DIY Physics
(C1 H2 Physics HBL)

Lesson Description

The theme of this year's HBL is Do-It-Yourself Physics. The objective of this year's HBL is to entice students to the fun of performing their own experiments/investigations. The inspiration behind this theme came from Nobel Laureate, Prof. Douglas Osheroff. He shared with the audience that his keen interest in Science or Physics was largely influenced by his dad who gave him numerous opportunities to get his hands 'dirty' and to perform investigations/experiments on his own.

Methodology

Students are provided a list of websites to choose a Physics-related demonstration/experiment of their interest to conduct and captured it in video as evidence that they had indeed Do-It-Yourself. The explanation or concept behind the demostration/experiment is usually provided in the website as well.

2. Students are then supposed to think of an extension to their original demonstration/experiment. The extension could take the form of achieving the same result in another way (i.e. make some modification here, change the material here..etc). Or the demonstration/experiment could be tweaked to show another physics concept. The extension should allow the students to demonstrate their understanding of the physics behind the task as well as allow students to come up with creative extensions for their demonstration/experiment.

3. Students are required to do a 150-word write up to explain their ideas behind the extension video

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4. Students are required to upload their videos to youtube. They then email a winword document containing the URLs to their videos, and the 150-word write up.

Outcomes

Becoming IT Savvy

Many students are learning to use a video camera, and using a movie-editting software for the first time.

Joy

Students could choose a demo that suits their own interest. Eg. A student who had an interest in music chose to build an oboe out of a straw, and learnt some physics along the way.
http://www.youtube.com/watch?v=VyCPQ9wmebw

Cultivating the inquisitive mind

Eg. this student, after doing the standard fire-proof balloon demo, went on to investigate why a balloon burst in the first place.
http://www.youtube.com/watch?v=XwuVbdrjs2o

Grooming the observant scientist

Eg. this student, while working on the extension to the famous "dancing raisin" demo, stumbled into the observation that the temperature actually affects the size of bubbles, and rate of bubble forming in a soft drink
http://www.youtube.com/watch?v=WGrbHl6vUvQ&feature=channel

Easy Preparation

Do-It-Yourself Physics takes relatively less effort to prepare as it only required detailed instructions for students.