



International Mathematical Modeling Challenge - Canada

IM²C-Canada Contest Committee
Department of Mathematics and Statistics
York University



Canadian Applied *and* Industrial
Mathematics Society
Société Canadienne de Mathématiques
Appliquées et Industrielles

science



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If you don't know where you're going,
you will probably end up someplace
else

---- Yogi Berra



Overview

- Modelling Contest Mission statement
- What is a Math Modelling contest ?
- What is a Model ? / What students need to know ?
- Modeling Framework
 - Understanding Problem and Deriving a Plan
 - Execute/ revise a plan and Validating and Conclusion
- Role of Supervisors During Contest
- Final Report Tips



Mission

To provide Canadian High School students with **fun, unique and exciting experience** where they can use their mathematics and computer skills to solve real world problems creatively.

**Not (only, just) to win
but to have fun while learning!**



Modeling

- **Math Modeling** links classroom knowledge in math stats to solve real problems in everyday life
- Engage students in mathematical reasoning, creative problem solving and team working
- Offers a natural platform and ample resources that can be used to assist students to make meaningful connection between the real world and the abstract mathematical world



Modelling Contest

- **Motivate**
- Instil in a sense of **discovery and accomplishment** in **defining and refining** their mathematical model
- Designed so there is **always more to do!**
- **Applies mathematical thinking to real life problems.**



How IM²C- Canada Works

- Targeted groups: Grades 9 and 12 in public and private schools
- Free Registration (extended to): April 20, 2016
- Format: One word problems, any consecutive 5-day, access to their own computer lab, a team of up to 4 students supervised by a teacher,
- Electronic Submission of:
 1. Executive summary
 2. A full report
 3. Sign Control Sheet
 4. Signed Parental/ Guardian Authorization Form



Role of Supervisors During Contest

Help with **registration**

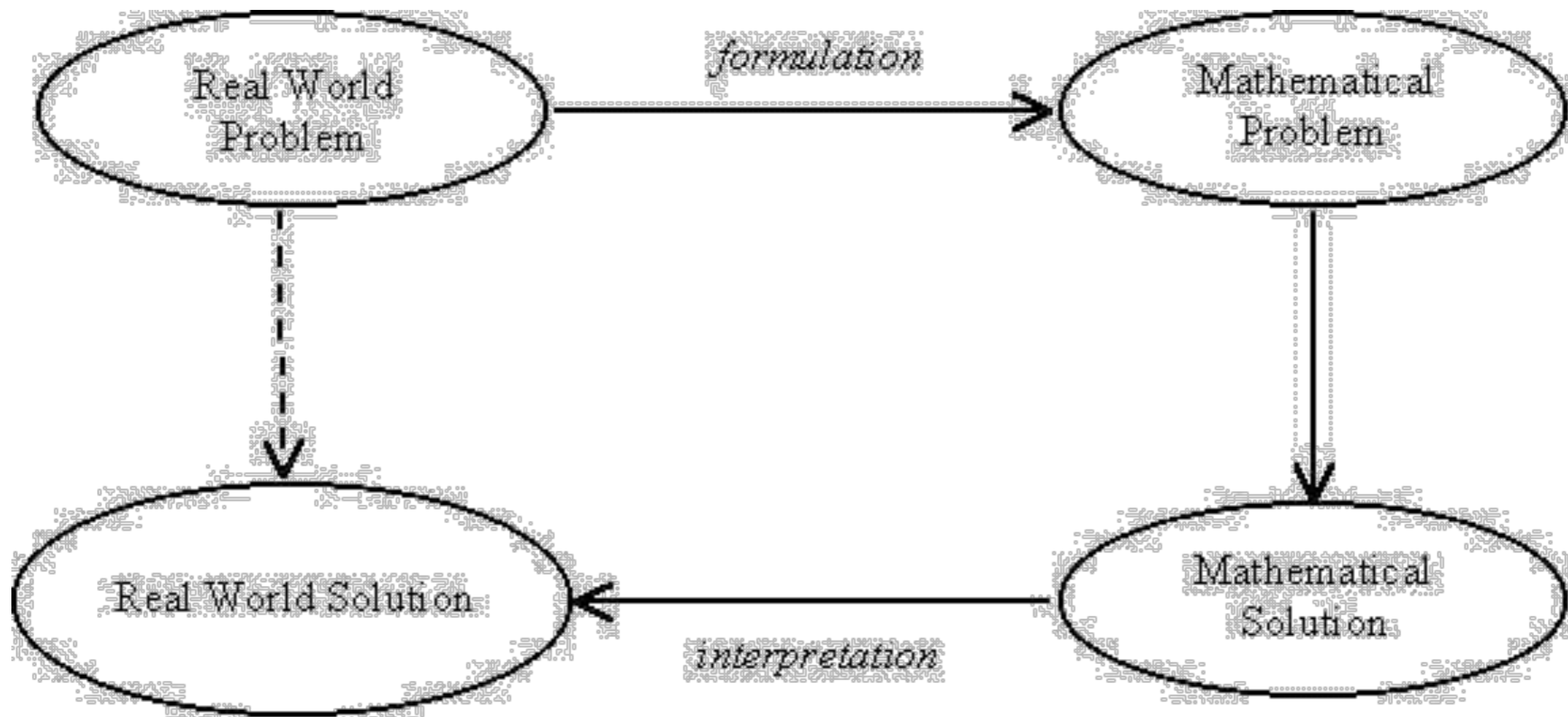
Check that team follows Contest Rules

Meet **submission deadlines**

Help team **upload** solution **summary** and **paper** & **signed forms**



How to Approach a Modeling Problem





How to Approach a Modeling Problem : Pólya's 4-Step Framework

- **Understand the problem:** Determine where you are going?
- **Plan a strategy for solving the problem:** Decide how to go about solving it
- **Execute your strategy and revise it if necessary:** Carry it out
- **Check and interpret your result:** Don't stop yet.

Does the model “make sense”?

How “sensitive” are the variables to the model's results?



Final Report Tips

- **Don't forget to write !** Write early, write often.
- Use online collaboration writing
(Google DocsTM, SagemathcloudTM)
- **Summary that intrigues** the reader and is clear and concise. It is the first thing that judges read.
- **Justify** and **present assumptions** and model logically
- Use **visualizations and tables** to clarify the complexity and present findings.
- Explore the strengths and weakness of your model.