

**VAN BUREN SCHOOL DISTRICT/VAN BUREN HIGH SCHOOL  
EARTH SCIENCE OCEANOGRAPHY CURRICULUM 2006-2007**

DAYS	CHAPTER	TOPIC	SUB-TOPICS	LABS	FRAMEWORKS	ACT
3	<u>Ocean</u> 1  <u>Earth Science</u> 20	History	Scientists, exploration, technology	Construct Timeline of Oceanic Exploration, Sonar, Earth Science, p. 392	<b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables <b>NS.6.ES.1</b> Research and evaluate science careers using the following criteria: educational requirements, salary, availability of jobs, working conditions	ACT 1, 2

5	<u>Ocean</u> 4, 3 <u>Earth Science</u> 20, 4	Topography	Ocean basins, plate tectonics, Ring of Fire	Ring of Fire Activity Construct Model of Ocean Basin	<b>PD.1.ES.1</b> Describe the structure, origin, and evolution of the Earth's components: atmosphere, biosphere, hydrosphere, lithosphere <b>PD.1.ES.12</b> Compare and contrast characteristics of the oceans: composition, physical features of the ocean floor, life within the ocean, lateral and vertical motion <b>PD.1.ES.13</b> Investigate the evolution of the ocean floor <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables <b>NS.4.ES.2</b> Use appropriate equipment and technology as tools for solving problems (e.g., microscopes, centrifuges, flexible arm cameras, computer software and hardware) <b>NS.4.ES.3</b> Utilize technology to communicate research findings	ACT 1, 2, 3
5	<u>Ocean</u> 9, 10, 11 <u>Earth Science</u> 22, 23	Ocean Movements	Currents, winds, Coriolis Effect, waves: types and motion, tides	Construct Map of Ocean Currents Wave Motion, Earth Science, p. 435	<b>PD.1.ES.15</b> Predict the effects of ocean currents on climate <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	ACT 1, 2, 3

5	<u>Ocean</u> 12  <u>Earth Science</u> 16	Coastlines	Erosion, Beaches, Coral Reefs	Dune Migration, Earth Science, p. 300	<b>PD.1.ES.6</b> Describe the processes of degradation by weathering and erosion <b>PD.1.ES.12</b> Compare and contrast characteristics of the oceans: <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables <b>NS.5.ES.1</b> Compare and contrast environmental concepts in pure science and applied science	ACT 1, 2, 3
---	--	------------	-------------------------------	---------------------------------------	---	-------------

<p>5</p>	<p><u>Ocean</u> 7, 6</p> <p><u>Earth Science</u> 13, 21</p>	<p>Water</p>	<p>Water cycle, properties: composition, salinity, temperature, chemistry</p>	<p>Draw/Label Water Cycle Density Factors, Earth Science, p. 411</p>	<p><b>PD.1.ES.1</b> Describe the structure, origin, and evolution of the Earth's components: atmosphere, biosphere, hydrosphere, lithosphere  <b>PD.1.ES.12</b> Compare and contrast characteristics of the oceans: composition, physical features of the ocean floor, life within the ocean, lateral and vertical motion  <b>PD.1.ES.14</b> Investigate the stratification of the ocean: <i>colligative</i> properties (depends on the ratio of the number of particles of solute and solvent in the solution, not the identity of the solute), biological zonation (distribution of organisms in biogeographic zones)  <b>PD.1.ES.19</b> Describe the cycling of materials and energy: nitrogen, oxygen, carbon, phosphorous, hydrological, sulfur  <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables  <b>NS.4.ES.3</b> Utilize technology to communicate research findings</p>	<p>ACT 1, 2</p>
----------	---	--------------	---	--	--	-----------------

10	<u>Ocean</u> 13, 14, 15, 16	Marine Life	Zones, organisms, limiting factors	Construct Poster of Zones with Representative Organisms, Construct Model of Marine Organism, Diagram a Food Web	<b>BD.2.ES.1</b> Compare and contrast biomes <b>BD.2.ES.2</b> Describe relationships within a community: <b>BD.2.ES.6</b> Diagram a food web <b>BD.2.ES.8</b> Describe biodiversity <b>BD.2.ES.9</b> Explain how limiting factors affect populations and ecosystems <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	ACT 1, 2
4	<u>Ocean</u> 17, 18  <u>Earth Science</u> 21	Environment	Resources, Pollution, Protection	Research Human Impact on Oceans and Ocean Resources Impact on Humans	<b>SP.3.ES.1</b> Explain the reciprocal relationships between Earth's processes (natural disasters) and human activities <b>SP.3.ES.2</b> Investigate the relationships between human consumption of natural resources and the stewardship responsibility for reclamations including disposal of hazardous and non-hazardous waste <b>SP.3.ES.6</b> Research how political systems influence environmental decisions <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	ACT 1, 2, 3

3	<p><u>Ocean</u> 8</p> <p><u>Earth Science</u> 25, 26</p>	Weather	Hurricanes, Coriolis Effect, El Nino, climate, marine cultures	Investigate Impact of Major Hurricanes on U.S. Economy, Research El Nino's Long-Term Effects on Climate	<p><b>PD.1.ES.15</b> Predict the effects of ocean currents on climate</p> <p><b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables</p> <p><b>NS.5.ES.3</b> Evaluate long-range plans concerning resource use and by-product disposal for environmental, economical and political impact</p> <p><b>SP.3.ES.1</b> Explain the reciprocal relationships between Earth's processes (natural disasters) and human activities</p> <p><b>SP.3.ES.5</b> Evaluate the impact of different points of view on health, population, resource, and environmental issues: governmental, economic, societal</p> <p><b>SP.3.ES.6</b> Research how political systems influence environmental decisions</p>	ACT 1, 2, 3, 6
---	--	---------	--	---	---	----------------

**ACT Science Reasoning Curriculum Strands**

1. Interpretation of Data and Other Information
2. Data Representation
3. Identification of Patterns, Trends, and Relationships of Data
4. Purpose of Experimental Procedures
5. Process of Scientific Investigation
6. Identification of Conclusions, Hypotheses, Models or Predictions