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**The Coffee and Cream Dilemma** BRANDON MINOR, GERALD FELDMAN, George Washington University — Many coffee drinkers take cream with their coffee and often wonder whether to add the cream earlier or later. With the objective of keeping their coffee as hot as possible over a moderate time period (10-15 minutes), this is a question that most of them can never answer definitively. We investigated this problem empirically using hot and cold water, with special emphasis on the calorimetry of the mixture. Assuming a coffee:cream (hot:cold) ratio of 3:1, we began with two identical styrofoam coffee cups containing hot water and then added cold water at  $t = 200$  s in one cup and  $t = 700$  s in the other cup. Using two Vernier temperature probes to simultaneously track the temperature change during the cool-down period of the water in both cups over  $\Delta t = 1000$  s, we obtained a real-time graphical account of which process achieved the higher temperature over this time period. In addition, the effect of evaporation was explored by comparing trials with and without a lid on the coffee cup. The application of Newton's Law of Cooling, as compared to the graphical temperature data acquired, will leave no doubt as to the best strategy for adding cool cream to hot coffee.

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