Designing and making with food

The structure of foods – sols/gels, emulsions and foams

What to do

1. Work in a group of eight so that each pair can make one of the following food products:
   - French dressing;
   - gelatin jelly;
   - white sauce;
   - beaten egg white.

   Follow the instructions given in ‘Method’ in the table.

   Student’s Book: Understanding what ingredients do pages 151-4

   Time available: 50-55 minutes

   You will learn: About the way colloidal systems form the structure of food products.

   You will need:
   - Olive oil
   - Vinegar
   - Dry mustard
   - Pepper
   - Salt
   - Gelatin
   - Plain flour
   - Margarine
   - Milk
   - Egg white
   - Small saucepan
   - Wooden spoon
   - Jar with screw top
   - 2 small bowls
   - Whisk

   What to do

   1. Make the following observations for each of the food products:
      - appearance of starting materials;
      - appearance immediately after making;
      - texture immediately after making;
      - consistency immediately after making;
      - appearance after 5 minutes;
      - texture after 5 minutes;
      - consistency after 5 minutes.

   What to write

   - Use your observations to decide whether each food product is a sol, gel, emulsion or foam.
   - Explain clearly how you decided.
   - Use the information in the Student’s Book to help you to explain what happened in the sauce to make it thicken.

   Homework suggestion

   - Look in the fridge, freezer, store cupboard at home. Make a list of ten foods and decide what each is: solution, suspension, emulsion, sol, gel, foam or solid foam.
   - Give reasons for your decision.

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### Samples

<table>
<thead>
<tr>
<th>Samples</th>
<th>A French dressing</th>
<th>B Gelatin</th>
<th>C White sauce</th>
<th>D Beaten egg white</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredients</td>
<td>3 tablespoons olive oil, 1 tablespoon vinegar, 1/8 teaspoon any mustard, pepper and salt</td>
<td>1 sachet (1 tbsp) gelatin, 1 cup of hot water</td>
<td>25 g plain flour, 25 g margarine, 275 ml milk, pepper and salt</td>
<td>1 egg white</td>
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<tr>
<td>Method</td>
<td>Place all ingredients in a small screw-top jar and shake well.</td>
<td>Sprinkle gelatin into the hot water and stir well.</td>
<td>Place all the ingredients in a small saucepan. Stir continuously with a wooden spoon until the sauce comes to the boil and thickens.</td>
<td>Whisk in a small, clean bowl until it is firm and dry.</td>
</tr>
</tbody>
</table>

**Health and safety check:** Students should not taste whipped egg white.