



Fourth Graders Step up to Concrete

As the snow melts and spring approaches, so does Mother's Day. For local fourth graders a field trip to Michigan Tech provides them an opportunity to learn about concrete while crafting their very own concrete stepping stone for a Mother's Day gift.

Activity Objectives

The objective of the fourth grade stepping stone activity is to introduce elementary kids to concrete and its importance as a building material. After water, concrete is the most consumed material on earth. We unconsciously rely on its attributes daily with little thought about our dependency. Students are also introduced to fundamental concepts of science, math and engineering. For some, this may be the first time they've looked through a microscope and seen something at a microscopic level. For many this might also be the first time they've visited a university campus. How these experiences impact their decisions in the future to attend college or pursue an educational and career in a STEM field is unknown. But it is safe to say the chances are greater given the opportunity this activity provides.

What Do They Learn

During their visit to Michigan Tech's campus and laboratories, the fourth graders experience the following:

- Get a microscopic view of concrete and a variety of other materials under electron and optical microscopes. This helps students gain a fundamental understanding of the relationship of the scale of a material matrix. On the surface, concrete is just a grey, hard, mass. But through the microscopes they begin to see the relationship of aggregate, air, and sand, and how their distribution can help give concrete its enormous strength.

Activity
Fourth Grade Stepping Stone

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Activity Summary

Outreach Publication



University Facts (2009-2010)

Total Enrollment	7148
Civil Engineering	546
Graduate Enrollment	1206
Number of Faculty	464
Placement Rate	87.5%

Michigan Tech ranks in the top 25% of public research institutions by the National Science Foundation and has annual research expenditures exceeding \$57 million. More than 56% of Michigan Tech's student population is enrolled in science and engineering degree fields with a campus-wide graduation placement rate of 87%.

Michigan Tech houses a wide complement of transportation-related programs partnering in research, technology transfer, education, and workforce development. Under the umbrella of the Michigan Tech Transportation Institute, federally funded centers collaborate with state and internally funded centers and programs. Federally funded programs include the UTC-MiSTI, Michigan's Local Technical Assistance Program, and the Region 2 Tribal Technical Assistance Program. State funded research centers and laboratories include the Michigan Department of Transportation funded Transportation Materials Research Center and the Center for Structural Durability. Internal programs include the Center for Technology and Training, and the Rail Transportation Program.

For more information, visit the University's website.
www.mtu.edu

- Witness a compression test of a concrete cylinder to understand how strong concrete is as a building material-for roads, bridges and building. When the pressure being applied is related to familiar objects like that of a car or an elephant, the true strength of concrete becomes apparent.
- Watch a batch of concrete being made as the ingredients are added to the mixer.
- Make their own stepping stone by placing scopes of fresh concrete in a mold and then adding custom decorations.
- When the concrete has cured, Michigan Tech staff deliver the finished stones to the school for each child to then present to a mother, aunt or grandmother on Mother's Day.

UTC-MiSTI's Role

The UTC-MiSTI supports this activity by providing school transportation reimbursement, provides materials for the activity including safety goggles, and covers staff time to support the construction and educational components during their visit to campus.

This activity's popularity has grown and now the fourth grade teachers are contacting the Center to schedule the event each spring.

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