Experiment: Strongest Concrete Challenge

Grades 9 – 12

**Tips:**
The point of this challenge will be to have the students apply what they have learned about concrete to design the strongest possible concrete mix given a certain set of variables and raw materials.

**Supplies:**
1. Raw Materials – Choose a certain set of raw materials from your local region. Include different types of rocks, sands, cements, pozzolans and admixtures.
2. Equipment – You will need to prepare multiple set ups of equipment to break a class up into groups of 4 to 6 students per mix. Pre-determine the exact supply list you will need. Remember to include tools, mix equipment, cylinders and cleaning supplies.

**Instructions:**
1. Coordinate with the teacher the time frame you will need and stress that it will take place on one day followed by a report back to the students 28 days later.

2. Clarify your goals with the kids. A prior session on concrete technology should have taken place. The basic mix design principles should be discussed so they will have a working knowledge of mixes and raw materials.

3. Encourage them to research different methods for concrete mixes.

4. Allow them to make the cylinders using a basic guideline.

5. During this exercise, concrete safety should be thoroughly covered and adhered to.

6. Use the time to get in touch with kids and turn on their interest to concrete. Provide the winning group with a small prize.