

Student Handout #2

Research Design Table

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Directions: Complete the following table with your research project idea.

<p>Hypothesis Draft If we change the pH levels of soil to 4, 5.5 and 8, then all three plants will favor different levels based on where they are supposed to grow best.</p>				
<p>Independent Variable</p> <p>We are changing the pH of soil using additives to make it both more acidic and more basic. We will be running tests with three different plants to see how each pH effects different plants.</p>		<p>Background Questions</p> <ul style="list-style-type: none"> • How would changing the type of soil affect plant growth? • What are some components which make up soil? • How would soil pH effect plant growth? • What are some ways to measure plant growth? • Will certain plants favor different soil pH levels? • Are there certain pH levels that prove inhabitable? • What are some different things that effect soil pH? 		
<p>Dependent Variable</p> <p><i>Quantitative</i></p> <p>We will be measuring the height of the plants, and checking the pH periodically throughout our experiment.</p> <p><i>Qualitative</i></p> <p>We will be observing how each plant looks in the different soil types periodically throughout the experiment.</p>		<p>Constants</p> <ul style="list-style-type: none"> • The type of plant will each get three pots for each different pH level. There will be 27 pots total, 9 for each plant type. • We will keep the amount of water the same for each plant when we water them. We will water each of them the same amount of times. • We will keep the amount of light the same. • We will keep the size of the pot the same. 		
<p>Experimental Groups and Control Group</p>	<p>Control Group</p> <p>Regular Soil with pH around 5.5</p>	<p>Exp. Group #1</p> <p>Limestone Soil with pH around 8</p>	<p>Exp. Group #2</p> <p>Iron Sulfate Soil with pH around 3.5</p>	<p>Exp. Group #3</p>