**DIRTY LAUNDRY – Scientific Method LAB**

**PURPOSE : To use the scientific method to compare the cleaning ability of two big brand laundry detergents to determine which detergent is more affective cleaning stains.**

 **HYPOTHESIS : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**MATERIALS :**

* **One piece of white cotton fabric – (or 3 pieces of pre-cut fabric)**
* **Three different staining materials – Ketchup, Chocolate and Mustard**
* **Syringe for measuring equal amount of stains and detergent**
* **500 ml Beaker to measure volume of washing water and volume of rinsing water.**
* **Washing container**
* **Thermometer to measure water temperature**
* **Plastic spoon**
* **Water**
* **Masking tape**
* **Cell phone timer**

**PROCEDURE:**

1. **Cut three pieces of white fabric – all measuring 15 cm by 15 cm**
2. **Using a pencil, divide one piece of fabric into 4 evenly sized quadrants.**
3. **Using a clean syringe draw up 1 ml of a given stain and gently squirt it onto the middle of one of your quadrants and uniformly spread it with a plastic spoon. Then repeat with a clean syringe and clean spoon to place the other two stains onto the other two quadrants. One quadrant will remain unstained, you can use a felt to put the letter A on this quadrant.**
4. **Then place your names on a piece of masking tape and put it on the unstained quadrant and place it over on the side of the classroom so that the stain can set.**
5. **Repeat procedures #2🡪 #4 with your other two pieces of fabric – Using a felt place a letter B on the unstained quadrant of your second sheet. Place a letter C on the unstained quadrant of your last sheet**
6. **After 48 hours, gather your three pieces of stained fabric.**
7. **Take a close-up picture of Sheet A, then another photo of Sheet B and finally, a third photo of Sheet C**
8. **Run the sink to fill a large beaker with warm water (adjust the hot and cold water taps until your water reaches a temperature of approximately 30 degrees Celsius.**
9. **Then measure out 500 ml of this 30 degree Celsius water and place it into your washing container.**
10. **Then use a clean syringe to add 2 ml of "Laundry Detergent A" to the water.**
11. **Place lid on container and gently shake to mix the detergent into the water.**
12. **Then place your stained fabric into the soapy mixture.**
13. **Shake vigorously for 2 minutes**
14. **Strain off water and rinse fabric under cold water for 10 seconds**
15. **Then add another 500 mls of 30 degree Celsius water back into the container and place fabric back into container and shake vigorously for 1 minute.**
16. **Strain off liquid and rinse fabric under cold water for 10 seconds**
17. **Let it sit to dry**
18. **Then use one of your remaining pieces of fabric to repeat procedures #7 🡪 16, but this time use "Laundry Detergent B"**
19. **Then use your final piece of stained fabric to repeat procedures #7 🡪 #16, but this time DO NOT USE ANY Detergent at all**

**\*\*\* Let all three pieces of Fabric dry for a determined period of time.**

**After this set time is finished, take pictures of all three pieces of fabric. Use your photos and your fabric samples to record your observations in the DATA/OBSERVATION TABLE.**

**ANALYSIS – using your fabric and your photos record your observations in the table below:**

|  |  |  |  |
| --- | --- | --- | --- |
| **STAIN** | **DETERGENT A** | **DETERGENT B** | **CONTROL** |
| **CHOCOLATE STAIN** |  |  |  |
| **MUSTARD STAIN** |  |  |  |
| **KETCHUP****STAIN** |  |  |  |

**CONCLUSION:**

**After you look back at your Hypothesis, look over your Observation table and write a conclusion for this lab
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