

Celebrate Geologic Map Day!

Friday, October 14, 2016

Welcome to Geologic Map Day, a special event designed to promote awareness of geologic mapping and its vital importance to society. Geologic Map Day focuses the attention of students, teachers, and the general public on the creation, study, uses, and significance of geologic maps for education, science, business, and a variety of public policy concerns.

Organizing partners of Geologic Map Day are the U.S. Geological Survey, the Association of American State Geologists, the National Park Service, the Geological Society of America, NASA, Esri, and the American Geosciences Institute. The event is celebrated on the Friday of AGI's Earth Science Week (www.earthsciweek.org), a public awareness campaign that reaches over 50 million people each year with educational resources, information, and activities promoting awareness of Earth science. Please join us!

Frequently Asked Questions

What is a geologic map?

Like all maps, a geologic map shows where things are. But while other maps highlight where you can find things like streets and streams, a geologic map shows the distribution, nature, and age relationships of rocks, faults, strata, and other geologic features.

A geologic map is usually superimposed over a regular map, or base map, to help you find familiar locations on the map. The base map is printed in light colors, while geologic features are represented in bolder, more readily visible colors, lines, and symbols. Each color on a geologic map stands for a different geologic unit, that is, a volume of rock of a particular type and age.

How do you read a geologic map?

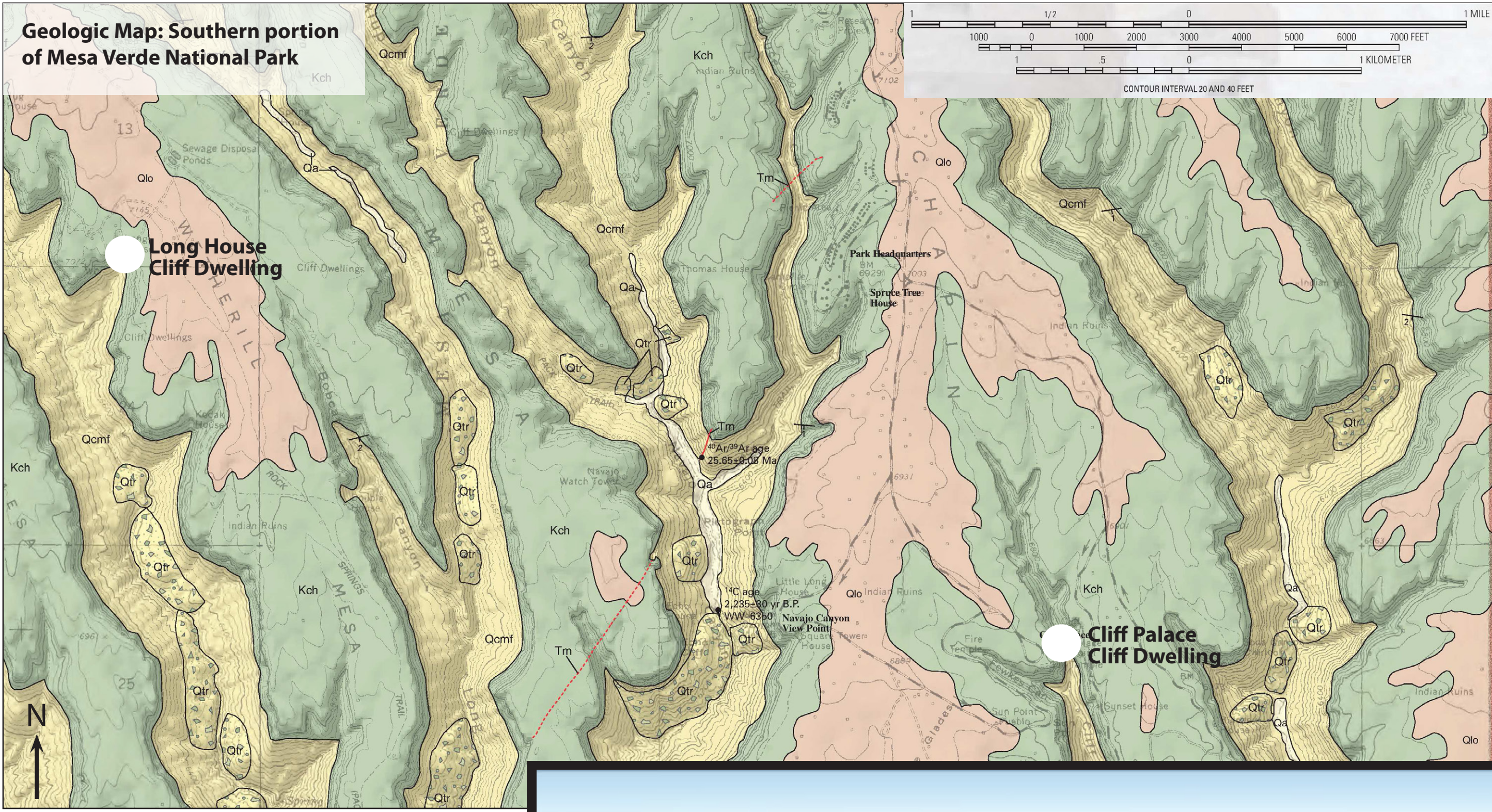
Each geologic map has a map key, which is a table explaining the meanings of all colors and symbols used to represent geologic features in the map. For example, geologic units usually are listed in order, top to bottom, from the youngest (most recently formed) rock types to the oldest (formed earliest in time). The key often will give the name of the each unit, as well as the age and a brief description of that unit's rocks.

Geologic Map Resources Online

Geologic Map Day:
www.earthsciweek.org/geologicmap

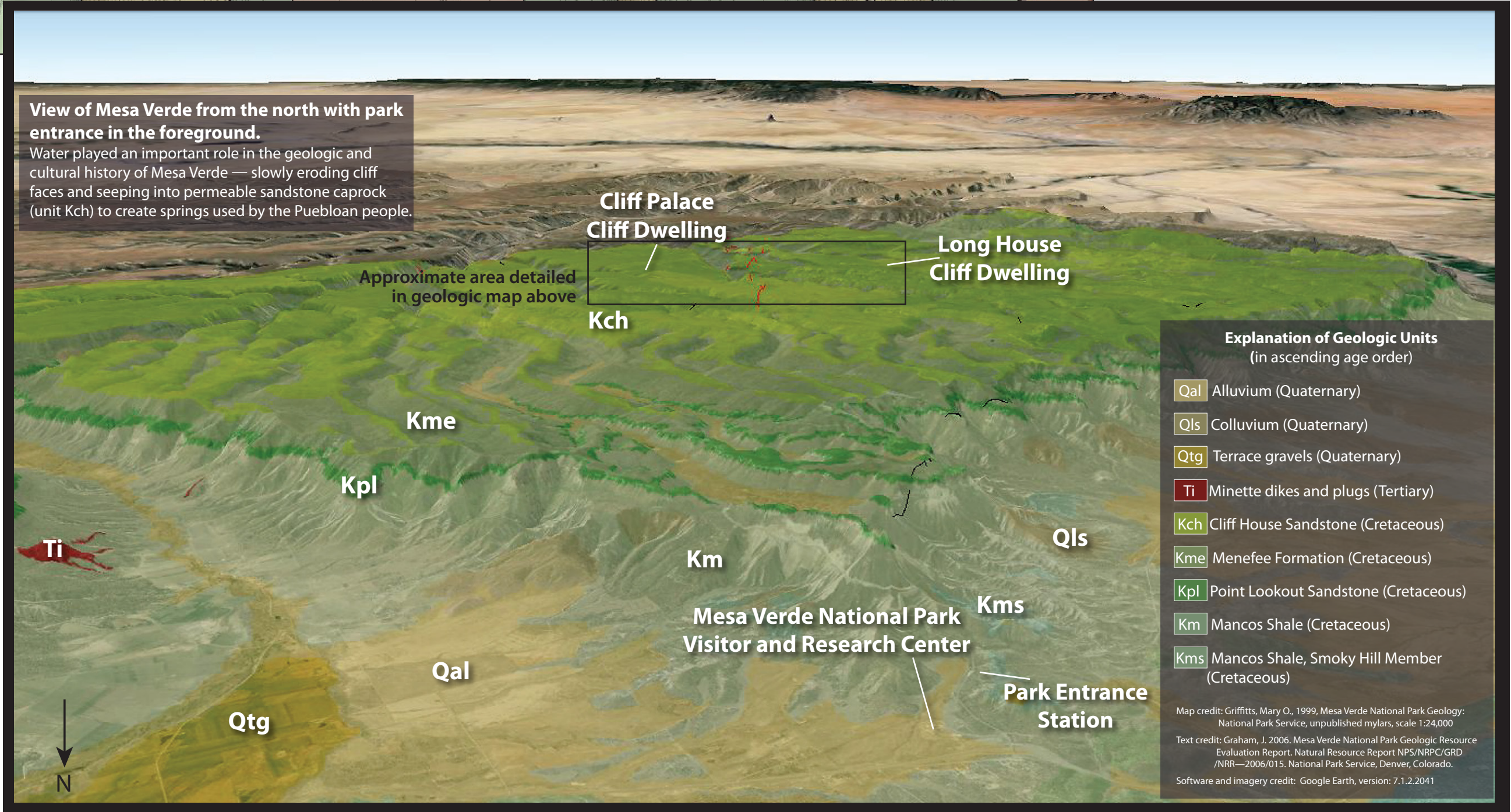
Look for Geologic Map Day on Facebook and Twitter!

Top map credit: Carrara, P.E., 2012, Surficial geologic map of Mesa Verde National Park, Montezuma County, Colorado: U.S. Geological Survey, Scientific Investigations Map, SIM-3224, scale 1:24,000
Center map (3D Mesa Verde view) credits: Griffiths, Mary O., 1999, Mesa Verde National Park Geology: National Park Service, unpublished mylars, scale 1:24,000. Digital data by Anne Poole (National Park Service) and Stephanie O'Meara (Colorado State University). Map graphic by James Chappell (Colorado State University).
Bottom photo credit: National Park Service/Sandy Groves
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Poster Editorial and Design: Katelyn Murtha, Brendan Soles, Geoff Camphire, Kathleen Cantner, and Brenna Tobler.



Top map key

Surficial Deposits	
Alluvial deposits	
Qa	Alluvium deposited by small ephemeral streams (Holocene and late Pleistocene)
Qcmf	
	Colluvial deposits derived from the Menefee Formation (Holocene and late Pleistocene)
Qtr	
	Landslide deposits
	Translational and rotational landslide deposits (Holocene and late Pleistocene) — Mainly derived from the Menefee Formation (Kmf) and the Mancos Shale (Km)
Qlo	
	Eolian deposits
	Loess (Holocene and middle Pleistocene)
Bedrock	
Tm	Minette dike (Oligocene)
Kch	Mesaverde Group (Upper Cretaceous)
Kmf	Cliff House Sandstone
Kpl	Menefee Formation
Kpl	Point Lookout Sandstone
Km	Mancos Shale (Cretaceous)



Learning Activity

Why Settle at Mesa Verde?

Traditional geologic maps — sometimes crisscrossed with lines, blotted with colors, and marked with strike and dip symbols — have been used for at least 200 years to depict the geologic makeup of the Earth. Consider the map and other images of Mesa Verde National Park in Colorado shown here. Each provides a different perspective on the geologic makeup of the area.

President Theodore Roosevelt created the 52,485-acre Mesa Verde National Park in 1906 to recognize and protect sites of natural and historical significance. The park represents the nation's largest archaeological preserve, including some 600 "cliff dwellings" — homes excavated, built, or otherwise fashioned in the niches and caves of cliffs — that were left behind by early Native Americans.

Over many centuries, Mesa Verdeans fashioned various types of shelters. More than 900 years ago, they started building the massive cliff dwellings that we see today. They were hunters, gatherers, and subsistence farmers who grew food such as corn. The Mesa Verdeans were driven out by drought some 700 years ago. This profound disruption of their community at what we now call Mesa Verde is an example of climate change. This climate change was due to natural causes, unlike the man-made climate change that the world now faces.

Materials

- A computer with internet access
- Notebook and pen

Procedure

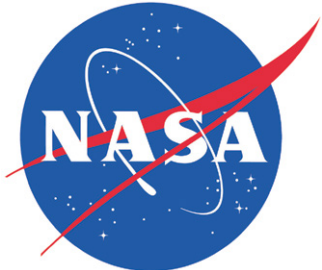
- Discuss what you know about the geology of Mesa Verde National Park. What would you expect to find in the types of rocks, landforms, and plants common there? Record your thoughts in your notebook — and continue recording your answers to questions in the following steps.
- Look at the top map of Mesa Verde here. Consider the shapes and patterns you see. Where do you think water erosion carved hollows in the cliffs? What advantages do you think this landscape offered people who settled here — in terms of dwellings? food? defense from attack?
- Now consider the geological composition of the area. Caves and alcoves in the cliffs offered some shelter, but early inhabitants did not settle for that. What material might they have used to build adobe dwellings within the cliffs? What was readily available in the local geology? Research online to determine which types of Mesa Verde earth material would have been useful for building.
- Water is a staple not only of life, but of construction. How do you suppose water was important to Mesa Verdeans?

- In addition to hunting, Mesa Verdeans survived by gathering and cultivating certain plants, including beans and squash. Research online to determine which types of Mesa Verde earth material would have been useful for growing food. Do you think you would have enjoyed dining in Mesa Verde hundreds of years ago?
- Discuss what living at Mesa Verde must have been like for early inhabitants. Learn more at the National Park Service's Mesa Verde website (<https://www.nps.gov/meve/index.htm>).
- Now that you have explored Mesa Verde, consider what led people to first settle in your home town or state. Visit the website of your state geological survey or state geologist (<http://www.stategeologists.org/>) and the National Geologic Map Database (<http://ngmdb.usgs.gov/>). Find a geological map for your area. What shapes and patterns do you notice? Where is water? Where are potentially valuable natural resources? Where could farming, hunting, or ranching take place? Where have people thrived?
- Mesa Verde National Park was established in part to provide federal protection for a geoheritage site where modern-day scavengers had begun stealing and damaging irreplaceable artifacts such as pottery and carvings. Discuss what portions of your area's geoheritage are worth conserving. How can today's generation make informed decisions about this heritage to preserve it for the generation of tomorrow?

AASG
Association of American State Geologists

USGS
science for a changing world

THE GEOLOGICAL SOCIETY OF AMERICA



AGI american geosciences institute
connecting earth, science, and people