**\*\*Park Name**

|  |
| --- |
| [Badlands National Park](http://www.nps.gov/badl/index.htm) |

**\*\*Lesson Plan Title (255 characters maximum)**

|  |
| --- |
| Secrets of the Past |

**\*\*Essential Question and Quick Lesson Description**

|  |
| --- |
| Students will be able to describe how the Badlands rock layers were deposited over time by ancient environments. Students will match ancient environments and fossilized animals to the correlating rock layer/time period in Earth’s history. Students will be able to describe how the modern processes of weathering and erosion shape the Badlands. |

**\*\*Lesson Grade Level: (Check One of the following)**

\_\_\_ Lower Elementary: Pre-K - 2nd Grade \_x\_\_ Upper Elementary: 3rd – 5th Grade

\_\_\_ Middle School: 6th Grade – 8th Grade \_\_\_ High School: 9th Grade – 12th Grade

\_\_\_ College (Undergraduate Level) \_\_\_ Graduate Level \_\_\_ Adult Education

**\*\*Lesson Subject: (Check As Many as Apply)**

Science

**Feature Image for Lesson**

**This will be shown next to your lesson on the Education Portal. Provide filename and location below.**

|  |
| --- |
| http://www.nps.gov/common/uploads/teachers/assets/images/mwr/park/badl/3103CCB8-155D-4519-3E86CAD5FD26EE3B/3103CCB8-155D-4519-3E86CAD5FD26EE3B.jpg |

**Alt Text for Feature Image**

**If the image does not display, what description do you want to appear in its place?**

|  |
| --- |
| Student painting of Badlands geologic layers |

**\*\*Common Core Standards:**

**Want more information about Common Core? Go to** [**http://www.corestandards.org/**](http:///h)

|  |
| --- |
| **Grade Level:** 3rd, 4th **Subject Area:** Science  **Common Core Standards:**  RI.3.7  RI.4.7 |

**\*\*State Standards:**

|  |
| --- |
| **State:** SD **Subject:** Science  **Grade Level:** K-8  **State Standards:**  4.L.2.1 |

**Additional Standards(s) (255 characters maximum): Does this lesson meet additional standards?**

**e.g. Next Generation Science Standards, National Council for Social Studies Standards, Advanced Placement (AP) Courses, International Baccalaureate (IB) Courses, Next Generation Science Standards**

|  |
| --- |
| 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.  4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. |

**Thinking Skills (Check As Many as Apply)**

The thinking skills listed below are based on Bloom’s Taxonomy. Consider your lesson procedure and activities. Then check off the thinking skills that students will experience through your lesson.

\_\_\_ **Knowledge** – Recalling or recognizing information ideas, and principles

X **Comprehension** – Understand the main idea of material heard, viewed, or read. Interpret or

summarize the ideas in own words.

X **Application** – Apply an abstract idea in a concrete situation to solve a problem or relate it to a

prior experience.

\_\_\_ **Analysis** – Break down a concept or idea into parts and show the relationships among the parts.

X **Creation** – Bring together parts (elements, compounds) of knowledge to form a whole and build

relationships for NEW situations.

\_\_\_ **Evaluation** – Make informed judgments about the value of ideas or materials. Use standards and

criteria to support opinions and views.

**Complete Lesson File**

**Is there a downloadable file (or PDF) for this lesson plan? If yes, provide filename and location:**

**Be sure your PDF or other file meets universal accessibility requirements, most PDFs do not.**

|  |
| --- |
|  |

**Lesson Duration**

**Time to complete this lesson plan in minutes (25 characters maximum)**

|  |
| --- |
| 45 minutes |

**\*\*Background Information for Teacher**

**What important content, contextual, or practical information and background knowledge does the teacher need to successfully implement this lesson?**

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| --- |
| Students watch a six minute ranger video about the Badlands. Teachers should check out the video transcript and the teacher answer guide ahead of time (available in the materials section of this lesson plan). Materials such as markers or colored pencils, glue or tape, and scissors could also be helpful. |

**\*\*Important Vocabulary and Terms with Definitions:**

**What terms and academic language will students have to know to participate in the lesson? Lessons typically include 5 to 15 terms and definitions.**

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| --- |
| Savannah: a grassy plain  Fossils: the remains or impression of a prehistoric organism preserved in petrified form or cast in rock.  Mesohippus: extinct genus of early horse  Oreodont: extinct mammal most closely related to camels and pigs. |

**\*\*Lesson Preparation: What preparation does the teacher need to do before the lesson? What supplies or materials should be gathered?**

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| --- |
| Teacher will show students the ‘Badlands” video |

**\*\*Lesson Hook or Preview: What activity, video, song, or other experience could get the students excited about the lesson and thinking about the topic? Is there a way to make the lesson important to their lives or link the lesson content to what they already know?**

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| --- |
| A 6 minute video showing a ranger discussing the badlands gives a glimpse into the geological wonders of the region. Give students the Animals and Rock Layers Handout and ask them to follow along and take notes during the video.  <http://www.nps.gov/media/video/view.htm?id=2A1BF55F-ABEE-758D-33317F51DACBABF2> |

**\*\*Procedure: List the instructions the teacher should follow as Step One, Step Two, Step Three, etc.**

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| --- |
| Grades 3-5  Step 1: Ask students to raise their hand and share with the class what they learned from the video.  Step 2: Using the teacher answer key as a reference, explain the different animals and rock layers in the handout. Start with the Pierre Shale (the oldest layer). Remind students that the shale formed from the black mud left behind by an ancient sea. Repeat for each rock layer. Have students color layers (younger students) or take notes (older students) as you talk about each page.  Step 3: Assess student understanding by having them complete the flip book assessment. Students should cut off or rip each page at the dotted line. Have students glue the proper environment strip on the top portion of the page and then match fossilized animals that could be found in the time period reflected on the page.  Assemble pages in order with the shortest page on top and the longest page on the bottom. Staple the flip book along the top edge. When complete, the pages will line up to reveal the entire Badlands rock column. Students can flip to any page to see the environment and fossilized animals from that time period. |

**\*\*Assessment: How can teachers tell that each individual student has met the objective? How will teachers see if each student knows the answer to the essential questions or has mastered the skills? Below, include below a brief description of how to use the assessment. Later in this template you are provided with the opportunity to upload a digital copy of the assessment for teachers to print and use.**

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| --- |
| The assessments will be used to see how well students understand the how the geological formations of the Badlands came to be and what caused their characteristics. |

**Lesson Materials: Any worksheets, photos, primary source, scientific data, maps, graphic organizers, or PowerPoint ‘s should be described and attached using the template below. Please create additional materials boxes if necessary.**

**Material #1**

**Title (255 characters maximum):**

|  |
| --- |
| Secrets of the Past video with transcript |

**Summary (how does the material function in the lesson?):**

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| --- |
| The video provides background information about the Badlands and provides context for the lesson. |

**Downloadable file of this material in original format if possible, such as Microsoft word or PowerPoint (Provide filename and location)**

|  |
| --- |
| <http://www.nps.gov/media/video/view.htm?id=2A1BF55F-ABEE-758D-33317F51DACBABF2>  Transcript: <http://www.nps.gov/badl/photosmultimedia/loader.cfm?csModule=security/getfile&PageID=245710> |

**Material #2**

**Title (255 characters maximum):**

|  |
| --- |
| Animals and Rock Layers Handout |

**Summary (how does the material function in the lesson?):**

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|  |

**Downloadable file of this material in original format if possible, such as Microsoft word or PowerPoint (Provide filename and location)**

|  |
| --- |
| <http://www.nps.gov/badl/photosmultimedia/loader.cfm?csModule=security/getfile&PageID=245613> |

**Assessment Materials**

**How can teachers tell that each individual student has met the objective? How will teachers see if each student knows the answer to the essential questions or has mastered the skills? Attach below the assessment and, if applicable, a rubric or answer key.**

**Assessment**

**Title (255 characters maximum):**

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| --- |
| Student Flip Book |

**Summary (how does the material function in the lesson?):**

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| Students will create a flip book of rock layers on their own and identify the animals that belong to each rock layer. |

**Downloadable file of this material in original format if possible, such as Microsoft word or PowerPoint (Provide filename and location)**

|  |
| --- |
| <http://www.nps.gov/badl/photosmultimedia/loader.cfm?csModule=security/getfile&PageID=245614> |

**Assessment Rubric or Answer Key**

**Title (255 characters maximum):**

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| --- |
| Teacher Answer Key |

**Summary (how does the material function in the lesson?):**

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| --- |
| Allows teacher to compare student responses to the correct responses on the answer key. |

**Downloadable file of this material in original format if possible, such as Microsoft word or PowerPoint (Provide filename and location)**

|  |
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| <http://www.nps.gov/badl/photosmultimedia/loader.cfm?csModule=security/getfile&PageID=245616> |

**Supports for Struggling Learners**

**If a learner is struggling to understand the objective, essential question, or skills presented in the lesson, what can be done to help this learner? Is there a lower reading level version of text? Is there a more image heavy or simplified version of content? Can supportive devices be provided such as calculators?**

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| --- |
| N/A |

**Extensions for Excelling Learners**

**If a learner is really excelling at the objective and skills presented in the lesson, what can be done to continue to challenge this learner? Can the student create a product or learn more in depth about the content?**

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| --- |
| N/A |

**Additional Resources**

**Please list websites, references, or other materials for further research by interested students that is not already provided within the lesson.**

|  |
| --- |
| These resources are available through [Badlands National History Association (BNHA)](http://www.badlandsnha.org/), a not-for-profit organization established to support education efforts at Badlands National Park.   * *Fossils Tell of Long Ago* by Aliki * *Geologic Time & the History of Life*: Illustrated by Animals & Plants Poster * *Badlands: It's Life and Landscape* by Joy Keve Hauk * *Badlands Suite: Land of Stone and Light, From Field to Lab, Multiple Perspectives* DVD |

**Related Lessons or Educational Materials**

**Is this lesson connected to other lessons within a unit? Is this lesson related to a field trip guide or activity? If so, list the website address or titled of these other materials below.**

|  |
| --- |
| N/A |