Considerations for Design and Implementation of Statistics Tasks

Guidelines for Developing, Adapting, Analyzing, and Implementing Statistical Tasks

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The following questions can be used to consider the components of a statistical task as a teacher develops, adapts, analyzes, and implement tasks that can engage students in doing statistics.

I. Considerations for Written Task

Component of a Statistics Task	Questions to Consider
Learning Goal	What learning goals does the task aim for students to accomplish? Does the task focus on answering questions that are statistical or mathematical? e.g., Does the task ask students to use computations or graphs? Are these in support of analyzing data to make a decision? or is the use of an algorithm or creation of a graph the focus?
Data	Does the task call for the use of data (either to collect or use already collected data to answer)? Does the data appear to come from a real source?
Context	Is context a salient part when solving the problem? Is the context likely to be of interest to the students engaging in the task?
Investigation Cycle	Does the task address only one phase of a statistical investigation, some phases, or all phases of the cycle? Consider the appropriate phases below as applicable to the intent of the task:
Pose	Is the question already posed (by teachers, or curriculum developers) or do students have opportunities to pose statistical questions based on their interest? What type of variability does the task attend to? At which level of the SASI framework are students engaged in posing questions?
Collect	Does the task offer opportunities for students to plan to collect data: sampling, sample size, attribute, and measurement? Do students conduct the data collection? Does the task provide a context so that students are aware of the measurement issues and how data were collected? At which level of the SASI framework are students engaged in collecting data?

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Analyze	Does the task offer opportunities for students to decide on the types of graphical representation and or numerical statistics to use when analyzing data? Does the task afford students to use alternative representations to shed light on the trends of data? At which level of the SASI framework are students engaged in analyzing data?
Interpret	Does the task ask students to incorporate context when making claims/inferences about the data? Does the task expect students' claims to account for uncertainty? At which level of the SASI framework are students engaged in interpreting results?

II. Considerations for Task Implementation

Pedagogical decision	Questions to consider
Individual vs. group work	How will you structure individual and/or group work on this task? How will you structure group discussions to account for different approaches to analysis and interpretations that individuals or groups may develop in the task?
Tools	How could you incorporate technology tools to support students' work? How could you incorporate physical objects or tools to support students' work?
Student Voice and Your Action	How will you plan to listen to students' reasoning about the task? How will you react to build upon students' current thinking and move them forward?
Habits of Mind	How might you reinforce and support students' use of statistical habits of mind? (e.g., role of context, sampling, attending to variability, measurement, being skeptical, accounting for uncertainty)

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