



# Adventure & Up

## PROGRAM

### Strawberry DNA Extraction

Time Required:	Materials Needed:
15 minutes	Dish soap (1/4 tsp), Salt (pinch), rubbing alcohol (1 cup), strawberry, Ziploc bag, paper towel, fork or toothpick, water, glass or clear cup, and rubber band

#### Brief Description of Activity:

Youth will create an extraction solution to pull the DNA out of a smashed strawberry. Once it is filtered, youth will add cold rubbing alcohol which will cause the DNA to rise in between the strawberry liquid layer and the alcohol layer.

#### Kid-Friendly Purpose of Activity:

*We are going to extract DNA from a strawberry. DNA is in all living organisms and makes up all characteristics, what you look like, sound like, how tall you are, etc.*

#### Step-by-Step Guide:

1. Put the rubbing alcohol in the freezer for at least 30 minutes. It can be in there longer as it won't freeze.
2. Put a strawberry in a Ziploc bag and seal it.
3. Smash up the strawberry in the bag. *Start slowly as the bag might try to open and create a mess for the youth to clean up!*
4. In your clear glass, add 2 teaspoons of water,  $\frac{1}{4}$  teaspoon of dish soap, and a pinch of salt. *The dish soap helps to open the strawberry cells so that the DNA can be more easily released. The salt is added to help the DNA strands to cluster together so that we can see them.*
5. Stir the mix in the glass cup together, this solution is going to be what extracts the DNA!
6. Add liquid from the glass into the Ziploc bag with the smashed strawberry.
7. Squish the strawberry and added mixture together for a few minutes. *Again, be careful that the bag does not bust open.*
8. Use the rubber band and paper towel to create a filter on top of the glass cup (clean the cup or use a second cup after the mixture was poured into the Ziploc).
9. Push down the middle of the paper towel softly to create a crater to hold the strawberry mixture.





# Adventure & Up

10. Pour the strawberry mixture from the Ziploc bag into the paper towel filter.
11. Wait 3-4 minutes for some droplets to collect at the bottom of the glass cup from the filter.
12. After droplets have collected at the bottom of the glass, take off the paper towel filter and strawberry mix and discard.
13. Remove the rubbing alcohol from the freezer and add 1 cup of it to the droplets in the glass cup.
14. Observe.
15. The DNA should start to move from the strawberry droplets at the bottom into the rubbing alcohol. They look like small white strands in the liquid.
16. Take a fork or toothpick and attach the tip to the floating DNA. You can swirl and move the DNA through the liquid.

## Reflection

- What part of the experiment did you like best?
- DNA makes characteristics of all living organisms, what characteristics do you have that your DNA made? (Physical works best – hair and eye color, height, etc.)
- Biologists do experiments like this and much more, what other science experiment or aspect of biology/chemistry are you interested in learning more about?

## Level Adjustments

- For older youth (7<sup>th</sup>-12<sup>th</sup> grade) they can watch a YouTube video on DNA to give them a deeper knowledge of what they are looking at.  
<https://www.youtube.com/watch?v=zwibgNGe4aY>