INDEPENDENT VARIABLES, DEPENDENT VARIABLES, CONTROLLED VARIABLES, AND CONTROL GROUP

There can be several controlled variables. If an experiment is to be useful, only one variable at a time can be manipulated intentionally. All other variables must be controlled throughout all parts of the experiment. If more than one variable is altered (changed), the results of an experiment cannot be interpreted with any validity.

1. A study was done to find if different tire treads affect the braking distance of a car.
   IV: different tire treads
   DV: braking distance of the car
   CV: car, weather conditions, road, tire size, tire pressure, speed
   Control Group: tires that come with the car

2. The time it takes to run a mile depends on the person’s running speed.
   IV: running speed
   DV: the time it takes to run a mile
   CV: treadmill brand, room temperature
   Control Group: the average time it takes to run a mile

3. The higher the temperature of the air in the oven, the faster a cake will bake
   IV: the temperature of the oven
   DV: how fast the cake bakes
   CV: recipe, oven, cake pan, batter consistency, position in the oven, brand of ingredients
   Control Group: cake baked at recipe temperature and time, 350 F

4. Students measured the temperature of the water at different depths in Lake Skywalker and found that the temperature varied.
   IV: different depths of the lake
   DV: water temperature
   CV: lake, time in water before taking the temperature, equipment, weather conditions,
   Control Group: surface temperature of the water

5. The amount of pollution produced by cars was measured for cars using gasoline containing different amounts of lead.
   IV: the amount of lead in the gasoline
   DV: the amount of pollution
   CV: car, equipment, the brand of gasoline, road, how long the pollution is collected
   • Control Group: the average amount of car pollution

Hi! I hope you are doing well. I am applying to vet school this year and the person I asked to write one of my letters of recommendation hasn’t gotten back to me. I was wondering if you would be willing to write me one. I apologize for it being so last minute. If you can, I can send you the request to your email. Thank you so much!!

6. Four groups of rats are first massed and then fed identical diets except for the amount of vitamin A they receive. Each group gets a different amount. After 3 weeks on the diet, the rats’ masses are measured again to see if there has been a decrease.
   IV:

   DV:

   CV:

   Control Group:
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7. A student wanted to test how the mass of a paper airplane affected the distance it would fly. Paper clips were added before each test flight. As each paper clip was added, the plane was tested to determine how far it would fly.  
   IV:  
   DV:  
   CV:  
   Control Group:

8. Two groups of students were tested to compare their speed working math problems. Each group was given the same problems. One group used calculators and the other group computed without calculators.  
   IV:  
   DV:  
   CV:  
   Control Group:

9. Students of different ages were given the same puzzle to assemble. The puzzle assembly time was measured.  
   IV:  
   DV:  
   CV:  
   Control Group:

10. An experiment was performed to determine how the amount of coffee grounds could affect the taste of coffee. The same kind of coffee, the same percolator, the same amount and type of water, the same perking time, and the same electrical sources were used.  
    IV:  
    DV:  
    CV:  
    Control Group: