

SCIENCE FROM HOME

EXTRACTING DNA FROM FRUIT

Instructions:

1. Place alcohol in the freezer
2. Remove leaves, peel, or other extra bits from your fruit.
3. Prepare lysis buffer: Mix 80 milliliters (1/3 cup) water + 15 milliliters (1 Tbsp) soap + 1/2 tsp salt.
4. Place fruit into the plastic bag.
5. Press out any air and seal the bag.
6. Smash the fruit until it is fairly smooth.
7. Add the lysis buffer to the bag with smashed fruit, then reseal the bag.
8. Gently mix the fruit and buffer together for 2 minutes (try not to make too many bubbles).
9. Fold the coffee filter into a cone (fold into quarters and open a pocket).
10. Secure the coffee filter onto the medium glass. A rubber band can be helpful here.
11. Slowly pour the contents of the bag into the filter.
12. Allow liquid to drip from filter for 5 minutes.
13. Carefully remove and discard the filter (do not let anything drop in your cup!).
14. Transfer some of your filtered liquid into the small glass.
15. Slowly pour 20ml ice cold alcohol onto the filtered liquid and observe.
16. Use your coffee stir stick to scoop and spool the DNA.

Questions:

What is DNA made of?

Where is DNA found in a cell?

Where you surprised by what DNA looked like when you extracted it?

How it works:

The nucleus of plant and animal cells contains deoxyribonucleic acid, DNA, that provides the instruction for how to make everything in our bodies. The order of nucleotides (ACTG) in the DNA tells the cellular machinery how to put together proteins that make each organism unique. The long, thick fibers of DNA store information required for the functioning of the chemistry of life.

Going beyond:

How does the DNA from a strawberry compare to DNA from other fruit?

Why is it important for scientists to be able to remove DNA from an organism?

Materials:

Soft fruit (strawberry, banana, or similar)

Water

Liquid soap

Salt

Plastic bag

Rubbing alcohol

Medium sized glass

Small glass

Coffee filter

Stir stick

Optional: rubber band

Key terms:

Deoxyribonucleic Acid (DNA)

Lysis

Lipid



ACADEMIC