

cell wall, and membranes from the proteins, carbohydrates, and the DNA. Since DNA cannot dissolve in alcohol, it clumps together and becomes visible when it is added to cold alcohol.

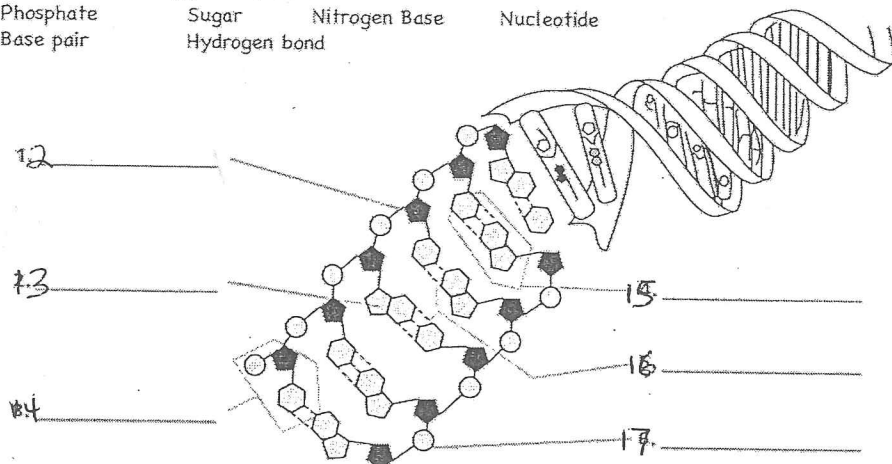
Analysis and conclusions:

Use your observations from the lab activity, the [background information] in the paragraph above, and your knowledge of DNA to answer the following questions

1. Where in the cell is the DNA found? _____
2. Do all living things have DNA? _____?
3. What was the purpose of mashing up the strawberry? _____
4. What does the extraction buffer do? _____
5. What parts does the soap in the buffer act on? _____
6. What does the salt in the buffer work on? _____
7. What does the filter do? _____
8. What does the alcohol do? _____
9. What happened when we added the strawberry juice to the alcohol? _____
10. What did the DNA you observed look like? _____
11. A person cannot see a single piece of thread 100 feet away, but if you wound thousands together into a rope, it would be visible. How is this like our DNA extraction? _____

12. DNA

Label the following parts of DNA.
 Phosphate Sugar Nitrogen Base Nucleotide
 Base pair Hydrogen bond



18 Write out the full name for DNA. _____

19 What are the sides of DNA made of? _____

20 What are the "rungs" of the DNA ladder made of? _____

21 Where is DNA located? _____

22 What is DNA? _____



Strawberry DNA Extraction Lab

Name: _____

Date: _____

Purpose: the purpose of this lab is to break apart the cell membrane of a strawberry and separate the DNA from the nucleus. Strawberries are a good source of DNA because they have 8 copies of each type of chromosome. This large number of chromosomes will be filtered out of our solution and we will actually see DNA.

Hypothesis: What do you think the DNA will look like? _____

DNA Extraction Procedure

Materials

1. Obtain these materials from your teacher:

- 1 zip-top bag
- 1 coffee filter
- 1 paper cup
- 1 plastic pipette (dropper)
- 1 strawberry
- 20 mL buffer solution in the graduated cylinder

Procedure

2. Zip your bag closed with the strawberry inside. Massage the bag for two minutes. Leave the bag on your table.
3. Pour the buffer solution from the cylinder into the bag. Zip the bag closed. Massage the bag for one minute. Leave the closed bag on the table.
4. Drape the coffee filter in the cup. Make sure the top part of the filter is folded over the top of your cup and that the bottom of the filter does not touch the bottom of the cup.
5. Open the bag. Pour the mashed strawberries with the extraction buffer into the filter and let it drip into the bottom of the cup. This will take about 10 minutes
6. After ten minutes, go to the teacher and get a test tube that contains ice cold ethanol.
7. Remove the filter with the strawberry stuff inside and throw the whole filter away.
8. Using a dropper, remove some of the strawberry "juice" that is in the bottom of the cup.
9. Slowly and carefully, drop the strawberry juice into the test tube of ethanol.
Do not shake the tube! Very gently, swirl the tube once or twice.
10. Watch where the alcohol and extract layers come in contact with each other. Stoop down and look at the tube on your eye level.

Data ~~#~~ Draw a picture of what you see happening.

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Observations

* Background Information:

Smashing the strawberry ~~#~~ helps to break open the cell. The buffer solution is used to break down the strawberry. It contains dishwashing liquid (soap), salt and water. The dishwashing liquid dissolves the cell membranes, releasing the DNA. The salt makes sure that the proteins in the cell are not separated from the rest of the solution with the DNA. Filtering the solution separates the cell organelles, broken