

# Assessing Math Modeling Activities

**Start small, get bigger.** The first modeling task of the year should be completed in one class. This will minimize the risk of overwhelming your students. Then increase the scope to projects that last two or three days, and by the end of the year, your students can tackle a much larger project. Some places where you can find great activities of varying lengths:

- Robert Kaplinsky: <http://www.robertkaplinsky.com/lessons>
- Illustrative Mathematics: <https://www.illustrativemathematics.org/>
- Catalog of 3-Act Tasks: <http://tinyurl.com/Catalog3Acts>
- Moody's Challenge: <http://m3challenge.siam.org/resources/sample-problems>

**Allow self and peer reviews.** Students can assess each others' work, and often they're more critical of their work than you'd ever be. Use your time effectively by allowing students to review with a partner. Students improve their modeling and communication skills as they engage in MP.3, critiquing the reasoning of others.

**Keep it simple.** Problem- and project-specific rubrics are precise, but they take time to create. Instead, concentrate your efforts on finding and reviewing tasks, and then use a general modeling rubric that can work for many different activities.

You can use a general scoring rubric:

- **2 points:** correct conclusion + sufficient reasoning
- **1 point:** correct conclusion + insufficient reasoning OR incorrect conclusion + valid reasoning

Or you can use a rubric that evaluates each portion of the modeling process:

Process	Score	Weight	Total
<b>Variables:</b> Define Problem, Identify Variables, Important Features		1	
<b>Model:</b> Formulate Model, State Assumptions, Describe Relationships between Variables		3	
<b>Operations:</b> Correct Mathematics, Analyze Variable Relationships, Perform Operations on Variables		2	
<b>Interpretation:</b> Obtain and Interpret Solution, Evaluate Model		3	
<b>Validation:</b> Improve Model, Revise Solution		2	
<b>Presentation:</b> Summarize Reasoning Process, Validate the Model, Present Model and Solution		1	

**Use a mix of formative and summative.** Not every task needs a grade. Math modeling is a developmental process. Students should continually show progress, but that growth takes time. It may be unfair to assess their work from the beginning. Instead, formatively assess students by asking lots of questions ("What did you do?" and "Why did you do that?"), and use that information to guide selection of future tasks. The collective data that you gather can be compiled to yield a summative grade or score when the time comes.

