

Resources to Engage Students: Taking the pulse of Yellowstone's "breathing" volcano: Problem-Based Learning in America's first national park.

Medium	Content	Duration	Title	Notes
Images	Art	still	<a href="#">Albert Bierstadt: Complete Works</a>	Can search website for Bierstadt's paintings of Yellowstone.
Images	Art	still	<a href="#">John Henry Twachtman</a>	Twachtman's paintings on WikiArt. Virtual museum exhibit. Includes images of Moran's work and Thomas Henry Jackson's photos from the Hayden Survey. NPS Museum Management Program.
Electronic exhibit	Art	still	<a href="#">American Visionaries: Thomas Moran</a>	Survey of artists in Yellowstone. Timeline at bottom of site with notes in body. Can expand images. Can change font size. Exhibit at the Autry National Center, CA, 2005.
Electronic exhibit	Art	still	<a href="#">Drawn to Yellowstone: Artists in America's First National Park</a>	Images and transcription of his diary while in Yellowstone in 1871. NPS.
Electronic exhibit	Art	still	<a href="#">Thomas Moran's Diary</a>	
Video	Comprehensive	1:36	<a href="#">Inside Yellowstone: Introduction</a>	Wildlife, geology, hydrothermal features. Welcome by a ranger, Kelli English, who makes the park approachable and inviting. NPS production. 3D images, both modern and historic (as early as 1880s). Modern ones include an elk and a herd of bison walking down the road, as well as any number of geological or hydrothermal features. Grotto and Giant Geysers show 3D particularly well. Among the historic ones, especially strong 3D with Angel and Cleopatra Terrace. Need red/blue 3D glasses. (Search for 3d parks yellowstone.)
Photos (3D)	Comprehensive	still	<a href="#">USGS Geology of National Parks, 3D and Photographic Tours</a>	Photos taken by Jackson on the 1871 survey, the first official survey, the "Hayden Survey." (Search for "nps jackson photos.")
Photos	Comprehensive	still	<a href="#">William Henry Jackson</a>	Catalog of slides from history to geology to biology all in or about Yellowstone.
Photos	Comprehensive	still	<a href="#">Yellowstone Digital Slide Library</a>	Beautiful photography showing how the geologic history of Yellowstone and its wildlife are related. Relaxed pace. Unlike "Yellowstone's Restless Giant," this includes footage of large and small mammals and birds. The serenity could either completely absorb students or leave them yawning. (Search for "land life visitorcenter [one word] video.")
Video	Comprehensive	19:00	<a href="#">Yellowstone: Land To Life</a>	
Video	Comprehensive	2:20	<a href="#">Land to Life trailer from PBS</a>	Trailer for "Land to Life". A girl, about in 6th grade, introduces Yellowstone's highlights. Lively, relaxed, folksy, upbeat. Background, discussion questions, transcript, and standards included.
Video	Comprehensive	2:25	<a href="#">Teachers' Domain: "A Visit to Yellowstone"</a>	Up to date science, scenery, video modeling of mantle plume and caldera creation. Excellent.
Video	Geology	3:23	<a href="#">How the Earth Was Made: Creation of Yellowstone</a>	Focuses on geology, but shows bison. History Channel.

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Video	History	3:27	<a href="#">Yellowstone Becomes the First National Park</a>	How profound it was for the nation and for the world to create the first national park. A good video to accompany an art connection. From Ken Burns's "The National Parks" series. (Search for "search explore burns yellowstone" and then search for "Yellowstone Becomes the First National Park.")
Webcam-streaming video	Hydrothermal features	continues	<a href="#">Eyes on Yellowstone</a>	Old Faithful area webcam. Directed to show Old Faithful or other geyser erupting or wildlife passing through.
Video	Hydrothermal features	2:30	<a href="#">Sunrise Earth: "Yellowstone's Geysers"</a>	Features footage of geothermal features. Will catch kids' attention. Serene footage. Discovery Channel series. Comes with a 30 second commercial.
Novel	Language Arts		<i>Letters from Yellowstone</i>	Smith, Diane. 1999. New York: Penguin Books. 226 pp. Epistolary novel about a woman botanist in 1890's in Yellowstone. Gets her position using subterfuge...
Video	Outdoor survival	5:49	<a href="#">Nature: "Explorers of Yesterday and Today"</a>	A modern man sleeps on the ground in a ground blizzard in the park. He compares his creature comforts to John Colter's as early explorer. Kids might like this offbeat video. On Teachers' Domain. Therefore, background, discussion questions, transcript, and standards included.
Video	Parks	7:03	<a href="#">Tools for Exploring Yellowstone - Have it Your Way</a>	Ways to learn about Yellowstone. For someone who has never been to a national park, this will teach what is available—from maps to brochures to trail guides to Ranger talks.
Video*	Tourism	8:24	<a href="#">Rudyard Kipling and the Grand Tour of Yellowstone.</a>	Great, charming video; even if you don't show it to your students, watch it yourself. Kipling's description of his 1889 "grand tour," with hotels, sights to see, and his sardonic comments about his fellow travelers. Could be an excellent writing prompt or would fit well in an interdisciplinary project with Language Arts teachers. From Ken Burns's "The National Parks" series. (Search for "search explore burns yellowstone" and then search for "Kipling.")
Video	Volcanoes	1:20	Supervolcano	Reviewed favorably by Dr. Jacob Lowenstern, Yellowstone Volcano Observatory in June, 2006 Geotimes article, "Truth, fiction and everything in between at Yellowstone".
Video	Volcanoes	1:55	<a href="#">Inside Yellowstone: Where's the Volcano</a>	Best if shown with "What Makes Yellowstone, Yellowstone?" NPS.
Video	Volcanoes	1:55	<a href="#">Inside Yellowstone: What Makes Yellowstone, Yellowstone?</a>	Overview of how the volcano influences the topography, climate, and biology. NPS.

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Video* recommend if crunched for time.	Volcanoes	6:00	<a href="#">Yellowstone InDepth: Yellowstone's Restless Giant</a>	Excellent short video linking volcanism with geysers and other hydrothermal features. Would be a good, calm, companion to "Supervolcano". Focuses on Norris Geyser Basin's surge of activity in 2003. Brings up earthquakes, ground deformation, and hydrothermal changes. Includes spectacular photos like all National Geographic articles. Online version has an interactive graphic about the plate tectonic setting and mantle plume, resulting in the magma chamber. In print, National Geographic, August, 2009.
Print	Volcanoes		<a href="#">When Yellowstone Explodes</a>	A simulation of caldera collapse by inflating and deflating a balloon that is buried under flour. From Volcano Video Productions. (Search for "TOLE flour volcano.")
Activity	Volcanoes	N/A	Flour Box Volcano Deformation Model	General, good scenery, focuses on wildlife. Will catch kids' attention. Discovery Channel series. Comes with a 30 second commercial. (Search for "discover planet's best yellowstone.")
Video	Wildlife	2:59	<a href="#">Planet's Best: "Yellowstone National Park"</a>	Great, moving video. A ranger speaks about being alone with bison in winter, a transcendent experience possible in Yellowstone. Another excellent writing prompt. From Ken Burns's "The National Parks" series. (Search for "pbs national parks transcendent.")
Video	Wildlife	1:59	<a href="#">Shelton Johnson on a Transcendent Moment in Yellowstone</a>	Trucks hauling wolves in, wolves in cages to get acclimated, wolves free and howling and playing with pups. If using wolves as a hook, this would be a good introduction. From Ken Burns's "The National Parks" series.
Video	Wildlife	2:13	<a href="#">Wolves Return to Yellowstone</a>	Superb video focuses on the Druid pack of wolves in the Lamar Valley. Also includes elk, grizzlies, coyotes, fox, birds, high definition images of scenery and weather. Yellowstone River, but no geothermal features. You might ask, "How does the geology determine the habitat (including climate) in Y'stone?" before and after video.
Video	Wildlife	####	<a href="#">In the Valley of the Wolves</a>	Nature.
Video	Wildlife	7:50	<a href="#">Jaws and Claws 2: Bison Clash</a>	Begins with video about geothermal features then focuses on bison. Ends with a battle between bulls for dominance during rutting season. 30 second ad at beginning. Animal Planet.
Video	Wildlife!	7:17	<a href="#">Yogi Bear cartoon, Episode 1</a>	Consider showing and asking students, "What's wrong in this cartoon?" Let me count the ways....