

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

DAYS	CHAPTER	TOPIC	SUB-TOPICS	LABS	FRAMEWORKS	ACT
3	1, 28, 2	Earth	Spectra, Big Bang, Protoplanet hypothesis, structure, layers, composition, seismic waves	Scientific Measurement p. 20-21	<b>PD.1.ES.1</b> Describe the structure, origin, and evolution of the Earth's components: atmosphere biosphere hydrosphere lithosphere <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	ACT 1, 2,6
3	8,9	Atoms	Structure, inorganic compounds, ionic and covalent bonding and minerals	Model of an Atom and a Compound	<b>PD.1.ES.4</b> Categorize the type and composition of various minerals <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	ACT 1,2
3	9	Minerals	Structure, crystal formation, characteristics, ID	Mineral ID Video- <i>Diamonds of Arkansas</i>	<b>PD.1.ES.4</b> Categorize the type and composition of various minerals <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	ACT 1,2,3,5
3	10	Rocks	Rock cycle, igneous rocks, sedimentary rocks, metamorphic rocks	Rock ID Soils of Arkansas	<b>PD.1.ES.5</b> Explain the processes of the rock cycle <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	ACT 1,2,3,5

4	3	Maps	Latitude and longitude, Projections, map reading and plotting, relief, topography	Map Skills Interpreting Contour Maps	<b>PD.1.ES.9</b> Construct and interpret information on topographic maps <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)	ACT 1,2,
4	4,5	Plate Tectonics	Wegener, continental drift , Pangaea, seafloor spreading, Mid-Atlantic Ridge, paleomagnetism, plates, convection, isostasy, folding, faulting	Pangaea Puzzle	<b>PD.1.ES.7</b> Describe tectonic forces relating to internal energy production and convection currents <b>NS.5.ES.1</b> Compare and contrast environmental concepts in pure science and applied science	ACT 1,2
3	17	Relative and Absolute Age	Hutton, uniformitarianism, superposition, unconformities, crosscutting relationships, varves, radioactive decay, half-life, carbon dating, fossil types, index fossils	Radioactive Decay, p. 332	<b>PD.1.ES.3</b> Determine the relative and absolute ages of rock layers <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	1,2,4,5,6
3	18	Geologic History	Geologic column, Darwin, evolution, eras, periods, epochs,	Construct a Geologic Timetable that Includes Representative Organisms	<b>PD.1.ES.2</b> Relate eras, epochs, and periods of Earth's history to geological development <b>NS.4.ES.1</b> Collect and analyze scientific data using appropriate mathematical calculations, figures and tables	1,2

3	6	Earthquakes	Elastic rebound theory, focus, epicenter, earthquake zones, fault zones, "Ring of Fire", New Madrid fault, seismic waves, measurement, earthquake safety, earthquake prediction, seismic gaps	Video on New Madrid Fault Ring of Fire Activity	<p><b>PD.1.ES.8</b> Describe the relationships of degradation (a general lowering of the earth's surface by erosion or weathering) and tectonic forces: volcanoes earthquakes</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>	1,2,3,4,5
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3	7	Volcanoes	Volcanic zones, hot spots, eruptions, fragments, volcano types and features, predicting eruptions	Ring of Fire Activity	<p><b>PD.1.ES.8</b> Describe the relationships of degradation (a general lowering of the earth's surface by erosion or weathering) and tectonic forces: volcanoes, earthquakes</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>	ACT 1,2,3,4,5
3	5, 19	Mountain Building	Causes, types, U.S. Mountain types, Arkansas Mountains	Plate Tectonics Theory, p. 366 Arkansas Mountain Geology	<p><b>PD.1.ES.10</b> Describe the characteristics of each of the natural divisions of Arkansas:</p> <ul style="list-style-type: none"> <li>• Ozark Plateau</li> <li>• Arkansas River Valley</li> <li>• Ouachita Mountains</li> <li>• Coastal Plain</li> <li>• Mississippi Alluvial Plain (Delta)</li> <li>• Crowley's Ridge</li> </ul> <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>	ACT 1,2,3,6

5	12,13,14, 15	Weathering and Erosion	Processes, Rates, Soil, Water Cycle, Groundwater, Glaciers, Ice Ages	Mechanical Weathering, p. 220 Soils Lab Draw/Label Water Cycle.	<p><b>PD.1.ES.6</b> Describe the processes of degradation by weathering and erosion</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.3</b> Explain common problems related to water quality:</p> <ul style="list-style-type: none"> <li>• conservation</li> <li>• usage</li> <li>• supply</li> <li>• treatment</li> </ul> <p><b>SP.3.ES.7</b> Investigate which federal and state agencies have responsibility for environmental monitoring and action</p> <p><b>SP.3.ES.8</b> Compare and contrast man-made environments and natural environments</p>	ACT 1,2,3
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**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