Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_ **Pugh Chart for BEST Bioplastic Recipe to Engineer a Cell Phone Case**

* 0 = Criteria is never met (Unacceptable)
* 1 = Criteria is rarely met (Possible choice)
* 2 = Criteria is sometimes met (Good choice)
* 3 = Criteria always met (Best choice)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Criteria** | **Starch Types + Additives** | | | | | | | | |
| Corn + Glycerol  (from Lab 1) | Corn + CaCO3 | Corn + Glue | Potato + Glycerol | Potato + CaCO3 | Potato + Glue | Tapioca + Glycerol | Tapioca + CaCO3 | Tapioca + Glue |
| 1 |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |
| **Total Scores** |  |  |  |  |  |  |  |  |  |

1. Highlight the criteria that were most important to your team.
2. Fill out the chart during the gallery walk.
3. Total up the score for each starch + additive.
4. Make your decision about which starch + additive combination to use for your final bioplastic procedure. Your decision should be based on final scores, but you should pay more attention to the highlighted criteria, since these were most important to you. **You must be able to cite evidence supporting your decision when writing your final report.**

**Pugh Chart Practice**

|  |  |
| --- | --- |
| 0 | Criteria is never met (HATE it) |
| 1 | Criteria is rarely met (can handle it) |
| 2 | Criteria is sometimes met (good with it) |
| 3 | Criteria is always met (LOVE it) |

**General Information:** You inherited some money….and have decided to buy a car. There are many different cars available. The problem is that each car has some things you like and some things that you don’t like. As an example, maybe one is the perfect color but has poor gas mileage. Another car might have the perfect price but it’s a truck and you need a sedan. How do you determine which vehicle will meet the majority of your needs?

The answer is - use a **Pugh Chart** to evaluate your priorities. Remember, the higher the number the higher your priority. Think of the numbers this way

|  |  |  |  |
| --- | --- | --- | --- |
| **Best place for Coffee** | **Starbucks** | **McDonalds** | **Gas Station** |
| **Cost** | 0 | 2 | 3 |
| **Taste** | 3 | 2 | 2 |
| **Strength of Caffeine** | 3 | 2 | 3 |
| **Wait Time** | 1 | 2 | 3 |
| **Total:** | **7** | **8** | **11** |

**Coffee Example:** When I woke up this morning, I realized that my coffee machine was broken. So, I needed to buy coffee on my way to work. I used a Pugh Chart to show the best option.

1. According to the Pugh Chart, where should your teacher get coffee?

1. Why would your teacher go to Starbucks instead (which criterion was most important to your teacher?)?

|  |  |  |  |
| --- | --- | --- | --- |
| Characteristics of Vehicle | Vehicle #1:   * Green * 4 door sedan * 35 mil/gal * $19,000 | Vehicle #2:   * Silver * Truck * 15 mil/gal * $7,000 | Vehicle #3:   * Black * 2 door sports car * 20 mil/gal (MPG) * $44,000 |
| Color |  |  |  |
| Type |  |  |  |
| Gas Mileage |  |  |  |
| Cost |  |  |  |
| **Total:** |  |  |  |

**Back to your car**…there are 3 Vehicles available to you. Which should you buy? Fill in the Pugh chart (using the same numbers discussed at the top of this sheet).

3. Which vehicle does the Pugh chart suggest you get?