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Engaging the Public with POOP

DR. JEREMIAH PAUL SHUSTER, PHD, CAMERON J TSUJITA, KENIQUE STEWART AND ALYSHA G MCNEIL

Western University

Coprolites are a distinctive type of fossil that often captures the curiosity of learners of all ages. Although they may provoke amusement or mild discomfort, coprolites remain effective educational tools. Their engaging nature provides a valuable opportunity to enhance (bio)geoscience literacy by fostering interest in topics such as minerals, microbes, or microscopy. The Permineralized Organics and Organisms Project (POOP) is an initiative that integrates student-led research with innovative teaching practices to create engaging educational materials for communicating geoscience to the broader public. The project is organized into three stages. Stage One consisted of student-led research focused on generating foundational data and developing a scientific understanding of excrement preservation; specifically, the processes through which material that begins as entirely organic becomes fully inorganic. This phase also examined the potential role of microbial activity in coprolite formation. Stage Two involved an experimental teaching approach with a “non-traditional” first-year university class to gain insight into how the findings from Stage One could be communicated effectively to a younger audience. Discussion-based activities encouraged students to think creatively and critically about scientific communication. The class was asked, *“How would you describe coprolites to your younger sibling or cousin?”* This prompted students to synthesize their existing scientific knowledge, draw upon analogies, and reflect on personal experiences to construct a conceptual framework for hypothesizing the abiotic and biotic environmental conditions necessary both to produce excrement and to preserve it through lithification. Stage Three, the current phase of the project, focuses on developing both digital and hands-on educational materials designed for elementary school-level students. These resources are intended for use in public outreach initiatives through the Richard W. Hutchinson Geoscience Collaborative Suite at Western University, as well as for potential distribution to educators and community partners. Biogeosciences inherently integrates concepts from microbiology, chemistry, and materials science. Although traditional academic research often prioritizes peer-reviewed publications, effective engagement and communication beyond conventional classroom environments remain essential for enhancing public understanding of environmental processes and geoscience. Strengthening geoscience literacy at early educational stages helps foster long-term awareness of Earth systems, sustainability challenges, and the scientific methods used to study them.