

TEAM Tox visit to Linus Pauling Middle School

October 30, 2012

Led by Diana Rohlman and McKay Allred

Following the Explorations in Toxicology workshop, Jenny Allen, one of the participating teachers at Linus Pauling Middle School contacted TEAM Tox, requesting current students come speak to her 8th grade Science classes. Her 8th grade classes had recently completed a module about oil spills and the requisite clean up.

In class, the students had discussed the ways the Deepwater Horizon oil spill was dealt with, primarily discussing the effects in the environment, and the use of the dispersant used in the Gulf. While the students had studied the ecological effects of the oil, they had not studied the methods by which scientists determined the following: if oil was still present in the water, and if present, at what concentrations.

We presented a 15 minute PowerPoint presentation about how mass spectrometry can be used to identify chemical mixtures, followed by a hands-on activity. The PowerPoint was designed by TEAM Tox, but the activity was designed in the EMT Seminar led by Dr. Jennifer Field, along with Sandra Uesugi and Naomi Hirsh from EHSC, as well as Jay Well from the SMILE program. The outcome of that seminar was a small apparatus that mimics a mass spectrometer. Built like a slingshot, the apparatus applies the same amount of force to an object. Using balls of different known mass to represent different chemicals, we measured the time it took each ball to travel 20 feet. These balls are used to construct a standard curve. The students then deployed a ball of unknown mass, and estimated the mass of the unknown by using the standard curve.

In total, four classes of 8th graders (120 students) and two 8th grade teachers participated in the event, held at Linus Pauling Middle School.



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TEAM Tox taught 4 8th grade classes about how mass spectrometry can be used to identify chemical mixtures. This was followed by a hands-on activity using the mock mass spectrometer developed in the Winter 2011 EMT Seminar (shown on the right). Using balls of different known mass to represent different chemicals, we measured the time it took each ball to travel 20 feet. The students then deployed a ball of unknown mass, and estimated the mass of the unknown by using the standard curve.

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