

Homeostasis Lab Experimental Design Tips

Lesson 3: Homeostasis Lab



<p>To determine the PURPOSE of your experiment, think about the following questions:</p> <ul style="list-style-type: none">• What claim are you trying to test?• Why are you trying to test this claim?• What will testing this claim allow you to do or figure out about the module phenomenon?	<p>To determine WHAT TYPE OF DATA you need to collect, think about the following questions:</p> <ul style="list-style-type: none">• What are you trying to measure?• How will you determine how much carbon dioxide is produced when exhaling?• What type of measurements or observations will you need to record during your investigation?• To what level of precision are you able to measure?
<p>To determine HOW YOU WILL COLLECT AND ANALYZE YOUR DATA, think about the following questions:</p> <ul style="list-style-type: none">• What are the independent, dependent, and controlled variables for your experiment?• What will serve as a control (or comparison) condition?• What types of treatment conditions will you need to set up, and how will you do it?• How often will you collect data, and when will you do it?• How many trials will you perform?<ul style="list-style-type: none">○ Why?○ How will you keep track of the data you collect, and how will you organize it?• How will you analyze and present your data (e.g., data table, graph, using statistics such as mean, median, average, standard deviation)?	<p>To help you ELIMINATE CONFOUNDING VARIABLES in your design, consider:</p> <ul style="list-style-type: none">• How do you know the experimental conditions are consistent across samples? Across trials?• How do you know that only the independent variable is changing between samples? Between trials?• How will you make sure that your data are of high quality (i.e., how will you reduce error and make sure other confounding variables do not influence your data?)• Could there be a third variable changing across your experiment that is not the independent or dependent variable?• What variables might you not be accounting for?