe how terrestrial and aquatic food webs are interconnected. <p>Benchmarks:</p> <ul style="list-style-type: none"> Be able to draw and label a food web that shows how terrestrial and aquatic food chains are connected 	Terrestrial Aquatic Producers Consumers Decomposers Toxins Food web	<ul style="list-style-type: none"> Define terrestrial and aquatic. Construct terrestrial and aquatic food webs. How are terrestrial and aquatic food webs interconnected? How are they alike? How are they different? What types of organisms are found in both? How would changes in one food web affect another? 	Unit C Chapter 4 http://oceanlink.island.net/biodiv-web/Lesson%201.htm teaches bioaccumulation in food webs <i>Support Documents</i> p. 11 <i>Project</i> -includes NCSCOS 3.07 &3.08 LearnNC - www.learnnc.org/lessons Search for : "The Case of the Disappearing Pitcher Plant"
3 days	3.05 Analyze hydrospheric data over time to predict the health of a water system including: <ul style="list-style-type: none"> Temperature. Dissolved oxygen. (3.03) 	Temperature pH Nitrates Dissolved oxygen Turbidity	<ul style="list-style-type: none"> Define: pH, nitrates, turbidity and bio-indicators. What types of data would you analyze to predict the health of our water systems? How do scientists use this data to 	Unit C Chapter 1.2, 2.2 NC Handbook 8-15 Support Documents-not available

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	<ul style="list-style-type: none"> pH. Nitrates. Turbidity. Bio-indicators. <p>Benchmarks:</p> <ul style="list-style-type: none"> Be able to analyze a water sample and predict health status. 	Salinity Bio-indicators Population diversity Abiotic factors Pressure Eutrophication	determine the health of a water system? <ul style="list-style-type: none"> Based on data that you collected, what is the quality of your water sample?- 	www.nps.gov/olym/invindicate.htm Bio indicators-website www.wavcc.org/wvc/cadre/WaterQuality/curriculum.html Website contains information about testing the quality of water including turbidity, dissolved oxygen, pH, etc. http://www.ncsu.edu/sciencejunction/depot/experiments/water/ http://www.acapcb.ns.ca/Watershed/lampmussel.htm (bio-indicator)
2 days	3.06 Evaluate technologies and information systems used to monitor the hydrosphere <p>Benchmarks:</p> <ul style="list-style-type: none"> Students will be able to evaluate the effectiveness of various technologies used to monitor the hydrosphere. 	Sonar Remote sensing Unmanned submersibles Models	<ul style="list-style-type: none"> How do scientists gather data about the hydrosphere? What is the value of hydrosphere monitoring? How has technology enabled scientists to better monitor water quality? 	Unit C Chapter 2.2 Lab-Monitoring Water Quality p.58-59 (use w/3.07) See Goal 5 GPS remote sensing lessons <i>Support Documents</i> p.12 <i>NC Handbook</i> p 8-15 Scientific American Frontiers video "Into the Deep" segment

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2 days	<p>3.07 Describe how humans affect the quality of water:</p> <ul style="list-style-type: none"> Point and non-point sources of water pollution in North Carolina. Possible effects of excess nutrients in North Carolina waters. Economic trade-offs. Local water issues. <p>Benchmarks:</p> <ul style="list-style-type: none"> Be able to understand the impact society has on water resources 	<p>Point source Non-point source Pollution Nutrient Stewardship Conservation Water quality Quality standards Ecology Sewage system Septic tanks Clean Water Act</p>	<ul style="list-style-type: none"> How do humans interact with the hydrosphere in positive and negative ways? Classify the sources of water pollution. Describe the affects of pollution on water systems. How do levels of nutrients influence water quality? How have point and non-point sources impacted North Carolina's waters? What are some issues of concern with our local water pollution? 	<p>Unit C Chapter 2 .2 Lab-Monitoring Water Quality p.58-59</p> <p><i>NC Handbook</i> p. 8-15 <i>Support Documents</i> p.13 <i>w/Labs</i> p57-63 (w/3.08)</p> <p>www.ncsu.edu/coast/</p> <p>www.ncsu.edu/sciencejunction/depot/experiments/water/</p> <p>www.spa3.k12.sc.us/WebQuests/LoveCanal/index.htm</p>
2 days	<p>3.08 Recognize that the good health of environments and organisms requires:</p> <ul style="list-style-type: none"> Monitoring of the hydrosphere. Water quality standards. Methods of water treatment. Maintaining safe water quality. Stewardship. <p>Benchmarks:</p> <ul style="list-style-type: none"> Be able to give examples of ways to conserve water. Be able to understand why it is important to practice responsible use of our water resources 		<ul style="list-style-type: none"> How do we monitor the hydrosphere to ensure we safe water to use? Why is it important to practice responsible use of our water resources? Diagram water treatment processes. Examine safe water standards and their benefits to humans and other organisms. How can everyone take part in water conservation? What are the consequences of poor water quality to living organisms? What role do humans play in the stewardship of maintaining environments that promote good health? 	<p>Unit C Chapter 2 ; 4.1 (p118-120); 4.3</p> <p><i>NC Handbook</i> 8-17 <i>Support Documents</i> p.13 <i>w/Labs</i> p55-56</p> <p>www.ncsu.edu/coast/shell/issue.html</p> <p>www.epa.gov/water/kids/you.html (ways to conserve water and other lessons)</p> <p>www.wateruseitwisely.com/index.shtml</p>