1. **Objectives**

* Design a website that helps a person learning the factors of chemical reactions (individual or partners)
* Describe chemical reactions and their relationships of reactants and products.
* Explain the relationship of the conservation of matter to chemical reactions.
* Apply understanding of different types of chemical reactions to correctly identify each type.
* Develop and use models to predict the products of chemical reactions.

1. **Design and Purpose**

You have been tasked to show the knowledge learned within this unit by creating a website that organizes the information gathered through this unit. Creativity and personality is essential in completing this project (points will be lost for boring website that visually look like minimal effort has been put into the product.

You are expected to explain the basics of chemical reactions, the process of balancing chemical reactions, identify and explain different chemical reactions, explanation and relationship to labs completed in class, and common examples of chemical reactions. Last, you will be tasked to research, create, and perform a lab that shows a chemical reaction.

The project will be judged on originality. You should NOT copy and paste any information. You may use notes from class or assignments, but the material must be rewritten. To ensure that adequate information is included, there should be a total of 2000 words included on the website. Points will be removed for formatting, grammatical, or accuracy issues.

1. **Topics**

The breakdown to the project is listed below. The project has many parts; therefore, consider each part in detail.

* Explain basics of chemical reactions
* Explain the process of balancing a chemical reaction.
* Describe the different types of chemical reactions.
* Relationship to Citric Acid Lab
* Relationship to Ammonium Dichromate Lab
* Explain how a reader can determine if a reaction will not occur due to the reactants.
* Include self-made videos that assist in the explanation of the website.

1. **Assessment**

Points for each category will be on a 0-3 scale.

* + - * 0pts for no attempt
      * 1pt for minimal attempt or minimally correct
      * 2pts for adequate effort and correctness
      * 3pts for strong, accurate explanation

**Grading Rubric:**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Points:** | **Percentage:** | **Grade:** |  | **Points:** | **Percentage:** | **Grade:** |  | **Points:** | **Percentage:** | **Grade:** |
| 147-150 | 100 | A |  | 101-103 | 87 | B |  | 58-61 | 59 | F |
| 143-146 | 99 | A |  | 98-100 | 86 | B |  | 54-57 | 56 | F |
| 139-142 | 98 | A |  | 95-97 | 85 | B |  | 50-53 | 52 | F |
| 135-138 | 97 | A |  | 92-94 | 83 | C |  | 46-49 | 48 | F |
| 131-134 | 96 | A |  | 89-91 | 81 | C |  | 41-45 | 44 | F |
| 127-130 | 95 | A |  | 86-88 | 79 | C |  | 36-40 | 40 | F |
| 123-126 | 94 | A |  | 83-85 | 77 | C |  | 31-35 | 35 | F |
| 119-122 | 93 | A |  | 80-82 | 75 | D |  | 26-30 | 30 | F |
| 116-118 | 92 | B |  | 77-79 | 73 | D |  | 21-25 | 25 | F |
| 113-115 | 91 | B |  | 74-76 | 71 | D |  | 16-20 | 20 | F |
| 110-112 | 90 | B |  | 70-73 | 68 | F |  | 11-15 | 15 | F |
| 107-109 | 89 | B |  | 66-69 | 65 | F |  | 6-10 | 10 | F |
| 104-106 | 88 | B |  | 62-65 | 62 | F |  | 1-5 | 5 | F |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Points | Weight | | Score |
| Basics |  |  | |  |
| Creativity and Originality (everything should be in your own words) |  | x2 | |  |
| Correct grammar and sentence structure |  | x2 | |  |
| Depth of writing (Text in total must be at least 2000 words) |  | x2 | |  |
|  | Sub-total: | | | /18 |
| Explain basics of chemical reactions | | | | |
| What is a chemical reaction? |  | x2 | |  |
| How is a chemical reaction different from a physical reaction? |  | x1 | |  |
| What are the indicators of a chemical reaction? |  | x1 | |  |
| Show each method of writing a chemical reaction. |  | x2 | |  |
|  | Sub-total: | | | /18 |
| Explain the process of balancing a chemical reaction. | | | | |
| How is a chemical reaction balanced? |  | x3 | |  |
| Why is a chemical reaction balanced? |  | x1 | |  |
| How does theory of conservation of matter apply to chemical reactions? |  | x2 | |  |
| Include hints to balancing chemical reactions. |  | x1 | |  |
| Show examples of balancing chemical reaction. |  | x2 | |  |
|  | Sub-total: | | | /27 |
| Describe the different types of chemical reactions. | | | | |
| Identify each chemical reaction. |  | x3 | |  |
| Explain the definition of each type of chemical reaction. |  | x2 | |  |
| Show the general equation of each type of chemical reaction. |  | x1 | |  |
| Explain how the products could be predicted given reactants |  | x2 | |  |
| Show examples of each type of chemical reaction. |  | x2 | |  |
|  | Sub-total: | | | /30 |
| Relationship to Citric Acid Lab | | | | |
| Explain the purpose of the lab |  | x2 | |  |
| Identify the type of reaction of the lab |  | x1 | |  |
| Provide observations of the lab |  | x1 | |  |
| Provide indicators that the lab was a chemical reaction |  | x1 | |  |
| EXTRA CREDIT: (1pt per photo or 5pts video of the lab) |  | EC | |  |
|  | Sub-total: | | | /15 |
| Relationship to Ammonium Dichromate Lab | | | | |
| Explain the purpose of the lab |  | | x2 |  |
| Identify the type of reaction of the lab |  | | x1 |  |
| Provide observations of the lab |  | | x1 |  |
| Provide indicators that the lab was a chemical reaction |  | | x1 |  |
| EXTRA CREDIT: (1pt per photo or 5pts video of the lab) |  | | EC |  |
|  | Sub-total: | | | /15 |
| Self-created Lab | | | | |
| Summarize the design and purpose of the lab |  | | x3 |  |
| Explain the lab process (procedures) |  | | x1 |  |
| Show data found during the lab (results) |  | | x1 |  |
| Explain the discoveries, anomalies, errors from the lab (conclusion) |  | | x2 |  |
| Identify the type of chemical reaction in the lab |  | | x2 |  |
|  | Sub-total: | | | /27 |
| Extra Points | | | | |
| Explain how a reader can determine if a reaction will not occur due to the reactants (10pts) | | | |  |
| Include self-made videos that assist in the explanation of the website. (5pts each) | | | |  |
| Total: | | | | /150 |