


**Difference in dependent and independent variables**

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## Difference in dependent and independent variables

What is the difference between independent variables and dependent variables in spreadsheets. What is the difference between independent and dependent variables in science. Difference between dependent and independent variables in research. Difference between dependent and independent variables in statistics. What is the difference between the independent and dependent variables in an experiment. Difference between independent and dependent variables in psychology. What is the difference between independent and dependent variables in math. Difference between dependent and independent variables in research methodology.

Join thousands of students and parents who get exclusive high school information, testing and college admission. Independent and dependent variables are important for both mathematics and science. If you do not understand what these two variables are and how they differ, you struggle to analyze an experiment or plot equations. Luckily, we make learning these concepts easy! In this guide, you break what independent and dependent variables are, give examples of variables in real experiments, explain how graph correctly, provide a quiz to test your skills, and discuss the other important variable that you need to know. What is an independent variable? What is an employee variable? A variable is something you're trying to measure. It can be practically anything, such as objects, amount of time, feelings, events or ideas. If you are studying how people feel about different TV programs, the variables in that experiment are TV shows and feelings. If you are studying how different types of fertilizer affect how tall plants grow, variables are fertilizer type and plant height. There are two key variables in each experiment: the independent variable and the dependent variable. Independent change: What the scientist changes or what changes alone. Employee change: What has been studied / insured. The independent variable (sometimes known as the manipulated variable) is the variable whose variation is not influenced by any other variable in the experiment. Or the scientist must change the independent variable itself or change alone; nothing else in the experiment affects or changes. Two examples of common independent variables are age and time. There is nothing you or anything else can do to speed up or slow down time or increase or decrease age. They're independent of everything else. The dependent variable (sometimes known as the response variable) is what is studied and measured in the experiment. This is what changes as a result of changes to the independent variable. An example of an employee variable is how high you are at different ages. The dependent variable (height) depends on the independent variable (age). A simple way to think about independent and dependent variables is, when you are conducting an experiment, the independent variable is what you change, and the dependent variable is what changes because of this. You can also think of the independent variable such as the cause and the dependent variable as the effect. It can be much easier to understand the differences between these two variables with examples, so let's take a look at some sample experiments below. Examples of independent and dependent variables in experiments Below are the descriptions of three experiments, each with their variablesand employees identified. Experimentation 1: You want to figure out which brand of microwave popcorn pops the most kernels so you can get the most value for your money. Test different brands Popcorn to see which bag opens the most popcorn kernels. Independent variable: Brand of Popcorn Bag (is the independent variable because you are actually deciding which brands of popcorn bags) Dependent variable: the number of kernels is checked (this is the dependent variable because this is what measures for each brand Popcorn) Experiment 2: Want to see what kind of fertilizer helps plants faster, so add a different brand of fertilizer to each plant and see how much they grow up. Independent variable: type of fertilizer given to plant dependent variable: Plant height experiment 3: you are interested in how rising sea temperatures affect the life of algae, then design an experiment that measures the number of algae in a water sample taken from a specific ocean site under varying temperatures. Independent variable: Ocean temperature dependent variable: the number of algae in the sample for each of the independent variables above, it is clear that they cannot be changed by other variables in the experiment. You have to be the one to change the brands of popcorn and fertilizer in experiments 1 and 2, and the ocean temperature in experiment 3 cannot be significantly altered by other factors. Changes to each of these independent variables cause changes to the dependent variables in the experiments. Where do you enter independent and dependent variables on the graphs? Independent and dependent variables always go to the same places in a graph. This makes it easy for you to quickly see which variable is independent and which depends on a graph or graph. The independent variable always goes on the x-axis, or the horizontal axis. The dependent variable goes on the y axis or the vertical axis. Here's an example: as you can see, this is a graph showing how the number of hours of study per student affects the score he got on an exam. From the graph, it seems to study up to six hours helped raise his score, but while studying more than that his score decreased slightly. The amount of time studied is the independent variable, because that's what changed, so it's on the X-axis. The score you got on the exam is the dependent variable, because that's what changed as a result of the independent variable, and it's on the y-axis. It is common to put units in brackets next to the axis titles, which this graph does. There are several ways to title a chart, but a common way is "[independent variable] vs. [dependent variable]" like this chart. Using a standard title like that makes it easier for others to see what your independent and dependent variables are. Are there other important variables to know? Independent and dependent variables are the two most important variables to know and understand when or study an experiment, but there's another kind of variable you should be aware of: constant variables. Constant variables (also known as "constants") are simple to understand: they are what remain the same during the experiment. The experiment. Experiments usually have only an independent variable and a variable dependent, but everyone will have multiple constant variables. For example, in experiment 2 above, some of the constant variables would be the type of growing plant, the quantity of fertilizer each plant is given, the amount of water every plant is given, when each plant is given fertilizer and water , the quantity of sunlight that plants receive, the size of the container each plant is cultivated, and more. The scientist is changing the type of fertilizer every plant obtains that in turn changes as every plant grows, but any other part of the experiment remains the same. In experiments, it is necessary to test an independent variable at a time to accurately understand how it affects the dependent variable. The constant variables are important because they ensure that the dependent variable is changing because, and only because, of the independent variable so as to be able to accurately measure the relationship between the dependent and independent variables. If you had no constant variables, you wouldn't be able to tell if the independent variable was what really involved the dependent variable. For example, in the previous example, if there were no constant and different quantities of water were used, different types of plants, different quantities of fertilizer and putting plants in windows that have different sunny quantities, would not be able to say As the type of fertilizer has affected plant growth because there would be many other factors that are potentially influencing how plants have grown. 3 experiments to help you understand independent variables and dependent if you are still having difficulty understanding the relationship between independent and dependent variable, it could help you see them in action. Here are three experiments you can try at home. Experiment 1: plant growth rates An easy way to explore independent variables and employees is to build a biology experiment with seeds. Try cultivating some sunflowers and see how several factors affect their growth. For example, tell you to have ten sunflower seedlings, and you decide to give every quantity of water every day to see if it affects their growth. The independent variable here would be the amount of water that gives the plants, and the dependent variable is how high the sunflowers grow. Experiment 2: Chemical reactions explores a wide range of chemical reactions with this chemistry kit. Includes 100+ ideas for experimentsâ € "Pick one that interests you and analyzes what are the different variables in the experiment! Experiment 3: Simple machines build and head a range of simple and complex machines with this K'nex kit. How does the mass of a vehicle increases on your speed? Can you lift more with a fixed or mobile pulley? Remember, the variable That's what you control/change, and the dependent variable is what changes because of that. Quiz: test your variable knowledge You can identify independence and Variables for each of the four scenarios below? The answers are at the bottom of the guide to check your work. Scenario 1: Buy your dog multiple food brands to see which one is his favorite. Scenario 2: Your friends invite you to a party, and you decide to attend, but you're worried that staying out too long will affect how well you do on your geometry test tomorrow morning. Scenario 3: Your dentist appointment will take 30 minutes from start to finish, but this does not include waiting in the living room before you are called. The total amount of time you spend in the dentist's office is the amount of time you wait before your appointment, plus the 30 minutes of the real appointment scenario 4: babysitting your little cousin regularly who always throws a tantrum when he asked to eat his vegetables. Over the course of the week, you ask him to eat vegetables four times. Summary: The independent variable VS dependent knowing that the independent variable definition and the definition of the dependent variable is the key to understanding how experiments work. The independent variable is what changes and the dependent variable is what changes as a result of that. You can also think of the independent variable as cause and the dependent variable as effect. When plotting these variables, the independent variable should go on the x-axis (horizontal axis) and the dependent variable goes on the y-axis (vertical axis). Constant variables are also important to understand. They are what remains the same throughout the experiment so you can accurately measure the impact of the independent variable on the dependent variable. What's next? Independent and dependent variables are commonly taught in high school science classes. Read our guide to find out which science students should take high school students. Scoring well standardized tests is an important part of having a strong college application. Take a look at our guides to the best study tips for Sat and Act. Interested in science? Science OlympiaD is a great extracurricular to include in your college applications and can help you win big scholarships. Check out our comprehensive guide to winning Olympic Science competitions. Quiz Answers 1: Independent: dog food brands; Dependent: how much you dogs eat 2: independent: how much time you spend at the party; Employee: your appeal of your exam 3: Independent: the amount of time you spend waiting; Employee: total time six to the dentist (the 30 minutes appointment is the constant) 4: independent: number of times the cousin is asked to eat vegetables; Employee: Does the number of caprums want to improve your SAT score by 160 points or your ACT score by 4 points? We wrote a for every test on the first 5 strategies you need to use to get a shot to improve your score. Download now for free: these recommendations are based exclusively on our knowledge and experience. If you purchase an item through one of our links, PREPSCOLAR may receive a commission. commission. commission.

1. **Independent Variable:** The variable that is manipulated or changed by the researcher. In the example, it is the amount of water given to the plants. 2. **Dependent Variable:** The variable that is measured or observed. In the example, it is the height of the plants. 3. **Control Variables:** Variables that are kept constant to ensure that the results are due to the independent variable. In the example, these could include the type of soil, the amount of sunlight, and the type of plants. 4. **Experimental Design:** The plan or procedure for conducting the experiment. In the example, it involves watering the plants with different amounts of water and measuring their height over time. 5. **Data Collection:** The process of recording the results of the experiment. In the example, it involves measuring the height of the plants at regular intervals. 6. **Analysis:** The process of interpreting the data to determine the relationship between the independent and dependent variables. In the example, it involves comparing the growth of the plants in different watering conditions. 7. **Conclusion:** The final statement or summary of the results of the experiment. In the example, it would state that the amount of water given to the plants affects their height. 8. **Limitations:** Factors that may affect the results of the experiment. In the example, these could include the accuracy of the measuring tools or the consistency of the watering process. 9. **Implications:** The potential applications or consequences of the findings. In the example, it could be that understanding the relationship between water and plant growth can be useful in agriculture or horticulture. 10. **References:** A list of sources used in the experiment or analysis. In the example, it could include textbooks on plant biology or scientific articles on the topic.

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