**Lesson Goals:**

|  |
| --- |
| -To make chemistry interesting. -To use experiments to make and test predictions.  -To do an experiment in English. -To understand how concentration changes rate. |

**Prediction:**

|  |
| --- |
| What do you think will happen?  When concentration \_\_\_\_\_\_\_\_\_\_\_\_\_, the rate of reaction will \_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Preparation:**

|  |  |  |
| --- | --- | --- |
| Equipment:   |  | | --- | | -Two 100mL Beakers -Four 100mL Conical Beakers -Two 10mL Metric Glasses  -One 50mL Measuring Cylinder -One 2mL Pipette -One Stopwatch |   Reagents:   |  | | --- | | -Solution A -Solution B -Distilled Water -Starch Solution | |

**Method:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. In each of three 100mL Conical Beakers, add the following:  |  |  |  |  | | --- | --- | --- | --- | |  | Add… | Of… | Using… | | **A1** | 5mL | Solution A | 10mL Metric Glass | | 15mL | Distilled Water | 50mL Measuring Cylinder | | 2mL | Starch Solution | 2mL Pipette | | **A2** | 10mL | Solution A | 10mL Metric Glass | | 10mL | Distilled Water | 50mL Measuring Cylinder | | 2mL | Starch Solution | 2mL Pipette | | **A3** | 15mL | Solution A | 10mL Metric Glass | | 5mL | Distilled Water | 50mL Measuring Cylinder | | 2mL | Starch Solution | 2mL Pipette |  1. Measure 10mL of Solution B with a 10mL Metric Glass. 2. Add the B to A1 and time the reaction with the stopwatch. 3. Repeat steps ② and ③ for A2 and A3. |

**Results:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Record the reaction times below.   |  |  |  | | --- | --- | --- | |  | Volume of A (mL) | Reaction Time (s) | | A1 + B | 5 |  | | A2 + B | 10 |  | | A3 + B | 15 |  |     -Did the results match your prediction?  Yes/No, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Challenge:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| -Try to make a solution that changes colour in exactly \_\_\_\_ seconds!   |  |  |  | | --- | --- | --- | | Volume of Solution A | Volume of Distilled Water | Reaction Time | | \_\_\_ mL | \_\_\_ mL | \_\_\_ s | |

**Conclusions:**

|  |
| --- |
| 1. When concentration \_\_\_\_\_\_\_\_\_\_\_\_\_, the rate of reaction \_\_\_\_\_\_\_\_\_\_\_\_\_. 2. If concentration doubles, the rate of reaction \_\_\_\_\_\_\_\_\_\_\_\_\_. 3. We can see the rate of reaction from the \_\_\_\_\_\_\_\_\_\_\_\_ of the graph. |

Koyo High School 1st Year, Class ( ), Number ( ) – Name ( )