**pH Indicator Lab**

For this lab you will be given 3 unknown pH solutions, your task is to identify what the pH of each solution is using 6 types of pH indicators. Your task will be to develop a safe and complete method (including materials), state dependent and independent variable, and describe how you will manipulate those variables.

|  |  |  |  |
| --- | --- | --- | --- |
| **Emerging (1-2)** | **Progressing (3-4)** | **Proficient (5-6)** | **Extending (7-8)** |
| iii. Outline the variables, | Outline how to manipulate the variables, outline how relevant data will be collected, | Describe how to manipulate the variables, describe how sufficient, relevant data will be collected, | Explain how to manipulate the variables, explain how sufficient, relevant data will be collected, |

**Dependent Variable** (what you are going to observe)**:**

**Independent Variable** (the factor you are trying to see the results of – may want to include range of values)**:**

**Control Table:**

|  |  |  |
| --- | --- | --- |
| **Variable Controlled** | **How it was controlled** | **Why it was controlled** |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Emerging (1-2)** | **Progressing (3-4)** | **Proficient (5-6)** | **Extending (7-8)** |
| iv. Design a method, with limited success. | Design a safe method, selects materials and equipment. | Design a complete and safe method, selects appropriate materials and equipment. | Design a logical, complete and safe method, selects appropriate materials and equipment. |

**Materials** (Include names of equipment)**:**

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**Procedure** (give detailed instructions – don’t forget safety)**:**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Emerging (1-2)** | **Progressing (3-4)** | **Proficient (5-6)** | **Extending (7-8)** |
| i. collect and present data in numerical and/or visual forms | correctly collect and present data in numerical and/or visual forms | correctly collect, organize and present data in numerical and/or visual forms | correctly collect, organize, transform and present data in numerical and/ or visual forms |

**Data Collection** (create a table to organize your data, and convert into chart if applicable)**:**

**Interpreting Data:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Emerging (1-2)** | **Progressing (3-4)** | **Proficient (5-6)** | **Extending (7-8)** |
| ii. interpret data | accurately interpret data and explain results | accurately interpret data and explain results using scientific reasoning | accurately interpret data and explain results using correct scientific reasoning |

Explain the pH range of each unknown solution:

Unknown A - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unknown B - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unknown C - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unknown D - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain the Results: