

*“Karst in the Ozarks”* Video Lesson Plan Table: Grades 7 – 12

<b>Lesson Topics</b>	<b>Possible Lesson Names</b>	<b>Show Me Standards – Grade Level Expectations</b>	<b>Lesson Contents</b>	<b>Lesson Vocabulary</b>	<b>Background Web Links</b>
Missouri Geological History	<i>“Eons and Eons of Ozarks Long Ago”</i>	<p>SC5.15a (classify water bodies)</p> <p>SC5.2A4bdc (identify major landforms / bodies of water, relate to forming process)</p> <p>SC5.2C8c (internal &amp; external Earth processes of rock cycle)</p> <p>SC2.2B7a (gravitation forces)</p> <p>SC5.2A5abc (sedimentary rocks &amp; weathering)</p> <p>SC5.2A6abcd (sedimentary rocks formation, weathering, volcanoes)</p> <p>SC5.2D6Cab (fossil formation &amp; changes in environments)</p> <p>SC4.3A4a. (Common MO Fossils)</p> <p>SC4.3A6a (extinction of past organisms)</p> <p>SC5.28ab (geological time &amp; rock and fossil inferences)</p>	In this lesson students will read and discuss tables of information that describe the general geological history of the Missouri Ozarks. They will be provided the tables in cut up sections, and then reconstruct the geological history of Missouri by putting the tables back together.	<p>Limestone</p> <p>Dolomite</p> <p>Plutons</p> <p>Fossils:</p> <p>Trilobite / Bivalves (Brachiopods)</p> <p>Gastropods</p> <p>Crinoids</p> <p>Fish</p> <p>Ferns</p> <p>Mastodons</p>	<p>MDNR / Publications – Geology Section “Fact Sheets”</p> <p>-Collecting Missouri Fossils</p> <p>-Crinoids and Brachiopods</p> <p>-Elephant Rocks</p> <p>-Geologic Time Scale</p> <p>-Missouri’s Ozarks</p> <p>-Missouri – The Cave State</p>
Karst Rock Identification	<i>“Karst Rock Detective”</i>	<p>SC5.1A4b (physical properties of rocks)</p> <p>SC5.2A4c (chemical weathering)</p> <p>SC1.1G6abc (chemical &amp; physical changes)</p> <p>SC5.1B6a (water acting as a solvent)</p> <p>SC5.1A8abcd (rock &amp; mineral identification)</p> <p>SC7.1aC8a (supporting reasonable explanations)</p>	<p>In this lesson, students will bring rocks from home or nearby and identify them. They will conduct common rocks tests to identify the rocks.</p> <p>A simple rock identification chart will be used to identify four common Ozark rocks: limestone, dolomite, chert and sandstone.</p>	<p>Sedimentary rock</p> <p>Sediments</p> <p>Minerals</p> <p>Calcite</p> <p>Acid</p> <p>Weathering</p> <p>Limestone</p> <p>Dolomite</p> <p>Chert / Nodules</p> <p>Sandstone</p> <p>Chemical change</p> <p>Silicate</p>	<p>MDNR / Publications – Geology Section “Fact Sheets”</p> <p>-Chert</p>

<p>Karst Critter: Endangered and Threatened Species</p>	<p><i>“Connecting Karst Critters”</i></p>	<p>SC4.3C4b (identify specialized structures for animals and describe how animals survive)  SC4.1D4a (human activities’ effects on organisms)  SC4.1D6ac (harmful activities – water pollution)  SC5.3A4ab (human erosion processes and solving environment problems)</p>	<p>In this lesson students will study one of the vulnerable cave organisms in the video. They will relate information about the creatures to provided “nature concepts” and create a poem about their critter.</p>	<p>Endangered species  Threatened species  Tumbling Creek cave snail  Ozark cave fish  Grotto salamander  Pink planarian  Bristly cave crayfish</p>	<p>Links to information about each threatened species will be provided.</p>
<p>Karst Best Management Practices</p>	<p><i>“Karst King or Karst Klutz?”</i></p>	<p>SC5.3A4ab (human caused erosion &amp; proposing solutions) SC8.1B5a (technology helps scientist) SC4.1D6ac (effects &amp; solutions to harmful human activities on organisms) SC5.3a6abc (human impact on resources) SC5.37ab (renewable resources &amp; water dependence) SC8.1.C678a (how technological solutions to problems have both benefits and drawbacks)</p>	<p>In this lesson the students in small groups will draw a card, then take turns reading and discussing the scenario on the cards. The team then has to decide if the scenario on the card would be the action of a <b>Karst King</b> (someone who understands the surface-groundwater connection) or a <b>Karst Klutz</b> (someone who has not had the opportunity to be educated about the surface and groundwater connection).  Scenario questions will emphasize nonpoint pollution sources and protection for the home and community.</p>	<p>Runoff Household hazardous waste Point source pollution Nonpoint source pollution Erosion</p>	<p>Watersheds.org / Earth / Environmental Education  - What Is Nonpoint Source Pollution -Nonpoint Source Pollution: What to Do</p>

<p>School Campus Water Walk: Identify nonpoint source pollution</p>	<p><i>“Water Wonder Walk”</i></p>	<p>SC5.2E5ab(water cycle tracing) SC5.3A4ab (human caused erosion) SC5.3A5abc(water importance, problems, solutions)</p>	<p>This lesson will provide guidelines for taking a walk after a rain on a school campus or adjoining area in order to identify runoff patterns and nonpoint pollution sources.</p>	<p>Watershed Nonpoint source pollution Sediment Erosion Fertilizer Pesticide / Insecticide Household hazardous waste Water cycle Evaporation Condensation Precipitation Runoff Groundwater</p>	<p>Watersheds.org / Watersheds /  -Watersheds Everywhere Lesson</p>
<p>Home Groundwater Footprint: Identify nonpoint source pollution</p>	<p><i>“Deep Feet Water Footprints”</i></p>	<p>SC5.2E5ab(water cycle tracing) SC5.3A4ab (human caused erosion) SC5.3A5abc(water importance, problems, solutions)</p>	<p>This lesson will provide a checklist of practices that can prevent nonpoint source pollution, which students can fill out at home with their families to determine their “deep feet water footprint.” Emphasis is place on potential nonpoint source pollution coming from their homes and yards.</p>	<p>Watershed Nonpoint source pollution Sediment Erosion Fertilizer Pesticide / Insecticide Household hazardous waste Water cycle Evaporation Condensation Precipitation Runoff Groundwater</p>	<p>Watersheds.org / Earth /Karst / Geo-Hydrology of the Ozarks Plateau</p>