

AP Statistics – Investigative Task C– Feeling Fatigued?**Chapter 13*

	Components	Comments
Think	Understands blocking: Demonstrates clear understanding of randomized block design by randomly assigning each type of subject (exercising and sedentary) to both treatment groups.	
Show	Creates an effective design: <ul style="list-style-type: none"> ○ controls effects of known variables ○ blinds subjects & evaluators ○ replicates the treatments ○ defines correct response variable Randomizes: <ul style="list-style-type: none"> ○ randomly assigns subjects to groups ○ clearly explains randomization method ○ shows the resulting assignments 	
Tell	Clearly describes the experiment: <ul style="list-style-type: none"> ○ identifies the question ○ has a good diagram ○ uses proper vocabulary ○ does not confuse experimentation and sampling 	

Components are scored as **Essentially correct**, **Partially correct**, or **Incorrect**

1: The Blocks

- E – Creates an experiment that uses blocking
- P – Uses blocking, but does not understand why or randomizes inappropriately
- I – Fails to use a block design

2: The Design

- E – Has all four requirements
- P – Has 3 of the requirements, or two including a response variable
- I – Has fewer than 2, or has 2 requirements but fails to specify a response variable

3: Randomization

- E – Has all 3 requirements
- P – Has 1 or 2 of the requirements
- I – Does not randomize

4: Description

- E – Has all 4 requirements
- P – Has 2 or 3 of the requirements
- I – Has none or only 1 of the requirements

Scoring

- E's count 1 point, P's are 1/2
- AP* Score = sum of 4 components; rounding based on quality of P's.
- Grade: A = 4, B = 3, etc., with +/- based on rounding (ex: 3.5 rounded to 3 is a B+)

Name _____ **AP* Score** _____ **Grade** _____

NOTE: We present a model solution with some trepidation. This is not a scoring key, just an example. Many other approaches could fully satisfy the requirements outlined in the scoring rubric. That (not this) is the standard by which student responses should be evaluated.

Model Solution – Investigative Task B – Feeling Fatigued?

We want to know whether taking daily iron supplements will help to reduce fatigue reported by menstruating women.

To evaluate the subjects, we will use a validated questionnaire at the beginning and end of the study period. There is a single factor, iron supplement, at two levels, 80 mg and placebo, resulting in two treatment groups for each block. Since exercise has been shown to impact fatigue, the experiment will be blocked, to control for this variable, by women who exercise at least 30 minutes per week and women who lead sedentary lives. Blocking in this manner will reduce variability within in each block of females studied.

Each exercising female will be numbered 001 to 280. Using a random number table, the first 140 unique 3 digit numbers within this range are selected, skipping repeats; these females are assigned to the treatment group with the rest assigned to the control group. The sedentary females will be numbered 001 to 220, and the same assignment methodology will be utilized with half the subjects receiving the treatment. The use of the placebo will serve as a mechanism to blind the subjects as well as those who administer the pills to the subjects to the explanatory variable. The researchers who evaluate the questionnaires, with the reported level of fatigue as the response variable, will also be unaware of the type of pill taken by any specific subject. This makes the experiment double blind.

If the iron supplement treatment group reports significantly more reduction in fatigue than the placebo group, we will know that the iron supplement was effective. Furthermore, we can determine whether or not the iron supplement works differently in women who exercise as opposed to sedentary women.

