
Focus in High School Mathematics: Reasoning and Sense Making in Statistics and Probability

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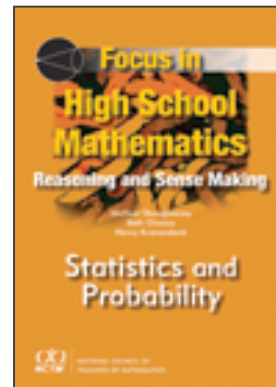
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Mathematical and Pedagogical Knowledge: Books

DESCRIPTION

Focus in High School Mathematics: Reasoning and Sense Making Statistics and Probability, by J. Michael Shaughnessy, Beth Chance, and Henry Kranendonk, argues that statistical reasoning must be a high priority for school mathematics and is essential for employment and continuing education in an increasingly data-intensive world. Six activities are described that provide for the investigative process of a statistical study, taking students through four fundamental stages:

1. Formulating a question that can be addressed with data
2. Designing and employing a plan for collecting data
3. Analyzing and summarizing the data
4. Interpreting the results from the analysis, and answering the question on the basis of the data



Each of the six chapters is organized to present a statistical task and to include information including the purpose of the investigations, key elements, habits of mind addressed in the tasks, and important statistical ideas in the investigation. Additionally, the authors provide suggestions for how to carry out the task with students, examples of students' reasoning, and notes explaining decisions to do things certain ways. The six tasks include:

1. Country Data
2. Old Faithful
3. Olympic Times
4. Coffee Drinking
5. Meaningful Words
6. Soda and Heart disease

STAGE 1 LEADERSHIP DEVELOPMENT

Focus in High School Mathematics: Reasoning and Sense Making Statistics and Probability, by J. Michael Shaughnessy, Beth Chance, and Henry Kranendonk, supports stage 1 leadership development of a specialist working to meet the Teaching and Learning principle. This book

provides examples of activities and teaching methods that will be useful in developing and modeling knowledge about improving student learning. The six investigations are examples of ways to develop reasoning about data and provide opportunities for the specialist to work through the investigations alone or with colleagues. The authors recommend writing reflections in a journal. General information about student reasoning and sense making along with thoughts you have about what you might do differently the next time you use the investigation might be included. Suggested reflection prompts include:

1. What did you learn about your students' reasoning and sense making as they analyzed and discussed the media clips in this activity? Did anything happen that you expected? Did anything happen that surprised you?
2. Where in your curriculum or your school setting do your students have an opportunity to analyze statistical reports or statistical studies as reported in the media? What would you make opportunities for them to do so?
3. Summarize how you might do things if you were to provide your students with another opportunity to analyze a statistical study or critique a study as reported in the media. What would you retain from the investigation as developed in this chapter? What would you change, and how would you change it?