Seedling Experiment

*Using your seedling or any plants around your house you will conduct your own experiment. It doesn’t have to be fancy, it needs to be something you can conduct with supplies you have around your house. The main goal is to go through the steps of the scientific method:*

1. *Observation/problem/ask questions*
2. *Research*
3. *Hypothesis “if, then because”*
4. *Test hypothesis, collect data*
5. *Analyze data and draw conclusion, accept or reject hypothesis*
6. *Replicable- can this experiment be done by others*

|  |
| --- |
| 1. **Identify a testable hypothesis or scientific question for an investigation.**  * Write in “if, then, format” * Example- If I put a cutting of a plant in a solution of soil and water, then the plant in that solution will develop roots faster than the cutting in just tap water, because the nutrients of the soil will stimulate root growth. |
|  |
| 1. **Identify a research method, design, and/or measure used.**  * List independent variable (IV), dependent variable (DV), control, constants * List methods (is it replicable?) * How will you measure your dependent variable? * Example:   + IV- different solutions for plan cuttings (tap water vs tap water with seedling soil)   + DV- root development (every week count how many roots have developed)   + Control- cutting in tap water   + Constants- cuttings from the same plant, same size of plant, same amount of water, same container, same amount of sunlight |
| * IV- * DV- * Control- * Constants- |
| 1. **Describe an aspect of a research method, design, and/or measure used.**  * Example:   + 1. Cut 4 cuttings from same plant- Pothos (*Epipremnum aureum*)     2. Create IVs: tap water (150 mL) vs tap water (140 mL) with potting mix (10 g)     3. Place cuttings in the solutions (2 per solution) \* more would probably be better     4. Monitor root growth and count root development every week |
|  |
| 1. **Make observations or collect data from laboratory setups (not assessed).**  * This includes table of data collects and graphs produced from this data. * How/where will you keep track of your data? * Example * Table 1: Number of roots developed  |  |  |  | | --- | --- | --- | | Week # | Cutting in tap water (control) | Cutting in tap water with soil | | Week 1 |  |  | | Week 2 |  |  | | Week 3 |  |  | | Week 4 |  |  | |
|  |
| 1. **Explain modifications to an experimental procedure that will alter results.**  * Is your experiment replicable? Can someone else do it and get same results? * How could you improve your experiment? * Example: have more trials, use different species of plants, different solutions of cuttings |
|  |