**I. List what do you know?**

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| --- | --- |
| What do you know about strawberries? | What do you know about DNA? |

**II. List what do you want to know?**

|  |  |
| --- | --- |
| What do you want to know about strawberries? | What do you want to know about  DNA? |

**III. Share with your partner and create one or two questions about strawberries, DNA, or both.**

**IV. Write the question(s) to share with the entire group.**

***Overview:***

In this lab, students will extract DNA from a strawberry using everyday materials and observe its physical appearance.

***Objectives:***

As a result of participating in this activity, students will:

* Know how to extract DNA from strawberries.
* Observe what DNA looks like to the naked eye.
* Learn that DNA is found in every living and once living thing.
* Understand that DNA is found in all the food we eat.

***Materials:***

Zip-type, freezer bag (6”x 9”), 1 Coffee filter, cone-shaped, 1 Plastic cup,  1 Plastic pipette, 1 Strawberry,  10 mLs DNA extraction buffer (soapy, salty water) 15 mls ice cold ethanol in test tube or hand sanitizer

**Procedure**  
1. Fill a measuring cup with a half-cup of hot water and a teaspoon of salt.  
2. Pour this saltwater into the bag, and close the bag. Gently mix and slosh the saltwater and mashed strawberries together for 30 to 45 seconds.  
3. Add a half of a teaspoon of dishwashing detergent or dish soap into the bag. Again, mix around the contents gently. You do not want the mixture to become too foamy.  
4. Place the bottom half of a coffee-filter in a clear glass cup. The top part of the filter should be folded over the rim of the glass to keep it in place.  
5.Carefully pour the contents of the bag into the filter and let it sit for several minutes until all of the liquid has dripped down into the cup. (You can now throw out the coffee filter and its contents.).

6. Take the rubbing alcohol from the refrigerator. Tilt the glass and slowly pour the alcohol down the side of the cup until there is a layer that is 2.5 to five centimeters (one to two inches) thick. You want to keep the alcohol and the liquefied strawberries as separate as possible, so complete this step slowly.  
7. Let this two-layered mixture sit for eight minutes. *During this time, what do you see happening between the alcohol and the strawberries liquid layer?*  It looks cloudy and may have some tiny bubbles in it. The longer you wait, the more defined this layer becomes. This is the DNA pieces clumping together.

**Cleanup**  
You can wash the bag and reuse it. Pour the strawberry liquid and alcohol in a big jug.

**Summarize your results:**

**Answer the following questions:**

**Q1. What was the purpose of mashing up the strawberries?**

**Q2.What does the extraction buffer do? (Hint: Extraction buffer contains soap. What does soap do when you wash your hands?)**

**Q3. What does the filter do?**

**Q4. What happened when you added the alcohol to the filtrate?**

**Q5. What did the DNA look like?**

**Q6. Is DNA found in all living or once living cells?**

**7. Strawberries are made up of plant cells and they contain nucleus for holding genes. Remember that genes are found on chromosomes, and genes control traits. Give at least two examples of traits that are expressed in the strawberry.**