The International Physics Tournament

The goal of program is to encourage for physics studies by exposing students to a unique, stimulating and creative learning of physics principles.

- The method is by putting together a team of 5 students to construct a locking mechanism that is based on principles of physics, for a safe (a box).
- The students go through the process of learning the physics, integrating their knowledge, thinking of new ideas, testing them and encountering obstacles along the way, problem solving.
- The program mimics the experimental sciences in general (and physics in particular) by exposing the students to the steps that are required in the process of translating the theory to the final results in the lab.
- The communication between high school students and PhD students is exceptional and this continuous interaction over the course of several months shapes the way the students approach challenges.
- Meeting the Physics Faculty on the day of the tournament is a unique opportunity that leaves a mark on the participating students.

Some countries organized a local tournament to select for the best team to represent their country, while in other countries we reach out to specific schools that are able to put together a team.

Although **the International teams** are supported by our graduate students at the Weizmann, they are required to be mentored directly by a local physicist / teacher. The team's mentor will be guided and supported by the Weizmann's physics counsellor. Thus, local teams will be mentored by local teachers/ graduate students who will be in direct communication with the Weizmann's physics counsellor.

Mentor's Role:

Mentors are role models for the students with their knowledge and the way they listen and respond to the students, using scientific methodology and leading by

example. Sometimes a team will not meet the criteria and therefore will not continue to competition stage. The mentors, physics counsellors at the Weizmann Institute of Science will be able to assist and guide you.

Mentors' role in brief:

- Receiving initial safe concepts from teams. Review them and then give feedback on where improvements or changes need to made (examples of replies from a previous mentor are in a separated document).
- After approval of the concept, the students will need to develop their initial idea and show progress to the mentor by email/ Skype. The mentor will need to give advice on these developments and challenge the students' ideas.
- Next, the teams need to present their prototype to the mentor, showing proof of the two physics riddles which will be used for their safe.
    - The students will need guidance at this stage, as usually they don't fully understand how to implement the ideas. The mentor should assist by questioning their ideas and rephrasing into physics terminology. Mentors need to ensure that they are not leading the ideas and that the students are independently progressing.
    - The mentor needs to facilitate learning by lending their knowledge and scientific thinking, triggering their questions to encourage a more in-depth level of thinking. Mentors need to present challenges to the students; ask what obstacles may arise in their ideas & how they plan to overcome these. Mentors do not providing the solutions, but rather support the students' search for the answers.
    - At the end of each meeting, mentors are required to summarize and focus the students on the next steps to ensure they are clear on what they need to do to reach for the next milestone.

- Following the proof of concept, the team then starts building their safe, during which time they are to keep in regular communication with the mentor.

Please use the website for criteria and previous safes to ensure that you are guiding the students correctly:

http://davidson.weizmann.ac.il/en/safecracking,
http://davidson.weizmann.ac.il/en/archive