**Investigating Body Mass Index**

**Subject area**: Social Sciences, Introduction to Statistics

**Grade level/band:** 11–12

**INSTRUCTOR PROCEDURES**

1. **Task overview**:

This project is an opportunity for students to apply their statistical reasoning to a relevant social and health issue: obesity trends in the United States. The focus of this study is on descriptive statistical analysis of quantitative data. In preparing a 2- to 3-page written report, students demonstrate their ability to communicate and to connect some of the major themes of introductory statistics.

1. **Prior knowledge required:**

Students should be able to:

* Create a histogram using statistical software.
* Compute numerical summary statistics using statistical technology.
* Identify reliable Internet and/or print resources.
* Use a style guide to cite resources.
1. **Common Core State Standards aligned to this task:**

[CCSS.ELA-Literacy.RST.11-12.1](http://www.corestandards.org/ELA-Literacy/RST/11-12/1/) Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

[CCSS.ELA-Literacy.RST.11-12.2](http://www.corestandards.org/ELA-Literacy/RST/11-12/2/) Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.

[CCSS.ELA-Literacy.RST.11-12.3](http://www.corestandards.org/ELA-Literacy/RST/11-12/3/) Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

[CCSS.ELA-Literacy.RST.11-12.6](http://www.corestandards.org/ELA-Literacy/RST/11-12/6/) Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

[CCSS.ELA-Literacy.RST.11-12.7](http://www.corestandards.org/ELA-Literacy/RST/11-12/7/) Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

[CCSS.ELA-Literacy.RST.11-12.8](http://www.corestandards.org/ELA-Literacy/RST/11-12/8/) Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

[CCSS.ELA-Literacy.RST.11-12.9](http://www.corestandards.org/ELA-Literacy/RST/11-12/9/) Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

1. **Time requirements**:

Plan about two weeks for students to complete the task. Schedule in-class time to introduce the project and to answer initial questions. After students collect the data, an additional in-class session to check and discuss their initial graphs, calculations, and analysis would be helpful.

1. **Instructor materials to use during administration**:
* A point of departure is the NIH web site:
<http://www.nhlbi.nih.gov/guidelines/obesity/BMI/bmicalc.htm>
* Another useful site is maintained by Centers for Disease Control and Prevention:
<http://www.cdc.gov/healthyweight/assessing/bmi/>
1. **Instructor procedures during administration:**
* Students can work independently or in small groups at the instructor’s discretion.
* As a class, discuss different potential methods for gathering the data. A person’s age, weight, or height may be sensitive information so an anonymous method of collecting data is preferable. Consider giving the class examples such as designing an online survey, doing an anonymous written questionnaire, etc.
* To facilitate student success, it is prudent to schedule class time to review their progress, particularly if this is their first project activity.
* While a written report is required, an oral presentation (to include a poster presentation) of projects is good practice for effective communication. If the written report is due after the oral presentation, students can make appropriate adjustments to improve the quality of their written report by incorporating feedback obtained in the oral presentations.
1. **Student support:**

The following suggestions are examples of scaffolding that can be used to meet the diverse student needs within the classroom.

* Provide class time for research on students’ topics.
* Provide definitions of new vocabulary words ahead of time.
* For the final product, all learners will benefit from peer assistance while brainstorming their topics, as well as a peer- or teacher-edit of their papers before final submission.
* Some students will have good research skills, but some will need guidance in the determination of appropriate sources and where to look for them. It is important to spend class time in review of what constitutes an appropriate source in advance of students’ independent work time.
1. **Extensions or variations:**
* Students could present the results of their research to the class via an oral or multi-media presentation.
* If there is a particularly interesting research question, a panel could be organized where students discuss the topic and critique the results or suggest further research.
1. **Scoring and assessment considerations:**

EPIC developed the *College and Career Ready (CCR) Task Bank Scoring Rubric* *for Scientific Research Plans and Reports* to accompany this task. If your school or department uses a standardized rubric that would fit the content and requirements of this task, you may choose to use your existing rubric. The following notes and suggestions are meant to clarify the intent of the rubric and include considerations for the assessment of student work.

* When assigning the task, provide students with the rubric that will be used to score their final product and discuss it as a class.
* Unlike some rubrics, the *CCR Task Bank Rubric* does not predetermine “point values” for the scoring criteria. The rubric thus allows for flexibility with different instructors’ scoring systems and individual determination of the “weight” of each criterion.
* Student work that scores at the *Accomplished* level is considered to be entry-level college work.
* The *Exceeds* category on the rubric provides an example of how a student can go above and beyond the *Accomplished* level. These examples are intended to be only ONE way a work product can exceed expectations, thus allowing room for your professional judgment.
* If needed, consider including task-specific criteria as an additional scoring category to the rubric or providing a checklist of requirements for the task.