

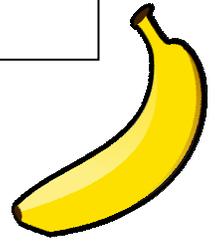


Name _____

Date _____ Period ____

DNA Extraction Lab

(AKA: A Berry Full of DNA Lab)



Background Reading...

One of the reasons strawberry works well for DNA extraction is because it is soft and easy to smush. Also, ripe strawberries produce chemicals which help in breaking down the cell walls. They also have eight of each chromosome, which gives you a lot of DNA.

The formula we will use is a combination of soapy and salty water. The detergent in the shampoo helps to dissolve the cell membranes and membranes around the organelles (we will learn more about cell membranes tomorrow). The salt helps to keep the proteins in the strawberry from mixing with the DNA.

DNA will not dissolve in ethanol (a clear liquid chemical), which is what we want for this activity (so you guys can see the DNA!). If the DNA did dissolve in the ethanol, it would become invisible (lucky for us it doesn't). The DNA will clump together and this will become visible to the naked eye. The ethanol should be kept at very low temperatures because the colder the ethanol, the more DNA will clump together. So keep your ethanol cold!

Materials (per group)

- Heavy-duty Ziploc bag
- 1 strawberry
- DNA extraction liquid (soapy, salty water)
- Filtering apparatus: coffee filter/cheesecloth
- Ice cold ethanol (will be given to you by instructor)
- Beaker
- Test tube
- Funnel
- Wooden stick (some sort of stirring rod)

Procedure:

1. Put the fruit into the Ziploc bag and smush for two minutes (completely crush the fruit). You do not want this mixture to be bubbly so the less bubbles the better.
2. When you are finished smushing your fruit, put 10 ml of DNA extraction liquid into the bag.
3. Smush for another minute. Be careful not to make too many soap bubbles.
4. When finished smushing, place the filter into the funnel using enough to go over the rim of the funnel.
5. Open the bag and pour some of the mixture through the coffee filter and allow it to filter into the test tube. **Allow only about 3 ml of liquid to filter through into the test tube.**
6. Next you will receive the ethanol from one of us.
7. Watch for the development of several large air bubbles that have a white cloudy substance attached to them. The cloudy substance is DNA!
8. Take the glass stirring rod and spin and stir it like you're making cotton candy. If you tilt the test tube, you'll get more DNA.

