**Impact of Materials on Society**

**Module 7 - Concrete Research Experiment (Day 2)**

**Group #: \_\_\_ Group Names:**

**Pre-Class Assignments:** Optional reading for those interested in following an anthropological perspective on materials this week: [The Materials of Life](http://www.mrs.org/ingold-in-the-making-chapter-2/) (PDF), from Tim Ingold (2013) *In the Making: Anthropology, Archaeology, Art and Architecture.* Chapter 2: The Materials of Life. London: Routledge

**Activity Objective:** How does Concrete composition affect its tensile strength?

**Breaking Concrete Activity**

The concept is to create a simple impact testing machine by pulling the sledge hammer up to a height determined by a meter stick and then release the hammer, have it break the bar that is clamped between the 2 concrete blocks using the 36” clamps.

We will set up to break all the bars in class using an izod impact test. To do this we need to be extremely efficient. Each group will have people who load the bars, hold the measuring stick, drop the hammer, and film the process using their phone and record the data.

Using a cell phone camera, video measure how high the hammer swings after passing through the bar. The difference in height between the run without a bar and the one with the bar can easily be converted into the energy absorbed (mgh) upon breaking the bar and thus the toughness of the bar.

You will be required to by the end of Day 3 to turn in a short report (1 page) which discusses what you used to make each bar, your observations from the breaking process, the height of the sledge hammer before and after it strikes the bar and the calculated energy absorbed.

(energy absorbed = change in mass time gravity constant times height) (mgh).

Use the mass of the sledge hammer in kilograms, g=9.81m/s2 and the height difference in meters to get the energy absorbed in joules. Include your conclusions on the reinforced sample as well.