

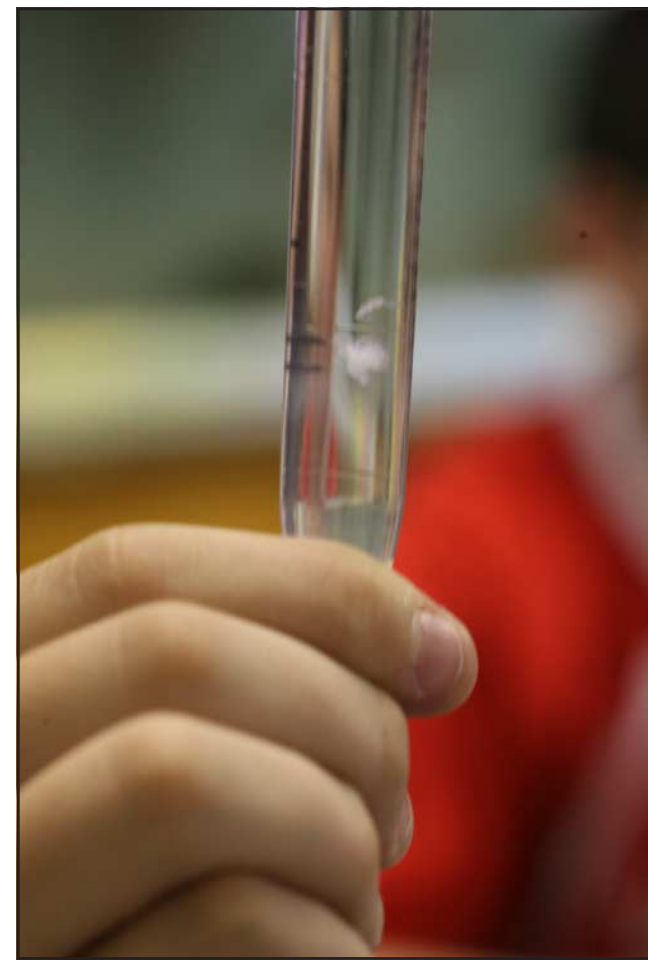
Finding out about DNA

All six of Marge Gaskin's 6th grade classes in the Holley Elementary School had a scientific treat on March 15 and 16 - they participated in a lab exercise isolating their own DNA sample. Conducted by Jana Penders, parent of a sixth grader and biologist and owner of "Science Outside the Box," an educational programming and consulting service, the lab exercise was run over a two-day period. During the first class, the students placed a small amount of water in their mouth and gently "chewed" for 30 seconds. The "chewed" water was then placed in a test tube along with a Lysis buffer solution and a mix of table salt and Protease. After inverting the mix several times, the test tube and contents were heated to 50 degrees Centigrade for ten minutes, after which cold alcohol was added. That mix was inverted several times. A cloud of DNA started to form at the alcohol-water solution interface and the mixture was allowed to stay overnight. During the Friday class, as Jana explains it: "We collected the cheek cell DNA, using a pipette, and put it into a little glass vial and made a necklace out of it. It brings up good questions about who should have a sample of our DNA."

According to Penders, Lysis breaks down the cell and nucleus membrane to release the DNA, a buffer stabilizes the DNA, Protease treatment increases the amount of DNA that can be extracted and salt allows the DNA to clump by off-setting the natural electrical repulsion of DNA molecules to each other.

During the session, Penders asked questions of the class to make sure they understood what was going on. Penders said she conducted the lab at her own expense because she believes so strongly that science needs to be hands-on for students to gain a true and deep understanding.

by Walter Horylev



The precipitated DNA looks like a clump of fluffy, stringy white material floating in an alcohol and water solution mixture in this test tube.



Rachel Penders, presenter Jana Penders' daughter, closely examines the DNA sample.

Photographs by Walter Horylev



Victoria Neary concentrates as she transfers her DNA into a small vial.



Kurtis Griswold carefully extracts his DNA from the test tube.



Jessica Nenni writes her name on a test tube containing her DNA.



Travis Singer uses a pipette to move his DNA from a test tube to a small vial.