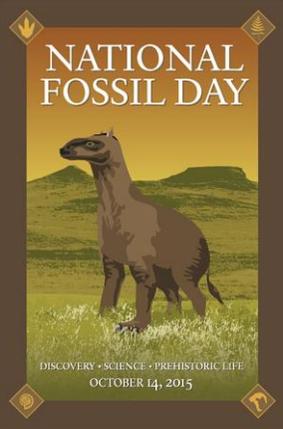


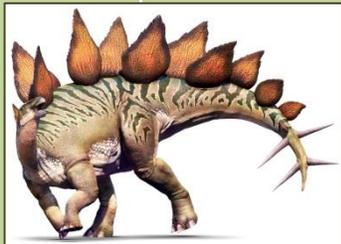
Pebble Pups Program 2015-2016

Upcoming Classes



Pebble Pups meet the **third Wednesday** of each month during the academic school year (September through May). Time: **6:00 p.m. to 6:45 p.m.**
Place: **PPHS Museum in Florissant, Colorado**

Month	Class Title	Topics	Instructor
September	Field Trip: Sept 19 to Denver Gem Show	Denver Gem and Mineral Show: Sept 19. Pebble Pups meet at 10:00 at the Denver Merchandise Mart. Four Earth Science Scholars will present programs at noon. On-line info at www.denvermineralshow.com .	
Start Now!	2015 NATIONAL FOSSIL DAY ART and PHOTO CONTEST	The theme for this year's National Fossil Day Art and Photography Contest is Postcards from the Past . Imagine you just received a postcard from a fossil living in an ancient environment. What might that fossil tell you about its day or its surroundings? How would the picture on the postcard compare to what we see on the earth today? Rocks and fossils contain clues of what ancient landscapes looked like and how ancient life lived. Use your creative skills as a paleontologist and as an artist to imagine what your Postcard from the Past might look like. Info: https://nature.nps.gov/geology/nationalfossilday/art_contest.cfm Application form: https://nature.nps.gov/geology/nationalfossilday/national_fossil_day_art_contest_entry_form_2015.pdf	



<p>September 15</p>	<p>Class: Giants of the Ice Age</p>	<p>Journey back to the Ice Age and work with some of Earth's largest mammals. The class will learn about a 42,000-year-old baby mammoth named Lyuba (pronounced Lee-OO-bah) who was discovered in 2007 by a Siberian reindeer herder. Lyuba is the best-preserved mammoth specimen ever discovered. Also presented are spear points, cave paintings, and carvings from tusks that show how humans interacted with mammoths on earth, the history of that life, and the geological processes that preserve life's record.</p>	<p>Steven Veatch</p> 
<p>October 3</p>	<p>Cool Science Carnival at UCCS</p>	<p>The 4th annual Colorado Springs Science Festival! This year's hands-on science carnival for kids will be Saturday, October 5th from 10 am - 4:30 pm.</p> 	
<p>October 12</p>	<p>National Fossil Day</p>	<p>National Fossil Day Celebration Garden of the Gods 10 am to noon.</p>	
<p>October</p>	<p>Special Celebration Earth Science Week Field Trip Oct 25,</p>	 <p>October 11 to Oct 17, 2015 Contests: http://www.earthsciweek.org/contests/index.html Field trip to Dinosaur Ridge and Colorado School of Mines Museum</p>	
<p>October 21</p>	<p>Class: Fossils</p>	<p>Fossils represent a merger between the sciences of geology and biology. They are at the core of the science of paleontology, or the study of past life. To study fossils, you need to learn about different forms of life on earth, the history of that life, and the geological processes that preserve life's record.</p>	<p>Steven Veatch</p> 

November 18	Class: Rocks and Minerals	In this class we will learn about minerals and how to identify them.	John Rakowski
December 16	Class: Rocks and Minerals Continued	Pebble Pups will continue their exploration of rocks and minerals. After completing this class a merit badge will be awarded.	John Rakowski
January	Field Trip TBD Denver Museum of Nature and Science	Meet Dr. Ian Miller at the Denver Museum of Nature and Science and go behind the scenes and view the latest discoveries in paleontology . There will also be a trip to the paleontology and the mineral hall. Arrival time 9:15 am. Return early	Steven Veatch Betty Merchant Blake Reher
January 2	Family Geology Day (Jan 2, 2016 at WMMI)	The Pebble Pups and Earth Science Scholars will man three activity tables and present what they do to families of the Pikes Peak Region	Blake Reher Betty Merchant
January 9	Drawing and Sketching Workshop	Drawing and sketching skills will be learned in this fun and happy workshop. These skills can be used to illustrate articles, research, and yes, even poetry. Yea!! This class will meet at the CS Senior Center. 9 am to 12 noon.	Various
January 18	Class: Fun with geodes.	In this hands-on class we will work with geodes and learn how a rock saw work. After we saw them open we will test the geodes to see if the fluoresce under a black light. Don't miss this action-packed class.	Roger Pittman
February 13	Writing Workshop (date TBD)	Writing workshop on science and nature writing, geology poems at the CS Senior Center. 9 am to 12 noon.	Steven Veatch
February 17	Class: A Bad Day For Dinosaurs	Sixty-five million years ago, the Earth was ruled by dinosaurs. One day in June, 64.5 million years ago, an asteroid crashed into the Yucatán Peninsula. A few year later they were all gone, setting the stage for the rise of mammals	Steven Veatch
March 16	Class: Exploring Caves: How caves are formed.	Rocks and minerals found in caves will be discussed. Fossils and archaeological artifacts found in caves will be featured. Mineral of the month: calcite. There will be a Saturday field trip to the Cave of the Winds.	Blake Reher

March	March TBD Field Trip	There will be a Saturday field trip to the Cave of the Winds . We will have a picnic inside the visitor center and then go inside the cave.	Steven Veatch Blake Reher
April 20	Class: Building a Collection for Home and for the Gem Show	Kids of all ages love to collect, and most rockhounds are pack rats at heart. We like nothing better than to assemble an assortment of rocks found on our journeys, traded with fellow collectors, or purchased at gem shows and rock shops. A proper collection, however, is more than a bunch of rocks and/or fossils tossed into a box. The value of a collection lies in its "curation," or in the information included with your specimens: what it is, where it came from, who collected it, and other unique information. The collection also should be properly organized and stored so individual specimens can be cared for and retrieved easily. Curating your treasures provides an opportunity to learn about the specimens you've collected while improving both the scientific and economic value of your collection.	Steven Veatch
April	Drawing and Sketching Workshop (Date TBD)	Drawing and sketching skills will be learned in this fun and happy workshop. These skills can be used to illustrate articles, research, and yes, even poetry. Yea!! This will be held at the Western Museum of Mining and Industry.	Steven Veatch Danielle Bogart Betty Merchant
April	National Poetry Month	Look for celebrations and fun events	
May 18	Crater Lake and Mt. St. Helens	Check out incredible geology of these two sites by two pebble pups!	Jerrod Gallup Nathan Gallup

Schedule subject to change

The **Future Rock Hounds of America Program**, sponsored by the American Federation of Mineralogical Societies, is an important part of the Lake George Gem and Mineral Club Pebble Pup program. All pebble pups are urged to participate in the program and earn merit badges. Instructions for earning each merit badge are on the following blog: <http://pebblepups.blogspot.com>

Earth Science Literacy Big Ideas	
1	Earth scientists use repeatable observations and testable ideas to understand and explain our planet.
2	Earth is 4.6 billion years old.
3	Earth is a complex system of interacting rock, water, air, and life.
4	Earth is continuously changing.
5	Earth is the water planet.
6	Life evolves on a dynamic Earth and continuously modifies Earth.
7	Humans depend on Earth for resources.
8	Natural hazards pose risks to humans.
9	Humans significantly alter the Earth.

The pebble pup program provides students with an overview of the origin and evolution of the Earth. Informed by the recently released Next Generation Science Standards, this program examines geological time scales, radiometric dating, and how scientists “read the rocks.” Students explore dramatic changes in the Earth over the last 4 billion years, including how life on Earth has changed. In addition to looking at geology on a global scale, students will take to their own backyards to explore and share their local geologic history. Students will bring their understanding of the dynamic Earth, along with materials presented, discussion questions, and assignments into their own powerful understanding.

Pebble pups that have an interest in a deeper dive in earth science projects are urged to work with Steven Veatch, who can supply individual projects to pebble pups where they will learn basic research, science writing, and experience the excitement of having their research published. Several of the pebble pups have published some of their work on the pebble pup blog.

Biography of Pebble Pup instructors:

STEVEN VEATCH lives on acreage near the Florissant Fossil Beds National Monument and grew up in the Pikes Peak region. He conducts educational geoscience programs and research throughout the Pikes Peak region. Steve is an adjunct professor of earth science at Emporia State University where he received an MS in earth science. Steve studied oceanography and meteorology while serving in the U.S. Navy. Steve teaches graduate classes on geoscience courses for the Colorado School



of Mines in the Special Programs and Continuing Education (SPACE) department. Steve has contributed chapters to 3 books: *Field Trips in the Southern Rocky Mountains, USA, Field Guide 5*, *The Paleontology of the Upper Eocene Florissant Formation, Colorado*, and *The World's Greatest Gold Camp: An Introduction to the History of the Cripple Creek & Victor Mining District*. Steve has also written numerous articles, essays, reviews, and monographs on climate change, paleoecology, dinosaurs, trace fossils, mammoths, and the Ice Age (Quaternary). His poems, science articles, and nonfiction work appears in newspapers and magazines. He is a coeditor of *Leonardo*, a literary journal of the Central New Mexico Community College. Each year he attends the Interlochen College of Creative Arts in northern Michigan where he joins a writer's retreat. Steven writes a popular blog called Colorado Earth Science. He is active in the Kansas Academy of Science, the Colorado Scientific Society, and the National Earth Science Teachers Association, and the Geological Society of America.

BETTY MERCHANT has been helping with Pebble Pup and Earth Science Scholar outreach projects for several years. This academic year she will also join us as an instructor. Betty has a BA in English, MED in Guidance and Counseling, and a BS in Geology. She is a retired high school science teacher. Betty taught physical science, Earth science, and physics. Betty also served as the science department chairman, served on many curriculum committees, and designed and produced elementary science shows for second graders. Betty was a member of the National Science Teachers Association, National Education Association, and the Aurora Teachers Association. She is presently a member of the Ute Pass Historical Society, Friends of the Fossil Beds, Western Mining Museum, and the Colorado Springs Mineralogical Society.

JOHN RAKOWSKI collected minerals and fossils since his early teens and read extensively about geology. John earned his degree in Geology and has worked as a Petroleum Geologist since 1968 exploring and developing oil and gas fields throughout the USA and several foreign countries. He has run his own geological consulting company since 1984. John continues an interest in geology as a hobby with mineral collecting and lapidary interests. John is a Certified Petroleum Geologist by the American Association of Petroleum Geologist, a Certified Earth Scientist and former Denver Chapter President and National Director of the Society of Professional Earth Scientists, a member of the Rocky Mountain Association of Geologists, member of Colorado Scientific Society, member of the Houston Geological Society, member of the New Orleans Geological Society, Board Member of the Pikes Peak Historical Society, President of the Lake George Gem & Mineral Club and active in the Indian Creek Property Owner's Association (was treasurer for 11 years).

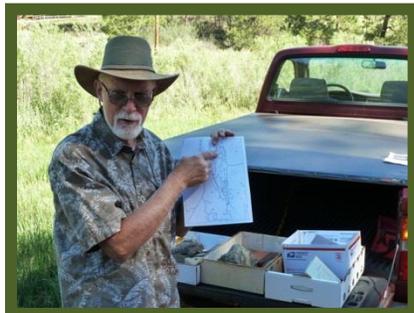


Pebble Pup Advisors:

Alister Cruickshanks is the editor of *Deposits* (United Kingdom). *Deposits* is a full color, glossy, 52-page high quality earth science, geology, and paleontology magazine. The magazine has gained a strong reputation worldwide for its superb quality of articles in topical areas. Alister is also a Director of UKGE Ltd (Leading Geological and Earth Science Supplier) Southwold, Suffolk, United Kingdom.



BOB CARNEIN has collected minerals since he was twelve years old, starting at sites in New England, New York, and New Jersey. His collection now numbers over 1,500 catalogued specimens, specializing in fluorescent minerals, crystallography, and the minerals of Franklin, NJ, the Cripple Creek district, CO, and Chuquicamata, Chile. After receiving degrees in geology and glaciology at Ohio State, Bob taught undergraduate geology courses at Waynesburg College and Lock Haven University, in Pennsylvania. From 1972 through 1988, he taught students from all over the U.S. through Waynesburg's field-geology course, offered during the summer at a field station in Florissant. He recently retired and does volunteer work at the Florissant Fossil Beds National Monument and Arabian Acres Metropolitan District. He is the editor of the Lake George Gem & Mineral Club's monthly newsletter.



Betty Cain is the former editor of the CSMS newsletter Pick N Pack. She continues to support our hobby in local, state, and national rockhound organizations.

Bill Cain has been collecting Earth materials since who flung the chunk. He served in the United States Navy and is now enjoying retirement and helping advise the Pebble Pups.

Contact information: Steven Veatch at 719-748-5010 or steven.veatch@gmail.com

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