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Worksheet independent and dependent variables

Last updated29 October 2022Worksheet + Answers Set! This worksheet focuses on core science skills required for identifying the independent, dependent, and controlled variables in science reports and experiments. The lesson includes a teacher-guided component and two activity worksheets for students to practice their skills along with a sample answer set for teachers to print, teach and go! For more science report writing skills worksheets, check out my TES store! *This activity was structured using teaching programs, ensuring its alignment to the Australian NSW NESA syllabus and learning outcomes. Such outcomes include SC4-8WS and SC4-9WS from the Stage 4 Science Syllabus. Tes paid licenceHow can I reuse this?Select overall rating(no rating)Your rating is required to reflect your happiness.Write a reviewUpdate existing reviewIt's good to leave some feedback.Something went wrong, please try again later.This resource hasn't been reviewed yetTo ensure quality for our reviews, only customers who have purchased this resource can review itReport this resourceto let us know if it violates our terms and conditions. Our customer service team will review your report and will be in touch. I have found my students have a great deal of difficulty with the concept of independent and dependent variables. Newer textbooks call these variables “manipulated and responding” but that still doesn’t seem to make it easier. We practice these scenarios in class and do multiple labs to learn the concepts. Often they are just simple labs that can be done in a short class period. Like this lab on heat storage. I designed this worksheet as a way to get students to quickly identify the variables in an experiment. Each scenario is only a couple sentence long, such as ” One grape is placed in tap water and another grape is placed in salt water.” In the chart, students would identify the independent variable as the type of water. Then, identify what responded. In this case, the mass of the grape after a day. The worksheet design is simple. It’s a quick way to practice variables, but not other aspects of the scientific method. If you want a more robust worksheet on the scientific method, check out “Early Discoveries in Science.” Students identify variables as well as draw conclusions from observations. For differentiation, I also have a simpler version (low level) of the worksheet that gives multiple choice options. This version may also be useful for test preparation with other groups. Grade Level: 8-10Time Required: 15-20 minutes Tech-enabled campusSanitised campus, spacious classrooms, and state-of-the-art technology for effective learning. Independent & Dependent Variables w/ Equations, Tables, & GraphsAlgebra & Pre-Algebra WorksheetsThis page links to a variety of algebra worksheet topics, including expressions, equations, and inequalities. This article will help you learn all the important concepts related to dependent and independent variables. These are important to learn because everything from Math to Science requires the application of variables. Also, we will look at some dependent and independent variables examples. You must be well acquainted with the term variables. Variables are nothing but attributes that contain a lot of values. A single variable can have a real number value, an imaginary value, a rational and irrational value, etc. Real-life examples of variables are weight, height, humidity, or exam results. Variables have a lot of applications in computer programming, mathematical and physics derivations, and statistics. Variables are of two types: ‘Independent’ and ‘Dependent’ variables. Both are very important for researchers. These are used in experiments to help examine the cause-and-effect links. Independent variables are always the cause. The value of an independent variable doesn’t change while researching. Dependent variables are considered as the ‘effect’. The magnitude of these depends on the value of the independent variable. For example: Let us say that a group of scientists has devised a research plan. They determine how the changes in the temperature of your room affect your result. Solution: In this case, the change in the room’s temperature is your independent variable. You change the ambient temperature for half of the participants and make it warmer for the other half. Your dependent variable is, let us say, math test scores. You measure the math skills of all participants using a standardized test and check whether they differ based on room temperature. Let us now study what dependent and independent variables with the explanation are. In an experimental study, an independent variable is a variable that you control or modify to see what effects it has. It’s labeled “independent” because it’s unaffected by the study’s other factors. You can also refer to independent variables as: Explanatory variables: They are used to explain the result of an event. Predictor variables: The value of the dependent variable is predicted using independent variables. Right-hand-side variables: In regression equations, they are always placed on the right side. The terms mentioned above are often used in mathematics, especially in statistics. Independent variables are further classified as follows: Experimental independent variables: Such types of variables can be manipulated or altered directly by anyone. Subject variables: You cannot manipulate or change Subject Variables. They are beneficial in a category-wise grouping of research subjects. In studies, independent variables are actively manipulated to find how they affect the dependent variable. The independent variable is frequently applied at several levels to see the difference in the result. Only two levels are required to determine whether an independent variable has any influence. Multiple levels can also be used to see how the independent variable impacts the dependent variable. For example: You’re researching the effects of a new medicine on Asthmatic patients with Covid variants. The therapy that you directly modify between groups is your independent variable. You allocate your patients to one of three groups at random: Group 1: Low Dose Group 2: High Dose Group 3: Controlled Dose For every experiment to be true, you must randomly assign the independent variables in different levels to your participants (patients in this case). Random assignment allows you to keep track of participant characteristics so that they don’t impact the result of your investigation. This assures you that the results of your dependent variable are completely due to the modification of the independent variable. Researchers cannot manipulate subject variables. These are the traits that differ between individuals. Gender identity, race, color, property, and highest education, for example, are all key topic variables treated as independent variables by sociologists. Because these are features of existing groups, they can’t be assigned to individuals randomly. Instead, you might design a study that compares the results of groups of participants based on their characteristics. Since there are no traces of random assignment, this is considered the quasi-experimental design. An example of a Quasi-experimental design is you’re looking at how gender influences brain responses to infant screams. Your independent variable here is the subject variable, which is the participants’ gender identification. There are three types of people: males, females, and others. The brain activity reaction to hearing infant cries is your dependent variable. When people hear a child cry without realizing it, you use fMRI scans to monitor brain activity. You discover that females take care of the infant as soon as it cries while the male takes time. This concludes that gender identification impacts brain responses to infant screams. The dependent variable is the one that alters when there is a change in an independent variable. It’s the result you want to measure, and it “depends” on the independent variable specified. You can find dependent variables as the following in statistical mathematics: Response variables: Since they change in response to another variable. Outcome variables: The result you want to find is represented by these variables. Left-hand-side variables: For any regression equation, dependent variables are present on the left side. After you’ve altered the independent variable, you’ll record the dependent variable. By doing statistical analysis, you may determine the extent of the effect of the independent variable on the dependent variable. You can predict how your independent variable changes your dependent variable by carefully examining your findings. When organizing a complicated study or reviewing an academic journal, you may find yourself in a situation where the difference between dependent and independent variables is negligible. It’s critical to pay close attention to research design since a dependent variable from one research could be the independent variable in another. To recognize dependent and independent variables use the questions mentioned below: For independent variables: Is the researcher manipulating, controlling, or using the variable as a subject grouping method? Is there a time difference between this variable and the other variable? For dependent variable: Is this variable evaluated as a result of the research? Is this variable in this experiment based on another factor? Independent Variables Dependent VariablesAn independent variable is one whose value is never influenced by another variable.A dependent variable is one whose value is influenced by another variableIt is the postulated cause.It is the presumed effect.Independent variables are known as predictors or regressors.Dependent variables are known as predicted variables.There are no complicated mathematical processes or observations required for independent variables.Dependent variables, on the other hand, are derived from longitudinal study or the solution of sophisticated mathematical equations.On the graph, independent variables are horizontally positioned. Dependent variables are vertically positioned on the graph.The slightest change in independent variables directly affects the dependent variables. Any amount of change doesn’t affect the independent variable. Using charts or graphs to depict the outcomes of investigations is a good practice in quantitative research. The independent variable is usually plotted on the x-axis (horizontally), and the dependent variable is mostly plotted on the y-axis (vertically). The type of visualization you employ is determined by the types of variables in your research questions: Researchers use a bar chart or pie chart to depict independent variables. A scatter plot or line graph is utilized to plot when your independent and dependent variables are quantitative. Let us now look at some independent and dependent variables examples, to sum up this lesson. Example 1: Let us suppose that an employer wants to check his employee’s performance in the production section of his company. For this, he placed a performance boost award for those who complete their work on time. The employer is unaware of what will happen. Therefore he predicts that the employees under this condition will work under two conditions: 1. Some of the employees will work overtime to increase their productivity. 2. Others will use tips and tricks to complete the same task on time. Based on the result of the work done by each employee, the employer will award them with a suitable award (cash). Therefore, Dependent Variable: Independent Variables: Overtime by the worker Intellectual smartness of the employee Example 2: The income depends on the level of education in India (The higher the income, the higher is the educational qualification). Find the independent and dependent variables for this problem. Solution: According to the problem: Income is directly linked with education, thus Independent Variable: Education Dependent Variable: Income If the income is high, that means an individual’s education must be high and vice versa. Share — copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution — You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. In math, there are two variables that are the independent variable and the dependent variable. The dependent variable is defined as the variable whose quality relies on the estimation of another variable in its condition. The independent variable depicts a variable whose values are independent of changes. If x and y are two variables in an algebraic equation and every value of x is connected with any other value of y, then ‘y’ value is considered to be a function of x value so "x" is an independent variable, and ‘y’ is known as a dependent variable. If you want to find out more about independent and dependent variables, you have come to the right place. We have collected a myriad of high-quality independent and dependent variables worksheets that will help you conquer this fascinating topic. You will perform various activities to boost the skills necessary to facilitate a deeper understanding in terms of independent and dependent variables. With the aid of visuals, you can also get a better understanding and easily navigate through these Algebra worksheets in an exciting and engaging manner. So, what are you waiting for? Let’s dive deeply into our independent and dependent variables worksheets right now! We’re sure that these worksheets will not let you down.