**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 ( )