Title of Lab: DNA Extraction
(From GVL)

Purpose(s) of Lab: In this lab you will extract and view your own DNA.

Materials:

- water
- a squirt of dishwashing liquid
- 1/2 a teaspoon of salt
- 1 teaspoon of ice cold ethanol or methylated spirits or rubbing alcohol (isopropanol)
- two cups and
- a clear container with a lid

Procedure:

1.Dissolve half a teaspoon of salt in half a cup of water. Add a squirt of dishwashing liquid. This liquid will be used to break up the cells and release the DNA.
2.Take about a tablespoon (20 - 25 mls) of plain water into your mouth. Don't swallow! Swish the water around your cheeks vigorously for about 30 seconds. This removes some cheek cells. Spit the water into a clean cup or glass.
3.Add about 1 teaspoon (5 mls) of this fluid to a small clean container with a lid (a 20 ml test-tube or a clear plastic film canister would work). Add about half a teaspoon (2.5 mls) of the salt/dishwashing liquid (saline/detergent) solution. Put the cap on the container and tip it up and down gently 3 or 4 times to mix (but you don't want a lot of froth so don't shake it). This will break up the many hundreds of cheek cells, releasing the DNA from the nucleus.
4.Gently run a teaspoonful of ice-cold ethanol into the tube. Methanol or rubbing alcohol - isopropanol - should also work; *make sure they are ice cold by placing the bottle in the freezer for a few hours before the experiment.* Watch the point where the two layers meet. You may see strands of DNA forming, as cloudy filaments stretching up into the top (ethanol) layer. DNA is not soluble in ethanol, so when the ethanol meets the DNA solution it starts to precipitate (form a DNA salt).
5.You may be able to hook out the strands of DNA with a glass hook (or one made from a plastic twist-tie) by slowly dipping up and down through the two layers. If this doesn't work, gently invert the tube several times until the alcohol is mixed in. The precipitated DNA will look like a small ball of white thread.

Results: Describe what the DNA looks like.

Questions:

1. Does the DNA look as you expected?
2. Can you see the double helix? Why or why not?
3. What would DNA from a strawberry look like? Explain.

Adapted from http://www.tryscience.org/experiments/experiments_home.html