The Math Modeling Hub: a New Online Community of Practice for Educators

Presented by
Jason Douma
University of Sioux Falls

SIAM ED18 Minisymposium on
Communities of Practitioners for Math Modeling Education
9 July 2018
It All Started When...

The seeds of the Math Modeling Hub can be traced back to 2012, when SIAM sponsored an NSF-supported *Modeling Across the Curriculum (MaC)* workshop, designed to improve STEM education by promoting mathematical modeling across all grade levels.

Principal Investigators
James Crowley and Peter Turner
Among the four major recommendations from the 2012 MaC workshop was the following:

“Develop a repository of materials for all aspects and levels of math modeling instruction and understanding. To include but not limited to: course lesson plans, articles, books, web sites, videos, contests, problems and solutions” (Modeling Across the Curriculum (2012), p. 4).
It All Started When…

In 2014, SIAM convened the NSF-supported *MaC II* workshop. Its recommendations included:

“[Create] peer-networks and social networking sites for teachers to share ideas, and locate materials that have been class tested,” and

“Develop a curated Repository of peer-reviewed and tested materials covering projects, curricular components, career and public awareness (Modeling Across the Curriculum II (2014), p.23).”
It All Started When...

The report from the *MaC II* workshop also recommended the development of Guidelines for Assessment and Instruction in Mathematical Modeling Education (GAIMME). Work on this project commenced immediately after *MaC II* and was completed in 2016.
It All Started When…

As the GAIMME report was disseminated, a common response was “great ideas, but we will need sustained access to mentors and materials in order to make them stick.”

Do you see a recurring theme?
In November 2016, a group led by Rachel Levy developed a proposal for “an online community and repository focused on the teaching and learning of mathematical modeling education.”

The proposal received startup funding (jointly) from SIAM, COMAP, and the NCTM.

In January 2017 a steering committee was formed, and we were on our way!
Why me?

I am not one of those great luminaries in applied mathematics education. I’m actually a (very abstract) group theorist and philosopher of mathematics in most of my previous scholarship.

But...I have seen the power of mathematical modeling to cultivate interest in and a more authentic understanding of mathematics, especially among my students.
Why me?

Therefore, I want to become a better math modeling educator. And I want to participate in a community that works together to support this goal.

And that is exactly what the Math Modeling Hub (MMHub) is designed to be. I belong on the MMHub because we all belong on the MMHub, regardless of our backgrounds, expertise, or notoriety.
What is the MMHub?

• The MMHub is an online repository of information, seeking to provide educators with resources for classroom use such as lesson plans, instructional guides, and worksheets.
• The MMHub supports “sandbox" areas where educators can collaboratively develop, edit, and test modeling ideas.
  • The MMHub is a community of practice, bringing educators into conversation and collaboration.
Where is the MMHub?

The MMHub lives on the QUBES platform, an NSF-funded framework created for sharing resources and engaging in collaboration.

The MMHub may be found at mmhub.qubeshub.org

Membership is free. (You just need a QUBES account.)
When is the MMHub?

Now! (Sort of.)

Today marks the transition of the site from an initial small group of project developers to a public beta-testing phase.

The MMHub is a work in progress, but real progress will only come from real users!
MMHub Overview

ABOUT THE GROUP

Public Description

Welcome to the MMHub: Mathematical Modeling Hub!!!

The Modeling Hub aims to facilitate the integration of mathematical modeling in classrooms, by providing resources for both students and educators. We also want to foster a community where teachers from pre-kindergarten onward can share these resources. The Hub offers a free repository of lesson plans, worksheets, and more. Users can also connect to a network of educators for faculty development, discussion, and mentorship. The funding of this site by COMAP, NCTM, and SIAM, creates the opportunity for network members to meet up in person at conferences hosted by these organizations.

This is an open group. To participate in the discussions, please log-in to your QUBES account, and request to join the group!
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MMHub Overview: Forums

Mathematical Modeling in the Classroom
Post anything here related to mathematical modeling in the classroom. Want ideas for your class? Want to share something that worked well? Want to connect with others teaching the same class for curriculum ideas? Post here!

MMHub Community Forum: Introductions, announcements, and more!
Post anything related to the mathematical modeling community here!
MMHub Overview: Projects

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## MMHub Overview: Projects

### Projects

[Add Project]

### Project List (17)

<table>
<thead>
<tr>
<th>Title</th>
<th>Status</th>
<th>My Role</th>
<th>Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerated Reader</td>
<td>active</td>
<td>manager</td>
<td>Selected members</td>
</tr>
<tr>
<td>Arranging a Classroom</td>
<td>active</td>
<td>manager</td>
<td>Selected members</td>
</tr>
<tr>
<td>Beanbag Toss</td>
<td>active</td>
<td>manager</td>
<td>Selected members</td>
</tr>
</tbody>
</table>
Welcome to your new project area!
What's next? We recommend that you start here:

- Invite people to join
- Add a few to-do items to track
- Add some project notes

Updates

Subscribe to feed updates

Recent Member Visits
MMHub Overview: Projects

Resources Community Services

Community Groups Faculty Mentoring Networks Partners

You are here: Home / Groups / Math Modeling Hub / Projects / Beanbag Toss

Jason Douma  Jul 7 at 02:40pm
posted version 1.0 of resource "Beanbag Toss (Grades K-2)"

Jason Douma  Jul 7 at 02:35pm
uploaded immersion_logo.jpg in project files

Jason Douma  Jul 7 at 02:23pm
started a new resource (id 691)

Jason Douma  Jul 4 at 08:41pm
uploaded BeanbagToss_LearningGoals.docx and 19 more files in project files

Publications See all
Beanbag Toss (Grades 6-8)
v. 1.0 (posted)
Beanbag Toss (Grades 3-5)
v. 1.0 (posted)
Beanbag Toss (Grades K-2)
v. 1.0 (posted)
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Private Description
MMHub Overview: Resources

Resources

- What is Math Modeling?
- Podcasts
- Videos
- PreK-2
- 3-5
- 6-8
- 9-12
- Undergraduate
- Graduate
MMHub Overview: Resources
MMHub Overview: Resources

3rd - 5th Grade

Beanbag Toss (Grades 3-5)
Jody Britten...et. al
Pomona Unified School District, CA

Design a Zoo (Grades 3-5)
Project IMMERSION

Building the Best Playground (Grades 3-5)
Marka Carson...et. al
Pomona Unified School District, CA
MMHub Overview: Resources

Beanbag Toss (Grades 3-5)

Jody Britten
Pomona Unified School District, CA
The classroom lesson presents students with the task of developing a fair—yet challenging—beanbag toss game.
Version 1 - published on Jul 07, 2018
Numbers, Measurement, Activity
0 downloads

Design a Zoo (Grades 3-5)

Project IMMERSION

Building the Best Playground (Grades 3-5)

Marka Carson
Pomona Unified School District, CA
Beanbag Toss (Grades 3-5)

By Jody Britten¹, Marka Carson, Jacob Cordeiro, Misael Jiminez¹, Erika Villegas-Jiminez¹

Pomona Unified School District, CA

The classroom lesson presents students with the task of developing a fair--yet challenging--beanbag toss game.

Listed in Teaching Materials | resource by group Math Modeling Hub

1 This a live resource with the page and content publicly available. Manage this resource. from project Beanbag Toss

Version 1.0 - published on 07 Jul 2018
doi:10.25334/Q4B3W - cite this

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Pain Medication Treatment Modeling Project

By Ricardo Cortez
*Tulane University*

This classroom modeling project applies mathematical techniques to solve a problem related to drug dosage patterns. Suitable for high school or undergraduate students. Prerequisite: Calculus I.

Listed in Teaching Materials | resource by group Math Modeling Hub
Math Modeling for High School Students

The Math Modeling Challenge offers resources for high-school students and teachers. Sample problems, ranging in difficulty, can be found here. The following is the Challenge Problem for 2017, which can be found online.
Future Plans

- Add videos and podcasts to the MMHub resources.
- Integrate teacher mentoring networks into the life of the MMHub.
- Encourage regular activity on the forums and in the project sandboxes.
- Establish a MMHub Editorial Board.
- Enhance curation of the repository.
Who is the MMHub?

The Math Modeling Hub is a community of people like you.

I hope you will join us!