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|  | This experiment is based on a survey, therefore much of the accuracy relies on each person's statement. Because caffeine is believed by most people to stimulate, there is a certain error involved in the psychological aspect of caffeine. All our test subjects agreed that it was a physiological change that they felt.  After researching exactly how caffeine effects the body, we came up with our hypothesis, and a way to test it. Because school hours are consistent, we decided to test high school students who have a wide variety of habits with caffeine. The steps and surveys are as follows:  Step 1:  Find willing and reliable test subjects.  Step 2:  Record what each subject's normal daily habit surrounding caffeine is. This was done through the survey shown below.  1)I'm willing to participate in a study with caffeine.  yes no  2)I consume caffeine (chocolate, coffee, tea, soda)\_\_\_\_\_\_ times daily.  once twice three four or more  Step 3:  Because we wanted to see how people who normally have very little caffeine react to high amounts, and how people who display signs of caffeinism do without it, each person had a slightly different role in the experiment. We issued a set of instruction detailing what each person should do. We gave them a table with the amounts of caffeine in different products so they could do the experiment correctly. This table is shown below:   |  |  | | --- | --- | | Coke Diet Coke | 50mg | | Pepsi, Diet Pepsi | 40mg | | Dr. Pepper, Diet Dr. Pepper | 40mg | | Mt. Dew, Diet Mt. Dew | 55mg | | Coffee(6 oz., drip method) | 130mg | | Instant Coffee(6 oz.) | 85mg | | Tea(6 oz.) | 35mg | | Chocolate Bar | 30mg | | Excedrin | 65mg | | 7-Eleven Big Gulp | 190mg | | Grande Coffee(Starbucks) | 550mg | | Tall Coffee(Starbucks) | 375mg | | Short Coffee(Starbucks) | 250mg |   \*All soda, unless otherwise indicated is 12 oz.  This graph shows the amount of caffeine in different methods of making coffee and the difference between cafeinated and decaffeinated.  The instructions we issued were based on how each person answered the first survey. We had four experimental groups, those who had caffeine once, twice, three, and four times a day. The instructions to each of the four groups were as follows:  Times a day they Instructions  normally have caffeine  1 100mg before school, 100mg at lunch, 200mg after school  2 consume same amount as normal(control)  3 100mg before school  4 no caffeine  People who normally had caffeine twice a day were chosen to be the controls because nationwide surveys state that the average American normally has about two cups of coffee a day. Therefore, they represent the average American public.  Step 4:  The test subjects were asked to perform the experiment for two days.  Step 5:  The test subjects were asked to answer the questions below.  1)Do you normally consume caffeine in the morning, noon, or evening and why?  2)Do you find that with your NORMAL caffeine intake your concentration in classes and overall is better, worse, or not affected?  3)Does the NEW caffeine intake affect your concentration? How?  4)Do you feel more awake, or more tired?  5)Do you find it easier to read and take in the information, or more difficult?  6)Do you find it easier to listen to your teachers and pay attention, or more difficult?  7)Do you experience any headaches, stomach aches, dizziness, or any other abnormal affects that may be related to caffeine?  8)How many hours of sleep did you get the two nights before the experiment? How many do you normally get?  9)Did you eat breakfast on the two mornings? Do you normally?  10)Did you eat normally, other than the different levels of caffeine?  Costs  There were virtually no costs involved in this experiment other than the paper.  Concerns  There are several concerns we have with our experiment. All of our results are based upon estimation. We could have been more exacting by administering caffeine pills, but that was not possible because of our teacher's disapproval. We could have used electrodes, which measure brain activity, and tested how it changes with caffeine. This would have been difficult because the equipment is expensive and dangerous. Also, this does not test concentration, it tests brain activity.  In our results we could only account for the amount of sleep the subjects got and the amount of food in their stomachs. We didn't account for body weight, rate of absorption, or rate of metabolism, which all influence the effect caffeine takes on the body. The experiment would also have been better if we had a larger test size than sixteen people. |

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*For More Information about Creekwatch, please contact Eric Thiel at* [*ethiel@pleasanton.k12.ca.us*](mailto:ethiel@pleasanton.k12.ca.us)