ENHANCING STATISTICS TEACHER EDUCATION WITH E-MODULES

Mod 1: Part 2
Task Analysis Set 3

Task 3A. Fizz Time

Effervescent antacids are advertised to provide relief for an upset stomach. Effervescent antacids are tablets that must be dissolved in water. If you have an upset stomach, then you want the tablet to dissolve as quickly as possible. In two eighth-grade classes with a total of 50 students, students were asked to identify factors that they thought might affect "fizz time"—the time from dropping a tablet into water until the fizzing stops.

Is there a difference in fizz time for two different brands (labeled A and B) of effervescent tablets?

Fizz Time in Seconds

Brand A
96 119 112 115 135 96 119 117 130 109 101 117 103 113 110 103 105 105 127 116
114 126 111 119 111

Brand B
108 147 139 137 124 142 141 112 125 133 141 122 150 113 151 105 120 117 114
130 119 127 132 129 132

Task adapted from:
Kader, G. D. & Jacobbe, T. (2013). *Developing essential understandings of statistics: grades 6-8* (pp. 42-43). Reston, VA: National Council of Teachers of Mathematics.

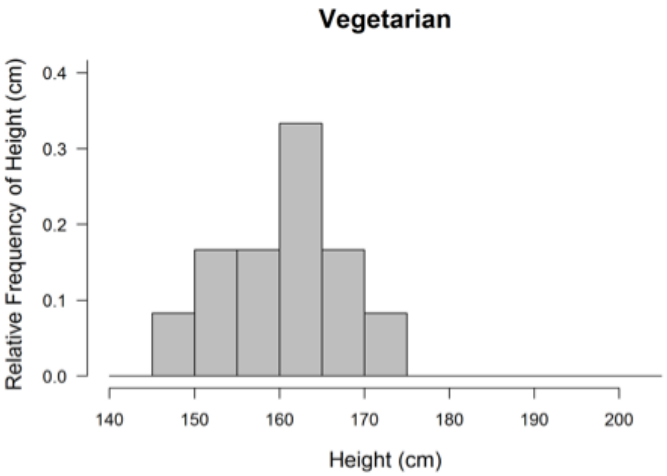
Task 3B. Vegetarian vs Non-Vegetarian

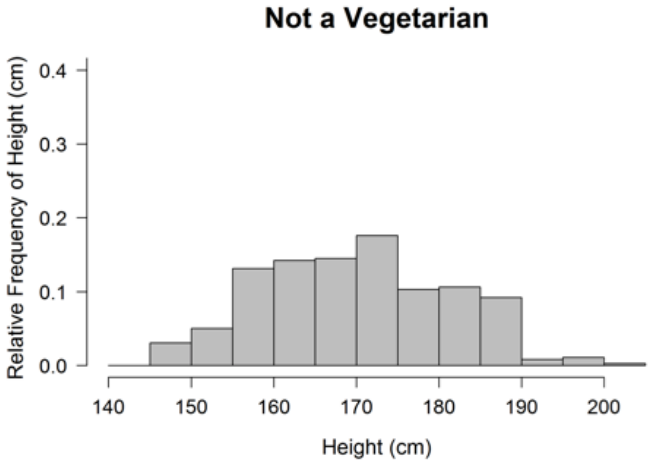
A random sample of 411 high school students was selected in order to compare the heights, in centimeters (cm), of vegetarians and nonvegetarians.

The relative-frequency histograms below show the distributions of height for the 15 students who said that they were vegetarian and for 396 students who said they were not vegetarian.

(a) Write a few sentences comparing the distributions of height for the vegetarians and nonvegetarians.

(b) Explain why it is better to use relative frequencies (proportions) rather than frequencies (counts) when comparing the vegetarians and nonvegetarians.





Task adapted from: The LOCUS database
https://locus.statisticseducation.org/professional-development/questions/by-grade/high-school-%28grades-9-12%29?type=prodev_const_response_question&field_prodev_level_tid=All&page=1