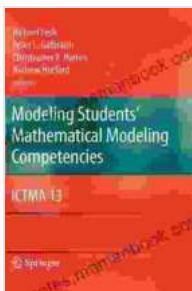


# Modeling Students' Mathematical Modeling Competencies: Findings from ICTMA 13

Mathematical modeling is an important skill for students to develop in order to be successful in STEM fields. Modeling allows students to apply their mathematical knowledge to solve real-world problems, and it helps them to develop critical thinking and problem-solving skills.



## Modeling Students' Mathematical Modeling Competencies: ICTMA 13 by Timothy Schaffert

★★★★★ 5 out of 5

Language	: English
File size	: 7270 KB
Text-to-Speech	: Enabled
Screen Reader	: Supported
Enhanced typesetting	: Enabled
Word Wise	: Enabled
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The 13th International Conference on Technology in Mathematics Education (ICTMA 13) was held in July 2013 in Taipei, Taiwan. The conference brought together researchers, educators, and students from around the world to share their latest research on the use of technology in mathematics education.

One of the themes of ICTMA 13 was mathematical modeling. A number of studies were presented at the conference that investigated the mathematical modeling competencies of students. The findings of these studies provide valuable insights into the teaching and learning of mathematical modeling.

## **Research on Mathematical Modeling Competencies**

A number of studies have investigated the mathematical modeling competencies of students. These studies have found that students who are successful in mathematical modeling have a strong understanding of the modeling process and are able to apply their knowledge to solve real-world problems.

The modeling process typically involves the following steps:

1. Identifying the problem and defining the goal.
2. Creating a mathematical model of the problem.
3. Solving the model.
4. Interpreting the results and making predictions.

Students who are successful in mathematical modeling are able to complete all of these steps effectively. They are able to identify the important features of a problem, create a mathematical model that accurately represents the problem, and solve the model using appropriate mathematical techniques. They are also able to interpret the results of the model and make predictions about the future.

In addition to having a strong understanding of the modeling process, students who are successful in mathematical modeling also have a number of other competencies, including:

\* Communication skills: Students need to be able to communicate their ideas clearly and concisely, both orally and in writing. \* Problem-solving skills: Students need to be able to identify and solve problems, and to think critically about the results of their solutions. \* Critical thinking skills: Students need to be able to analyze information and to make informed decisions. \* Creativity skills: Students need to be able to come up with new and innovative ideas.

## **Teaching and Learning Mathematical Modeling**

There are a number of things that teachers can do to help students develop their mathematical modeling competencies. These include:

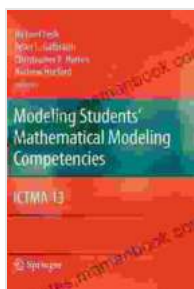
\* Providing students with opportunities to engage in mathematical modeling activities. \* Providing students with feedback on their modeling work. \* Encouraging students to collaborate with their classmates on modeling projects. \* Using technology to support students' learning of mathematical modeling.

Technology can be a valuable tool for teaching and learning mathematical modeling. Technology can be used to:

\* Create interactive simulations of real-world problems. \* Collect and analyze data. \* Solve complex mathematical models. \* Communicate modeling results.

Using technology can help students to learn about the modeling process and to develop their modeling skills.

Mathematical modeling is an important skill for students to develop in order to be successful in STEM fields. The findings of studies on mathematical modeling competencies provide valuable insights into the teaching and learning of mathematical modeling. Teachers can use these insights to help students develop their mathematical modeling competencies and to become more successful in STEM fields.



## Modeling Students' Mathematical Modeling

**Competencies: ICTMA 13** by Timothy Schaffert

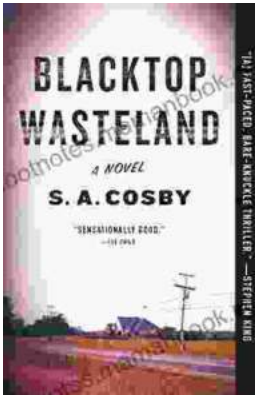
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