




Pebble Pups Program 2017-2018



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: **Lake George Community Center**

| Month | Class Title | Topics | Instructor |
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| September 20 | Class: Minerals | We will work with minerals, how to identify them, and look at different kinds of minerals. | Steven Veatch |
| October 15 | Event: Cool Science Festival | Pebble Pups will participate and attend the Cool Science Festival at the University of Colorado at Colorado Springs. They will run an activity station in between exploring and participating in the various events at the event. |  |
| October 17 | Event: National Fossil Day | National Fossil Day is an annual celebration held to highlight the scientific and educational value of paleontology and the importance of preserving fossils for future generations. Pebble Pups will enter the art contest and participate in other activities. ART CONTEST: https://www.nps.gov/subjects/fossilday/art-contest-2017.htm |  |
| October 18 | Class: Volcanoes | In this class we will learn about volcanoes and the rocks they produce. | Betty Merchant |
| November 15 | Class: Fossils | Guest instructors will teach us how to process fossils once we get them out of the ground. We will be working with paleobond. | Tracie Bennitt |
| December 20 | Class: Writing About Your Rocks, Minerals, and Fossils | Pebble Pups will learn how to write short research papers, science poetry, and imaging specimens. | Steven Veatch |
| January TBD | Family Geology Day 2017 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 | Steven Veatch Betty Merchant |

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| January 17 | Class: Metamorphic Rocks | Metamorphic rocks are very common in the Colorado Front Range and are the most ancient rocks in the state. This "hands-on" lab teaches you how to recognize the common members of this large and varied group of rocks. | Steven Veatch |
| February 21 | Class: A Geological Odyssey | This class will explore various topics. | John Rakowski |
| March 21 | Class: The World of Fossils | This class is a basic introduction to fossils and paleontology. | Steven Veatch |
| April TBD | Event: Big Science Day at Colorado College | Pebble Pups will participate and attend the Cool Science Festival at the Colorado College at Colorado Springs. They will run an activity station in between exploring and participating in the various events at the event. |  |
| April 18 | Class: Basic Map Skills | This session will work on how to use maps, why they are important, and how to know where you are when you find a great fossil or crystal pocket so that you can come back next year to work on your discovery. | Steven Veatch |
| April | National Poetry Month | National Poetry Month each April is the largest literary celebration in the world. Pebble Pups will compete with other students by entering poetry based on any Earth science topic. |  |
| May 15 | 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. | Steven Veatch |

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

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| 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 a former 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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