



Chapter 3

Aqueous Solution

2022.04.28 Miss Lin

Review



▲ Black
tea



▲ Water



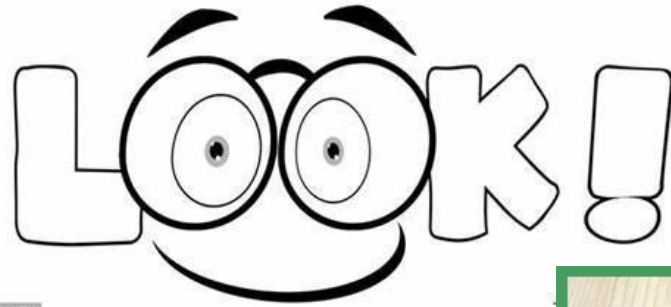
▲ Lemon juice

What is the difference?

- Taste

- Color

- Smell



**IMPORTANT
NOTICE**



Aqueous solution

- Salt solution
- Sugar solution
- Baking soda solution
- Lemon solution
- Pure water
- Vinegar
- Lime solution



-
1. Do you know these aqueous solutions are acid or base?
 2. How to know it? (如何測試)



石蕊試紙 Litmus paper

- 人稱化學之父的波以耳（Robert Boyle，1627~1691），在某一次實驗時，不小心讓鹽酸噴濺到實驗室的紫羅蘭的花朵上，沖洗後發現紫色的花朵變成了紅色。有些花、草遇到酸鹼不同的水溶液，會變為不同的顏色。石蕊地衣（是含有藻類與菌類的一群生物）中提取的浸液變色情形最明顯。他將石蕊地衣製成紅、藍兩種浸液，再將濾紙浸入石蕊浸液中，烤乾之後，製成了石蕊試紙。0:15~1:55
- <https://www.youtube.com/watch?v=xYQ1vTb1gCY>



Operation



Litmus paper comes in red and blue.



Pick up the litmus paper with tweezers.

用鑷子夾取

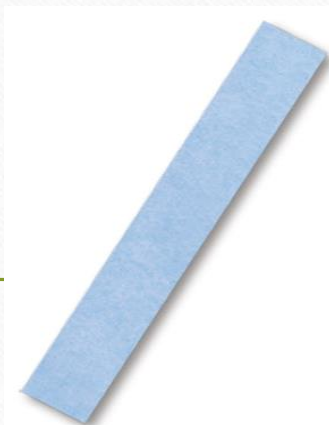




Operation



▲ Red litmus paper.

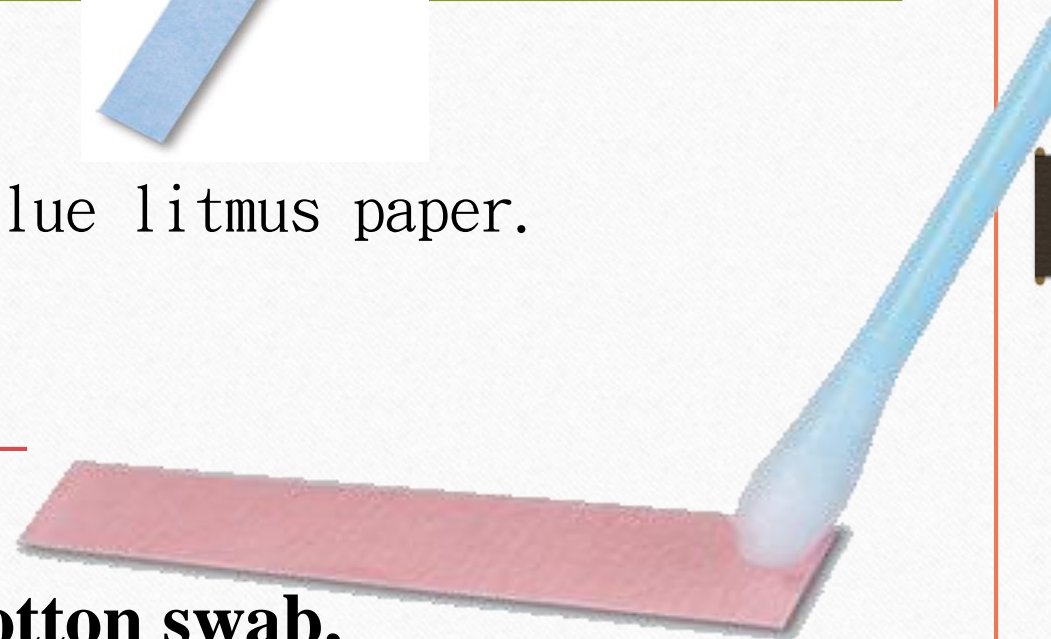


▲ Blue litmus paper.



2

Dip the water solution with a cotton swab, smear on litmus paper.

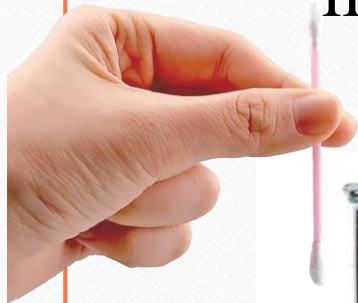


- **IT'S YOUR TURN**



操作 |

- 1 We need different aqueous solutions 、 cotton swab 、 litmus paper
- 2 Dip the water solution with a cotton swab, smear on litmus paper.
- 3 Write down observations on work book p.34



	Red litmus paper	Blue litmus paper	Acid 、 Base or Neutral
(1) Pure water			
(2) Sugar solution			
(3) Salt solution			
(4) Citric acid solution			
(5) Vinegar			
(6) Backing soda water			
(7) Lime solution			

	Red litmus paper	Blue litmus paper	Acid 、 Base or Neutral
(1) Pure water	Same	Same	Neutral
(2) Sugar solution	Same	Same	Neutral
(3) Salt solution	Same	Same	Neutral
(4) Citric acid solution	Same	Change to red	Acid
(5) Vinegar	Same	Change to red	Acid
(6) Baking soda water	Change to blue	Same	Base
(7) Lime solution	Change to blue	Same	Base

Science Note P.34~P.35


Observing a solution


Should you do these when observing (観察) an aqueous solution? Circle 😊 if yes and circle ☹️ if no.

drink look touch

☹️ ☹️ ☹️ ☹️ ☹️ ☹️

How should you smell an aqueous solution? Put / inside the






Acidic, neutral and basic

Study the picture below.

The pH Scale

Designed by hugh / Freeph



ACIDIC NEUTRAL BASIC

1. Coffee is acidic / neutral / basic.
2. Soap is acidic / neutral / basic.
3. The pH of a neutral solution is less than 7 / 7 / more than 7.

Let's watch videos

- https://www.youtube.com/watch?v=vt8fB3MFzLk&list=RDCMUCaGEe4KXZrjou9kQx6ezG2w&start_radio=1&rv=vt8fB3MFzLk&t=141
- Alkaline 2:22~3:11
- https://www.youtube.com/watch?v=V5Mq_cL9Bck
- Acid and base whole video

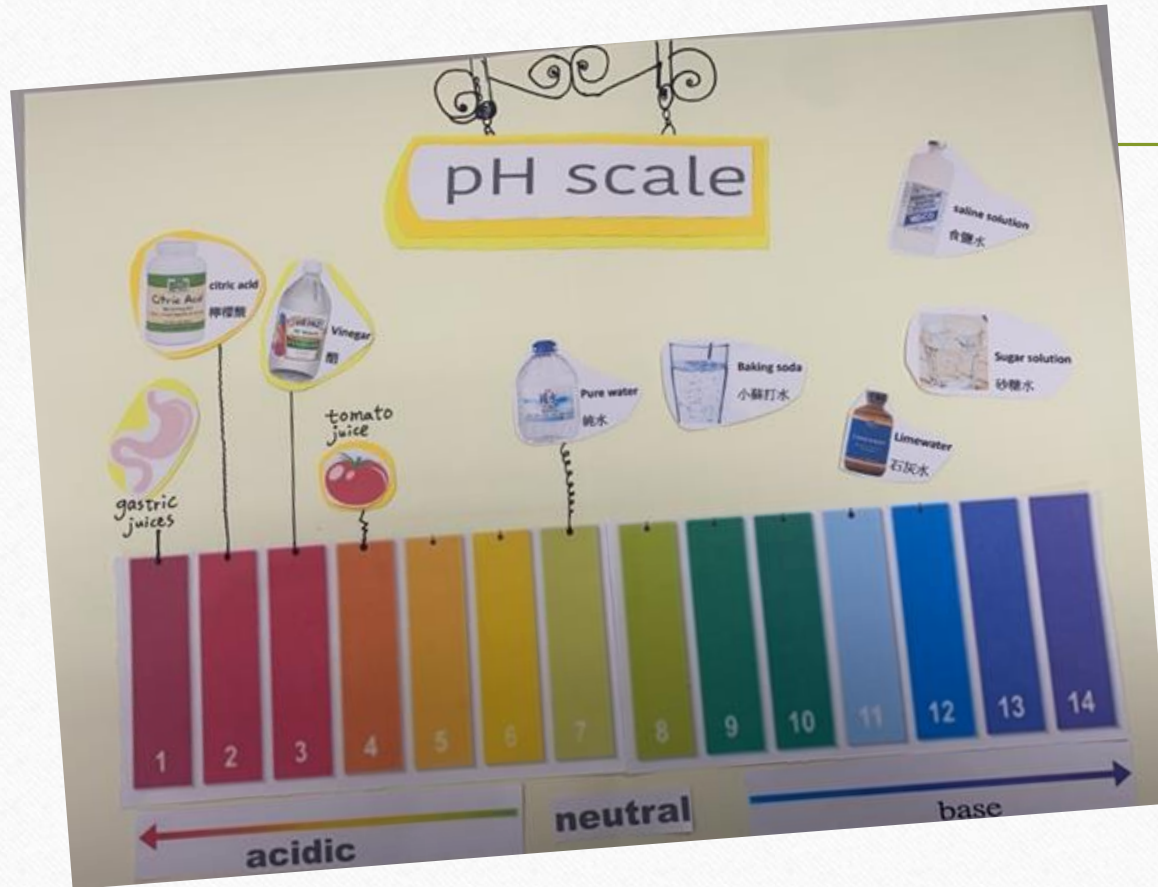
Conclusion

- 1. The red litmus paper does not change color, and the blue litmus paper turns red. **(Acid)**
- 2. The blue litmus paper does not change color and the red litmus paper turns blue. **(Base)**
- 3. Make the red and blue litmus paper not change color. **(Neutral)**

Q & A

- **Why can't we use water to do the experiment?
(We use pure water instead.)**

More fun experiment



Please finish the PH
scale of those different kind
of solutions.

-
- **End of the class**