### Abstract
The objective of my project was to find out if the ratio of sand to cement changes the strength of concrete. My hypothesis states that the ratios between 60% sand / 40% cement to 60% sand / 40% cement would be the strongest ratios.

### Methods/Materials
I tested 11 different ratios of sand to cement. I tested 100% sand / 0% cement, 90% sand / 10% cement etc. I made a form by taking two pieces of angle iron and put the bottoms together so that I had a small box. I taped a piece of expansive joint every eight inches to make nine sections. I then calculated the amount of sand and the amount of cement I needed for each ratio. I mixed up the first ratio and poured it into each section of the form. I took the bricks out of the form after twenty-four hours. After I took the bricks out I had nine 2x2x8 bricks of concrete. I then let the bricks cure for another two weeks. I did this for every ratio. To break the bricks, I supported the brick over two tables. I then centered the brick over the two tables and slid a metal bar, that had a half hook on the other side, over the brick. Then I centered that on the brick and between the two tables. After that I attached an 's' hook to the half hook on the bottom of the metal bar and attached a bucket to the other end.

### Results
After I broke all of the bricks I found that my hypothesis was wrong. I found that the strongest ratio was 30% sand / 70% cement, holding an average of 25.46 kilograms. I found that the more cement you add the stronger the concrete gets until it is over 70% cement, then the concrete gets cracks in it. As the amount of sand decreases, the concrete is stronger.

### Conclusions/Discussion
In conclusion people should not use any ratio other than the ratio 30% sand / 70% cement if they want the strongest and the safest results. If you use a weak ratio in bridges or buildings, they could fall because the concrete is not strong enough to handle the weight.

### Summary Statement
In my project, I determined if the ratio of sand to cement changes the strength of concrete.

### Help Received
I received help from my science teacher on deciding how to break the concrete.