Student Samples of Variables, Constants, and Controls:

1. Independent Variable: Shape of the hulls
   Dependent Variable: Speed of the boats
   Constants: Amount of water, for each trial, the pan, the weight of each boat, the size of each boat, the temperature of the water, the temperature of the room, the amount of dish soap, the same toothpick, and the same dish soap
   Control: My standard is the rectangular hull

2. Independent Variable: Age of people tested
   Dependent Variable: Lung capacity
   Constants: Tape measure, type of spiropet, no shoes, no colds, no respiratory diseases such as asthma
   Control: Average lung capacity of an adult

3. A Science project must have variables and controls in order to be a good project. One type of variable is the independent variable. An independent variable is the part of an experiment that you change on purpose. My independent variable is the type of positive reinforcement I provide for the children. It is because I have two different types of positive reinforcement I am going to compare.

   Another type of variable is the dependent variable. The dependent variable is the part of the experiment that changes because of the independent variable. In this case the dependent variable is the children's time on the project. The time in which they do the project might depend on the type of positive reinforcement I am providing for the children. This is what I am testing: Does the dependent variable (time) get a better rate because of one of the independent variables (praise or reward)?

   Controls are a big part in a project. The controls in this project are the puzzle, age group, and the types of reinforcement.

   A constant is the control that everything else is being compared to. Since I do not change which children are in the project, they stay the same and I can compare them.

4. This experiment test which insulator keeps the human body (1 pint of water) warmest the longest. These insulators will act as different clothing (wool sweaters, down feather coats, cotton t-shirts, flannel pants, etc.) Since these insulators are changed on purpose, they are the independent variables. Since the temperature is changed because of the different insulators, the temperature is the dependent variable. A control is the constant that everything is compared to. In this experiment, the control is the bag with no insulator. This helps you compare the different insulators easier and more efficiently. The constants are the other little things in your project that need to be done exactly the same. For example, mine would be the brand of sandwich bags, the amount of and temperature of the water, the amount of insulation and the time.

5. All projects have variables and controls. An Independent variable is the part you change on purpose. My independent variable are the boys and girls. A dependent variable is the part that changes because of what you changed. My dependent variable is the result of who has a better short term memory. A control is a test that gets no treatment. I am comparing one group with another group. Constants are all of the things you keep the same in every test. My constants are the pictures, amount of time, and method of scoring.