**Graphing Practice**  


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| **INTRODUCTION**  **Graphing** is a good method to show the results of a large amount of data very quickly.  A graph contains five major parts:  a. **Title** b. **The independent variable** c. **The dependent variable** d. **The scales for each variable** e. **A legend**   * The **TITLE** indicates what the graph is about. * a concise statement placed above the graph. * The **INDEPENDENT VARIABLE**: manipulated by the experimenter. * usually includes time (dates, minutes, hours, etc.), depth (feet, meters), and temperature (Celsius). * placed on the X axis (horizontal axis). * The **DEPENDENT VARIABLE**: what is directly affected by the independent variable. * It is the result of what happens because of the independent variable. * Example: How many oxygen bubbles are produced by a plant located five meters below the surface of the water? The oxygen bubbles are dependent on the depth of the water. * placed on the Y-axis (vertical axis). * The **SCALES** for each Variable: must encompass all the data points. * take up a conservative amount of space. * should start with 0 and climb based on intervals such as: multiples of 2, 5, 10, 20, 25, 50, or 100. The scale of numbers will be dictated by your data values. * The **LEGEND**: is a short descriptive narrative concerning the graph's data. * **PROCEDURE 1**:  Using the following data, answer the questions below and then construct a line graph. Plants were submerged under water and the number of bubbles arising from the leaves were counted.  |  |  |  | | --- | --- | --- | | **Depth in meters** | **Number of Bubbles / minute Plant A** | **Number of Bubbles / minute Plant B** | | **2** | **29** | **21** | | **5** | **36** | **27** | | **10** | **45** | **40** | | **16** | **32** | **50** | | **25** | **20** | **34** | | **30** | **10** | **20** |   **1. What is the dependent variable and why?**  **2. What is the independent variable and why?**  **3. What title would you give the graph?**  **Title**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  http://www.biologyjunction.com/graphi1.gif  **LEGEND:**  **PROCEDURE 2:**  Diabetes is a disease affecting the insulin producing glands of the pancreas. If there is not enough insulin being produced by these cells, the amount of glucose in the blood will remain high. A blood glucose level above 140 for an extended period of time is not considered normal. This disease, if not brought under control, can lead to severe complications and even death.  Answer the following questions concerning the data below and then graphit.   |  |  |  | | --- | --- | --- | | **Time After Eating hours** | **Glucose ml / Liter of Blood Person A** | **Glucose ml / Liter of Blood Person B** | | **0.5** | **170** | **180** | | **1** | **155** | **195** | | **1.5** | **140** | **230** | | **2** | **135** | **245** | | **2.5** | **140** | **235** | | **3** | **135** | **225** | | **4** | **130** | **200** |   **1. What is the dependent variable and why?**  **2. What is the independent variable and why?**  **3. What title would you give the graph?**  **4. Which, if any, of the above individuals (A or B) has diabetes?**  **5. What data do you have to support your hypothesis?**  **6. If the time period were extended to 6 hours, what would the expected blood glucose level for Person B?**  **Title**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  http://www.biologyjunction.com/graphi1.gif  **LEGEND:**  **SUMMARY:** 1. What conclusions can be determined from the data in graph 1?  2. What conclusions can be determined from the data in graph 2?  3. Can the data in each of these graphs be used to construct other types of graphs?  4. If so, what other graph types can be constructed? |
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