Chemistry lesson

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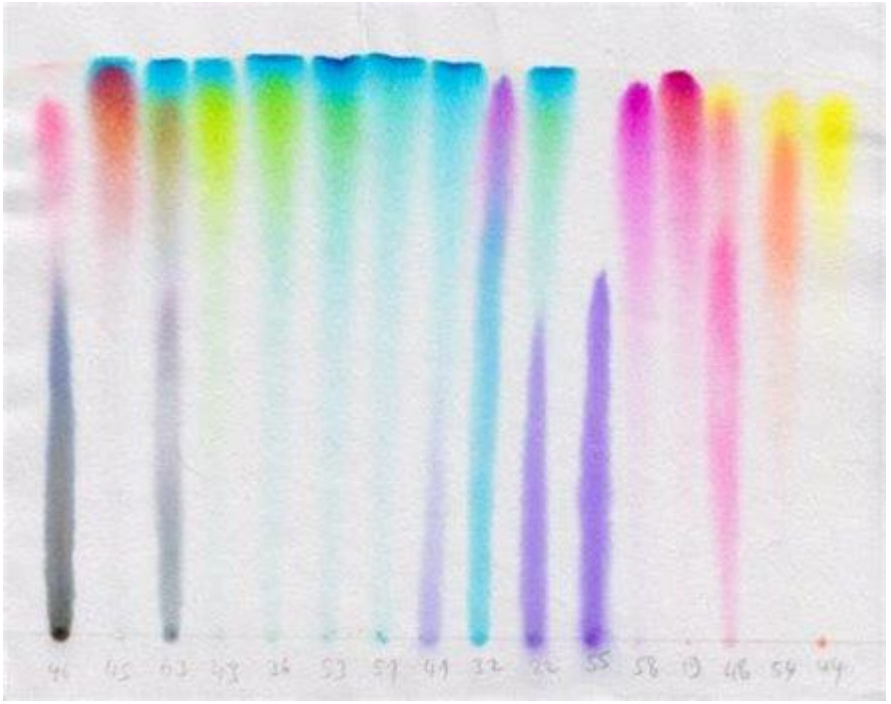
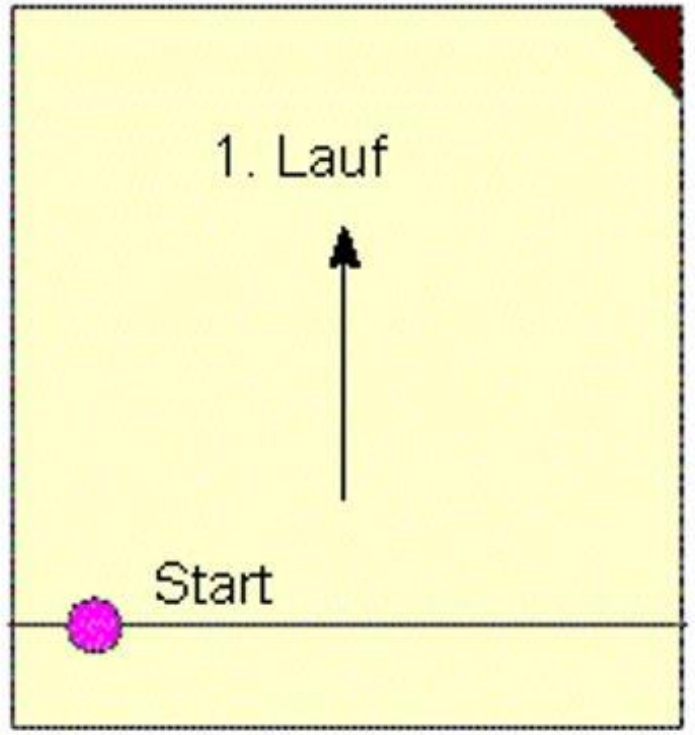
Felt-tip pen experiment



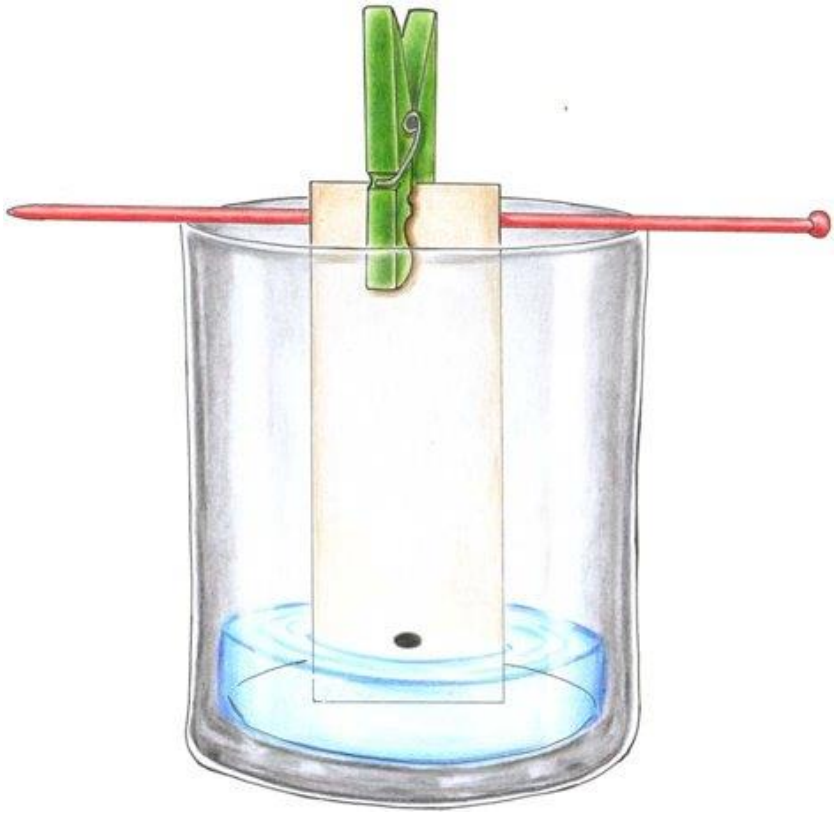
First steps

1. Cut an oblong strip from the filter paper
2. Draw a straight line at the bottom approx. 1 cm above the edge
3. Draw points on the line, wich are 1 cm apart

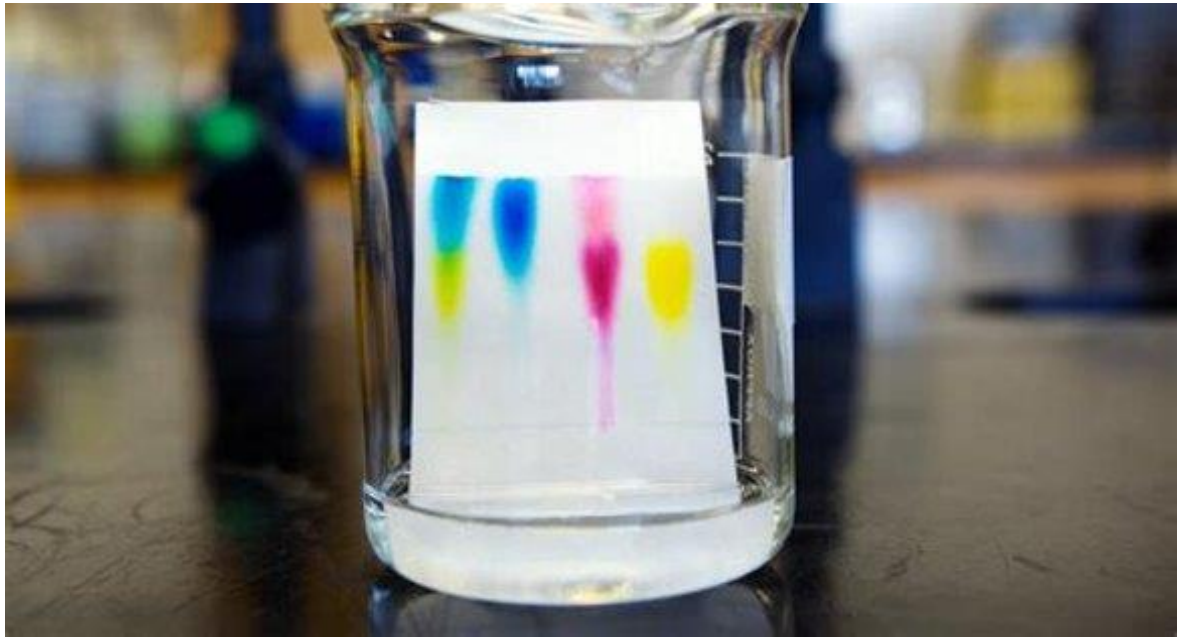


Next steps

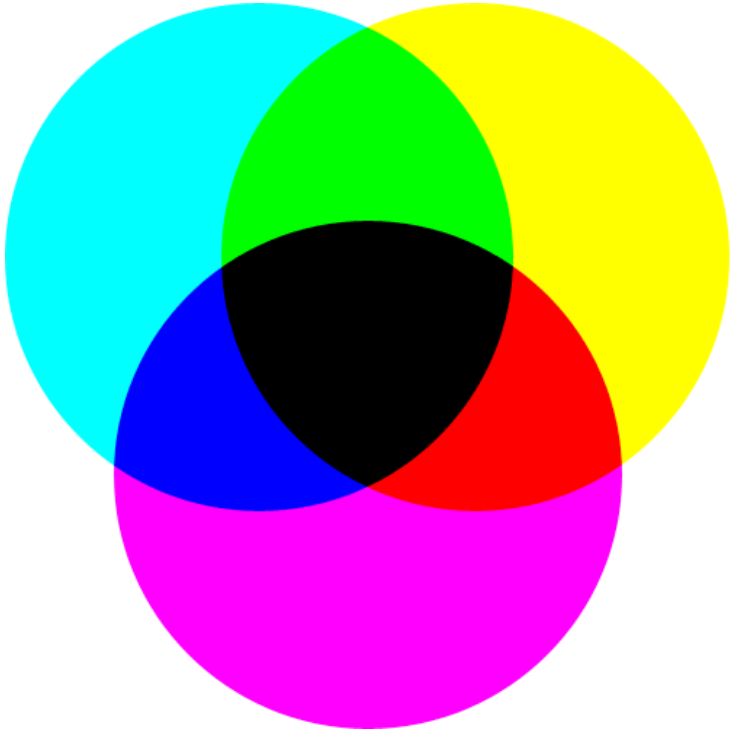
4. Fold the filter paper so that you can hang it on the pen
5. Hang the paper in the glass
6. Fill the glass with water until the water reaches the bottom of the paper
7. Wait a few minutes and see what happens



What do you see?



Explanation



- Black is not a basic color; different colors are mixed to make black
- The different colors are held in different degrees by the filter paper
- Water crawls over the paper and takes the color pigments with it

Fizzy drink experiment

First steps

1. Mix in one dry bowl the following ingredients:
    - One teaspoon sugar
    - One teaspoon baking soda
    - One teaspoon citric acid
2. Pour half a glass of water on the mixture
3. Enjoy your drink!

Explanation

- Commercial fizzy drinks contain sugar, sodium bicarbonate and tartaric acid

- The acid reacts with the sodium bicarbonate, producing carbon dioxide gas: Bubbles!

Pepper and soap experiment

First steps

1. Fill a deep plate or bowl with water
2. Sprinkle some pepper over the water
3. Wet your finger
4. Put your finger in the bowl of water

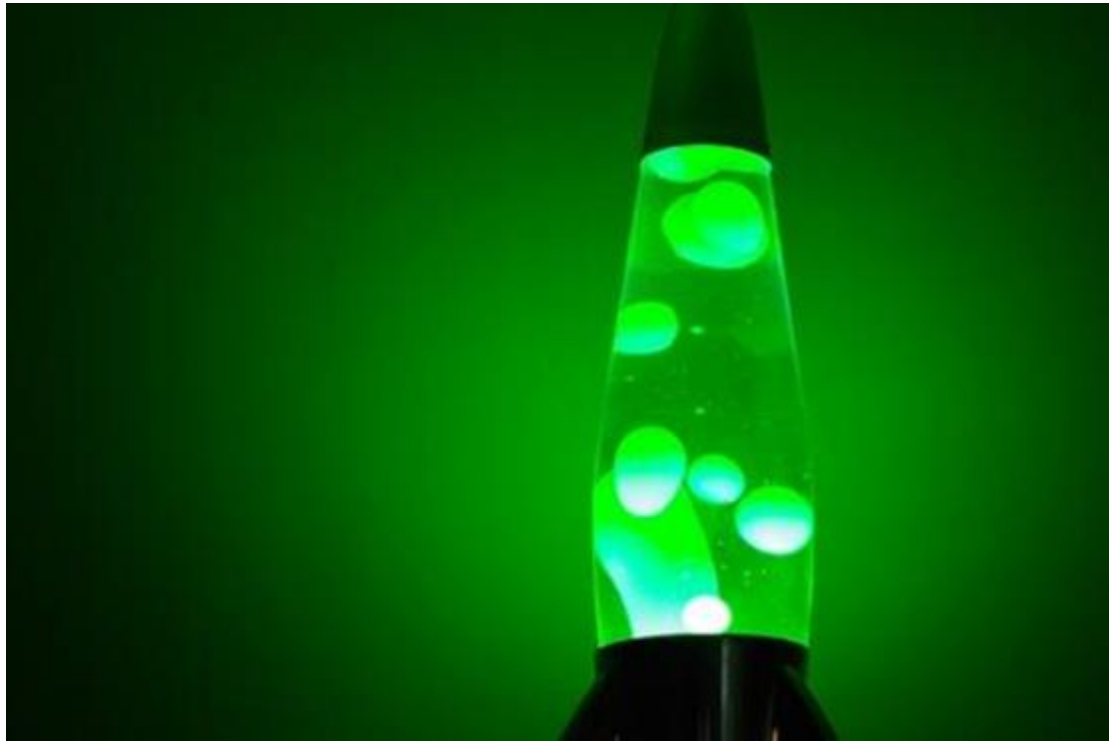
Next steps

5. Put some soap on your finger
6. Now put the finger with soap in the bowl of water

Explanation

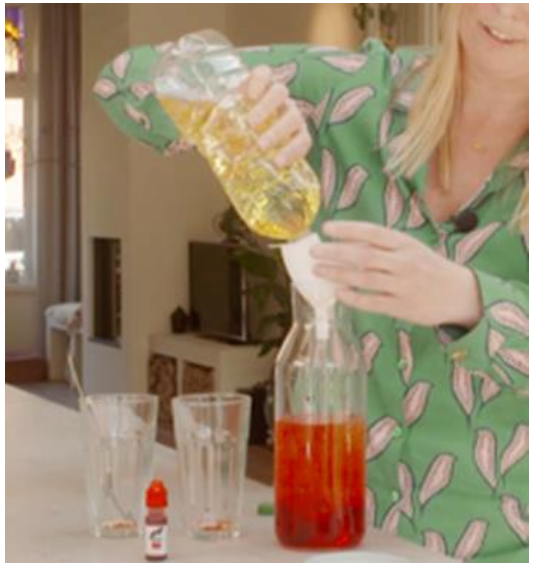
- Surface tension → forms a layer over the water
- The soap breaks this layer in the middle, causing the pepper to move to the edge

Lavalamp



First steps

1. Pour 50 mL of vinegar into a glass
2. Add 10 drops of food colouring and stir well
3. Pour 150 mL of oil onto the colored vinegar

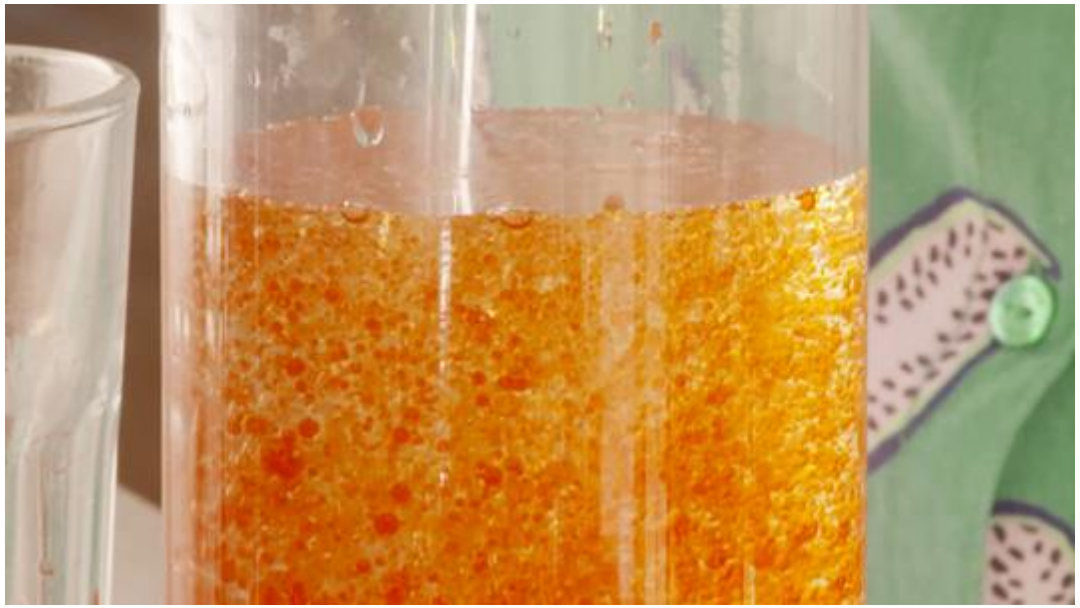


What do you see?

- Vinegar has a higher density: the vinegar particles are closer to each other
- Oil has a lower density: the oil particles are further apart
- This means that the oil particles cannot get between the vinegar particles; two phases are formed.

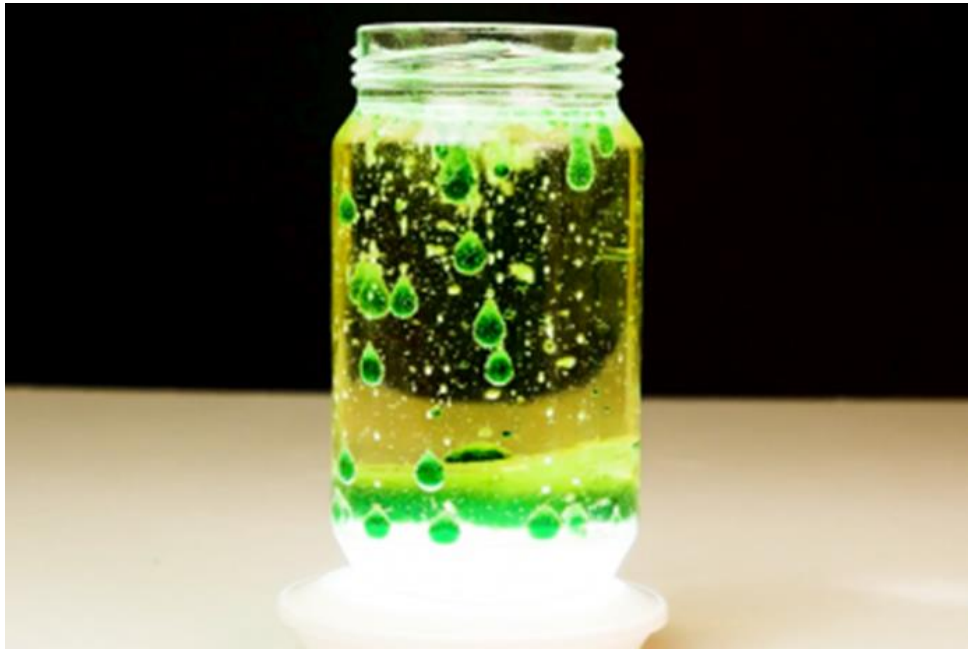
Next steps

4. Add a tablespoon of baking soda to your mixture
5. Your lava lamp is ready!

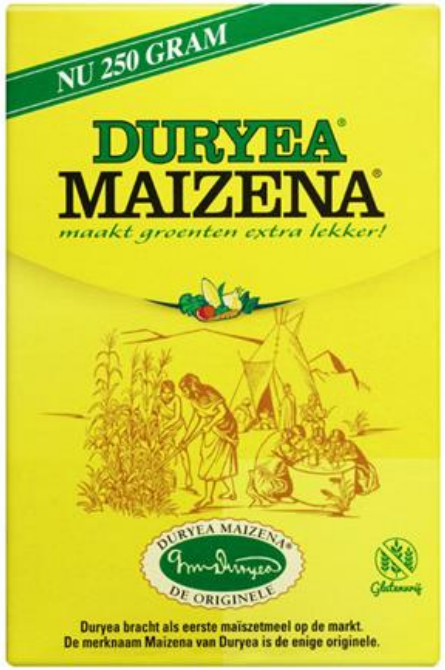


Explanation

- When the baking powder gets into the vinegar, gas bubbles are formed
- These bubbles rise to the top, taking some colored vinegar with them
- When the bubbles hit the surface, they burst and the colored vinegar falls to the bottom



Cornstarch experiment



First steps

1. In a bowl with water, add 75 grams of cornstarch

2. Let someone hold the bowl down while the other person stirs well until the mixture is combined

Next step

3. Experiment!
   - Slowly insert your index finger into the bowl and quickly pull it out again.
   - Slowly insert your index finger into the bowl and slowly take it out again.
   - Slowly stir the mixture with your finger, then a little faster

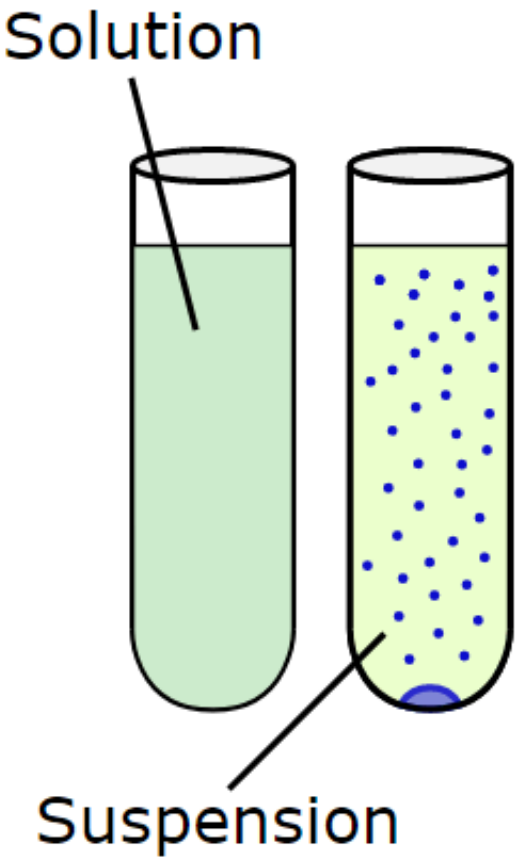
What do you see?

- What happens when you slowly stick your finger in the bowl?
- What happens if you quickly stick your finger in the bowl?

Explanation

- The corn starch particles do not dissolve in the water = *suspension*

- Fast movements → Suspension acts like a solid
- Slow movements → Suspension acts like a liquid



And finally...

- What did we learn today?
- What did you like?
- What didn't you like?