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| **http://www.nearctica.com/nathist/amphib/Frog.GIFScientific Process:**  **data collection** |

1. **Collect 2 kinds of Data:**
   * 1. **Qualitative data** 
        1. **such as descriptions, diagrams**
     2. **Quantitative data** 
        1. **such as measurements, numbers**
2. **Collect data from multiple trials (increases reliability of results).**
3. **Organize raw data and DERIVED quantity in a data table:**
   * + 1. **Specific Title**
       2. **Table must be neat, with straight lines and clear writing (can be word processed).**
       3. **Row and column headings with units**
       4. **The headings for the columns could be:**
          1. **Manipulated variable**

* **Order from smallest to largest, if appropriate**
  + - * 1. **Responding variable**
* **Subdivide column to represent multiple trials**

1. **Add Column for “derived” quantity**(often, if appropriate, average), with unit
2. **Accuracy of data is appropriate to the measuring equipment being used.**
3. **Can be done using EXCEL**

**Generalized Table:**

**Manipulated Variable vs Responding Variable**

**Or**

**What is the effect of the Manipulated Variable on the Responding Variable?**

**Or**

*The effect of [INSERT YOUR MANIPULATED VALRIABLE] on [INSERT YOUR RESPONDING VALRIABLE]*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column for MV, labeled with units** | **Column for RV, labeled with units** | | | | **Column for derived quantity, labeled with units** |
| **Trials** | | | |
| **1** | **2** | **3** | **etc.** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**For example:**

*The effect of heating time on temperature of water*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Time on hot plate (s)** | **Temperature of Water (°C)** | | | | **Average temperature of water** (°C) |
| **Trials** | | | |
| **1** | **2** | **3** | **4** |
| 60 | 35.0 | 37.0 | 36.0 | 38.0 | 36.5 |
| 120 | 56.0 | 54.0 | 53.0 | 58.0 | 55.3 |
| 180 | 77.0 | 76.0 | 78.0 | 76.0 | 76.8 |
| 240 | 94.0 | 98.0 | 95.0 | 96.0 | 95.8 |