Week 2 - Strawberry DNA

What is DNA?

DNA is a large molecule that all living things have. It is the blueprint that makes not only different species unique but also individuals of a species unique. Each organism has a different collection of DNA which is contained in all of its cells - the basic units of life. The DNA acts as a code of instructions that guides cells and so describes everything about the organism. DNA determines how an organism will look like and (sometimes) how an organism will behave.

Materials:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rubbing alcohol</td>
<td>2 oz</td>
</tr>
<tr>
<td>Salt</td>
<td>1/2 spoonful</td>
</tr>
<tr>
<td>Water</td>
<td>1/6 cup</td>
</tr>
<tr>
<td>Dish detergent</td>
<td>1 spoonful</td>
</tr>
<tr>
<td>Plastic cups</td>
<td>1 clear and others</td>
</tr>
<tr>
<td>Plastic spoon</td>
<td>1</td>
</tr>
<tr>
<td>Strawberries</td>
<td>2 large (or 3 small)</td>
</tr>
<tr>
<td>Sandwich bags</td>
<td>2</td>
</tr>
<tr>
<td>Toothpick</td>
<td>1</td>
</tr>
</tbody>
</table>

Procedure:

WARNING: LISTEN CAREFULLY TO SCOUT INSTRUCTIONS TO STAY SAFE!

1. To make the extraction liquid, mix salt, water, and detergent in a cup. Save this mix for later.
2. Put strawberries in a plastic bag, and get rid of extra air. Seal the bag tightly.
3. Use your fingers to squeeze and mash the strawberries in the bag for 2 minutes.
4. When done, use a plastic spoon to remove chunks. There should only be a thick liquid left.
5. Add the extraction liquid from step 1 to the mashed strawberries. Mix around in the bag for around 1 minute.
6. Pour the final mix into a clear cup to about 1/3 full. Remove any surviving chunks.
WARNING: LEAVE STEP 7 TO THE SCOUTS! DO NOT TOUCH, SNIFF, OR DRINK THE ALCOHOL!
7. SCouts: tilt the cup at a slight angle, and slowly pour the alcohol in. Do not let the alcohol mix with the strawberry mash. The alcohol should sit in a layer on top of the cup.
WARNING: DO NOT MIX THE ALCOHOL AND STRAWBERRY MASH WITH SHAKING OR TOOTHPICKS!
8. Wait for about a minute. Watch as the DNA moves from the strawberry mash to the alcohol. What does the DNA look like?
9. Use toothpicks to touch the DNA in the cup.
**Question 1:** Circle the following pictures of things that have DNA.

- [Image of a person throwing a frisbee]
- [Image of a sunflower]
- [Image of a rock]
- [Image of a cloud with raindrops]
- [Image of a mushroom]
- [Image of a horse]

**Question 2:** Draw two living things, and then draw what it would look like if you mixed their DNAs together.

**Bonus Question:**
What does DNA stand for?