

International Tournament Score Determination

The final score will be determined on the basis of a four-component weighted average:

1. Scores by senior judges: 45% of the final score

Each group will be tested by a professional team of three judges: Faculty members from the Weizmann Institute of Science, the Davidson Institute for Science Education, and selected teachers. Each judge will examine the team individually and separately.

Judges consider:

- The process of developing the theoretical concept – formulating the idea and organizing and integrating the information.
- Knowledge and understanding – exercising sound judgment in selecting the physics principles, the level of understanding of all the team's members and cooperation among them, their ability to relate to other phenomena or uses.
- Implementation – straightforward, continuous, and elegant safe operation, creating an aesthetic safe, and using materials suitable for the mechanism.

Rubric for judging

The domain	Dimensions	Criteria
Knowledge and understanding	Explanation of the safe	Demonstrating personal and group knowledge while eloquently presenting the physical principles (team expertise is shared)
		Use of language, physical concepts and context
		Introducing knowledge of the physics law in depth and breadth (link to other topics or uses)
		Understanding the technology behind the components
Application	The physics aspect	The principles / laws integrate nicely and support one another
		The safe is challenging
	The technological aspect	The use of components and technology illustrates and brings to light the scientific law / principle
		The visibility of the safe
	The safe has a unique design that integrates with the content	
	The activation of the safe	Safe is simple to operate
		Continuous - There is a sequence of operations that creates a harmonious flow of cracking the safe
		The ability to use the safe and put it back into action
General Impression		

2. *Student evaluation – safe crackers’ feedback: 20% of the final score*

Ranking criteria:

- **Implementation** – the safe presents an original idea and a simple, continuous, and elegant operation.
- **Quality and finish** – the safe is aesthetic, made of materials suitable for the mechanism.
- **Interaction with the safe team** – team members polite and the safe is fair.

Rubric for peers - cracking the safe

The domain	Criteria
Interest	The ideas Integrate and create an interesting concept
Innovation	The safe has innovative components
Using principles	The principles used are familiar, but the way they are implemented is not self-evident
Cracking	The level of difficulty in cracking the safe is reasonable, one that is challenging but possible
	The safe is built on familiar principles
	The use of these components is really required and creates a proper sequence for operation
	Cracking the safe is fun

- **Team’s success in cracking other teams’ safes:**

3. *The team’s success in cracking other teams’ safes: 25% of the final score*

4. *Safe resistance to cracking attempts: 10% of the final score*

Important Notes

- **Submitting the concept for the safe** will be done in electronic form only. Hand-written forms or manual drawings will not be checked and no corresponding notice will be sent.
- Teams must meet all the milestones according to the schedule published on the program’s website. **Continuing to participate in the tournament requires meeting all the goals.** In addition, contact must be continuously maintained with the tournament’s Physics counsellor.
- Prizes will be awarded to the three winners of the international tournament.
- The safe descriptions of each team will be published on the website.

For Further Information: Tournament Director on behalf of the Davidson Institute for Science Education:
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