Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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# Find DNA in your own Kitchen

**Purpose**

The purpose of this exercise is to isolate and evaluate onion DNA.[[1]](#endnote-1)

**Background**

 All the necessary instructions for making an organism are found in its DNA. In addition, DNA is used throughout the life of an organism to provide instructions for the millions of cellular processes that occur daily. Scientists study how DNA instructions are communicated to other parts of the cell. To do this, scientists isolate (separate) DNA from the cellular parts and examine how DNA interacts with RNA to do its job. To isolate DNA, scientists have to separate it from the other components of the cell. Cells are broken open and the DNA is separated from the lipid-containing membranes of the cell and its organelles.

\*As you work through the lab, think about how the things we are using (blender, detergent, meat tenderizer, and alcohol) are tools for breaking apart the organelles and then spooling it.

**Procedure**

 **Materials**

1. Onion (1)
2. Knife (1)
3. Measuring cup & spoons
4. Warm water (1/4 c)
5. Salt (1 tsp)
6. Stir rod or spoon
7. Blender (1)
8. Dish detergent (3-5ml)
9. Container s/beakers (2)
10. Coffee filter (1)
11. Meat tenderizer (1/8 tsp)

**Sequence of Steps**

1. Peel and cut the onion into very small pieces.
2. Measure out ¼ cup of warm water and add 1 tsp of salt. Stir until the salt is dissolved.
3. Put the onion pieces and the salt water in the blender and chop for just a couple seconds. The mixture should still be lumpy, containing small pieces of onion.
4. Gently mix the onion and water from the blender with 3-5ml of soap in a new container. Mix for about 5 minutes.
5. Put the coffee filter over an empty beaker and pour in the onion mixture. Allow the liquid to filter into the beaker.
6. Add approximately 1/8 tsp of the meat tenderizer and gently stir the mixture with a toothpick. Stir approximately 5 minutes.
7. Place the beaker on the table. Slowly pour alcohol into the mixture.
8. The alcohol will form a layer on the top of the cell debris.
9. ![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()Watch carefully as the DNA precipitates through the alcohol. The DNA is clear. Small bubbles will attach to the strands as they migrate up through the alcohol. Use a stir rod or toothpick to gently stir the alcohol layer. Notice how those strands move like snot. The snotty substance is DNA.
10. Respond to questions under “observations” and clean up your lab area.

![C:\Users\Angela\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\DRP2N1IJ\MCj04242300000[1].wmf]()**Observations**

1. Describe, in complete sentences, your observations at the conclusion of this lab.

2. In humans, plants and animals, where is DNA located?

3. Where does the DNA in an individual come from? Why?

4. Describe the pathway by which ribosomes synthesize proteins using RNA.

5. Draw a DNA molecule, showing basic structure including: Deoxyribose (sugar), Phosphate, Nitrogen Base (A, G, C, and T).

1. Goehring, JessaLee (2008).Find DNA in your own Kitchen. *Lodi High School, Agriculture Department*. [↑](#endnote-ref-1)