

**Assessed criteria**

Criteria E: AIE

**Skills assessed**

Learn how to use household equipment to do science experiments

**Background Information**

Cell membranes are layers of lipids, or fat molecules. DNA is found in the nucleus of a cell. The plant and animal cells can be chemically treated to break open the cell and nuclear membranes. The part of the resulting cell mixture that contains DNA can be separated from the cell membrane and associated proteins, and the solution containing the dissolved DNA can be altered so that the DNA can no longer remain dissolved. It will be “precipitated” out of solution and observable with the naked eye.

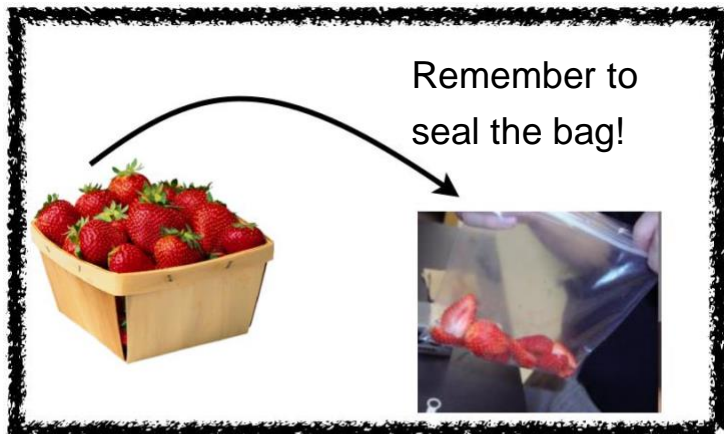
**Objective**

To extract DNA from strawberries

**Materials**

Strawberries	Zipper bag
Warm water	Strainer
Salt	Teaspoon
Cool alcohol	100mL Beaker
Clear liquid dish soap	Toothpick
Pure water	Eppendorf

1. Remove leaves and put 2-3 strawberries in a food bag



2. Gently squash them up until there is only the pulp left



3. Carefully open the bag and add in...



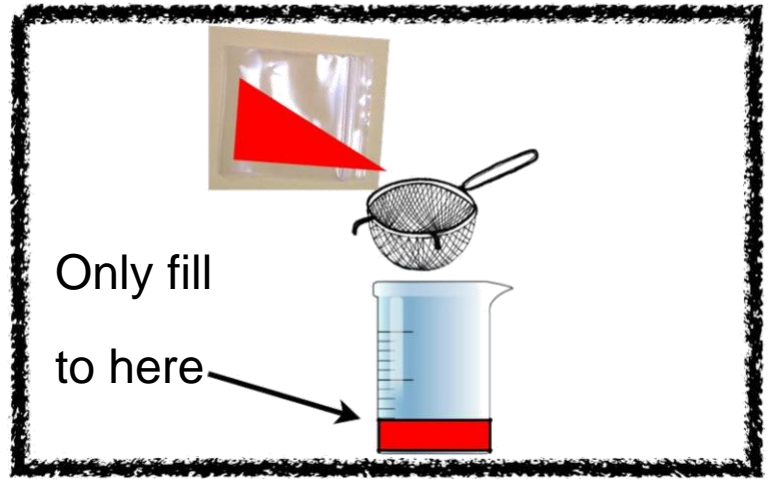
4. Seal bag and squeeze mixture together with your fingertips GENTLY for 2 minutes



Try not to make too many bubbles

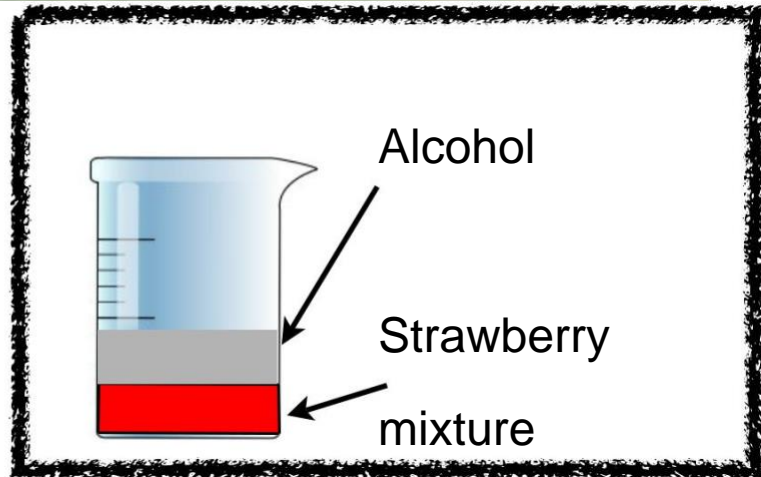


5. Pour the mixture through the sieve into a small beaker labeled MIXTURE



6. Pour some alcohol down the side of your beaker. This will form 2 different layers

7. Do not touch your beaker.  
THESE TWO LAYERS MUST NOT MIX.  
Leave the beaker aside for 10 minutes



Can you see a white stringy material floating between the two layers? **This is the strawberry's DNA!**

8. Slowly twist substance onto a toothpick. (Do not disturb cell scum from the lower layer.)

9. Put the DNA in an Eppendorf tube and add 2 mL of pure water. **You now own Strawberry DNA!**

**Do research to answer the following questions:**

1. Why did you need to mash the strawberries?
2. What does the salt do?
3. What happens as you mix the blended cells with the soap?
4. What does the alcohol do? Why does the DNA rise to the top after adding alcohol?
5. What kind of test can you do in order to show that the precipitate is DNA and not any other biomolecule such as proteins or lipids? (*this one is more difficult to answer, lets see who comes up with the correct one!*)

**References** (*Complete this section*)