

How will rain affect water quality?



The Environment and You

The Stars Challenge at Monmouth University 2009

We began by looking into some of the ways decisions humans make are impacting the natural world. We also shared personal experiences of special natural places to understand just what was at stake.

Whale Pond Brook, the stream that runs through Monmouth University, was targeted for intensive investigation. Fun was had by all as we suited up in waders that seemed two sizes too big and ventured into the mud. Some of us displayed a talent for getting stuck and requiring repeated rescue. Serious science followed as we calculated rates of stream flow, surveyed macroinvertebrates, and took water samples for chemical analysis. Our findings were mixed. The rampant development around the watershed has negatively impacted the water quality, and a loss of biodiversity has occurred. However, the watershed did seem to be moderately healthier than in previous years, which indicated that some of the steps taken by the community were having a beneficial impact. For the first time, a few of our water samples tested negative for E. Coli, which is an encouraging sign.

Before time ran out (and we never seemed to have enough time), we studied Human Induced Climate Change. We manipulated carbon dioxide levels and measured heat retention in experimental atmospheres. We also experimented with changes in land use and determined how the color of the ground influences local heating. We discussed the urgent need to develop clean sources of energy. During our last class, we constructed solar powered cars, which showed some of the potential of green energy.

Commitments were also made by each student to participate in the Jersey Shore Science Fair, a competitive event where students will conduct their own original scientific investigations. Many students chose to pursue environmental topics. I look forward to continuing to work with them as they prepare for the March 2010 event.

Tread lightly on the Earth. Remember that your decisions have consequences. Take care of this precious blue world, the only home you'll ever know.

It's been my honor and pleasure to work with you.

E. Marc Coe



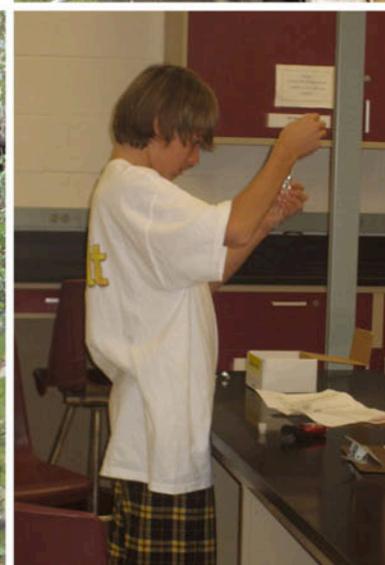


Exploring Whale Pond Brook – the water, flora, fauna, and the mud.



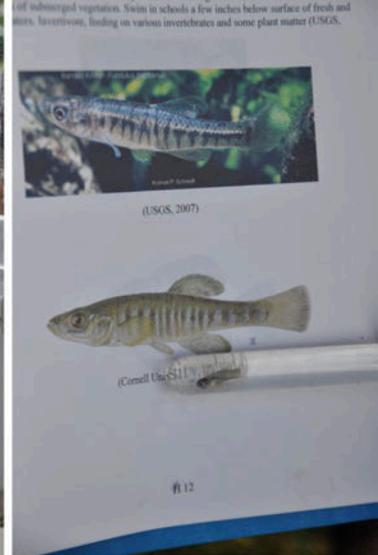


Searching for macroinvertebrates to determine the health of Whale Pond Brook.





We analyzed the water samples for phosphates, nitrates, pH and E. Coli. We did seem to get our share of rain!





Some of the organisms we found included two species of fish, and a variety of clams, worms and leeches.





Our search required patience and a tolerance for muddy fingers!





We simulated global warming in sealed soda bottles and determined that the color of the ground makes a big difference in temperature.



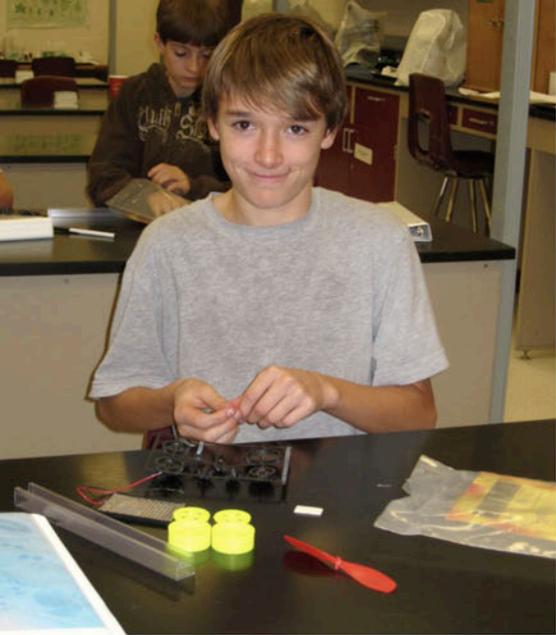


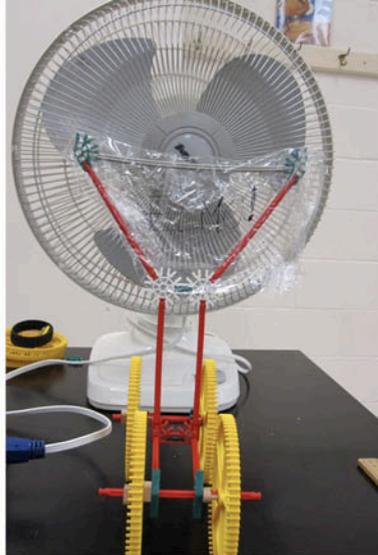
With higher carbon dioxide levels, the bottles warmed up quicker and stayed warm longer, proving a central element of climate change science.

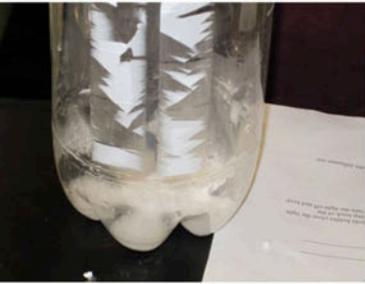




Science is often messy!









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