

## UP WITH SCIENCE GROUP AT FABI WIN “GOLD”

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During the 1<sup>st</sup> half of 2008 Markus Wilken, Natalie Van Zuydam and Quentin Santana mentored 7 grade 11 learners through the UP with Science program. The learners were really enthusiastic throughout the project and enjoyed the many scientific aspects it encompassed. We designed a project that would introduce them to the basic concepts of science through the unseen world of microbes. The project involved primary isolations, pure culturing, PCR and sequencing. The learners were encouraged to take an independent approach to the project and they achieved many of the aims of this project.

The aim of the project was to isolate and identify microbes from surfaces around the campus. Areas that were screened included drinking water, hand dryers, bird feathers and toilets. A wide array of environments made for some interesting results!

Using culturing techniques pure isolations of the microbes were made. Identification was achieved by using molecular techniques such as PCR and sequencing. They learnt the importance of a good experimental design that includes positive and negative controls and gained basic bioinformatics skills through analysis of sequencing results and the use of online bioinformatics resources (NCBI). The results were as surprising to us as to the learners. The microbes found ranged from small red smears to fuzzy grey colonies.

Regions that were successfully amplified and sequenced by the learners served as a genetic barcode to identify several species. They identified microbes associated with humans (*Micrococcus luteus*) as well as microbes responsible for food spoilage (*Bacillus subtilis*). A quick screen using household detergents proved the value of cleaning in eradicating the different microbes.

We were very lucky to spend time with a group of diverse and enthusiastic young learners. They found the project stimulating and exciting and this is reflected in the results that they produced. Thanks to the funding from the Centre of Excellence we were able to introduce the group to the fundamentals of science while having fun.

We are delighted to announce that this group took their project to the ESCOM Regional Finals of the National Expo for Young Scientists and won Gold!! Congratulations to the team!!

From l to R: Kerry Bodenstien (Pretoria Girls High School)

and Lauren Damm (Afrikaanse Hoër Meisieskool)

