

# Lab Safety



Long hair tied back



Goggles must always be worn



Do not leave your experiment unattended



Ties must be tucked in and blazers buttoned up.




We don't sit during practical's



No eating.

No drinking in a science room

  
**EMERGENCY?  
KEEP CALM  
AND  
TELL THE  
TEACHER**

Report spillages or breakages immediately

Only enter a Classroom when you have permission



**Keywords:** hazard, symbol, equipment, risk assessment

**Starter: Circle on your sheet any hazards you see or things students are doing wrong**



# QUESTION: Why are symbols so good for communicating information?

1. Crosses the language barrier
2. Don't need to be able to read
3. It stands out

**Ext: Name the warning associated with the hazard symbols below**



**LOb:** Understand the ways to be lab safe and how to interpret symbols



Toxic  
When  
eaten or  
breathed  
in it can  
kill



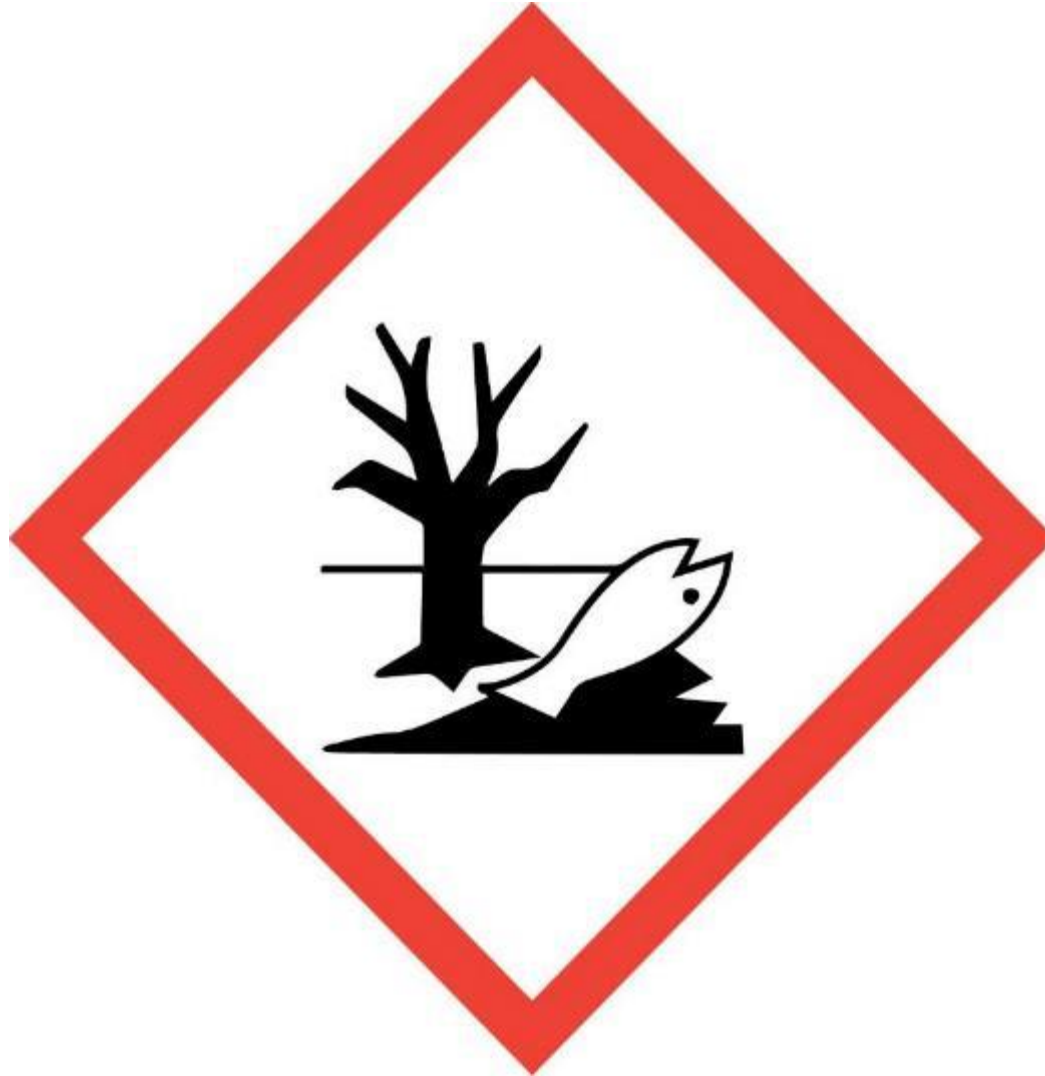
## **Harmful**

Similar to  
toxic but  
unlikely to  
kill.

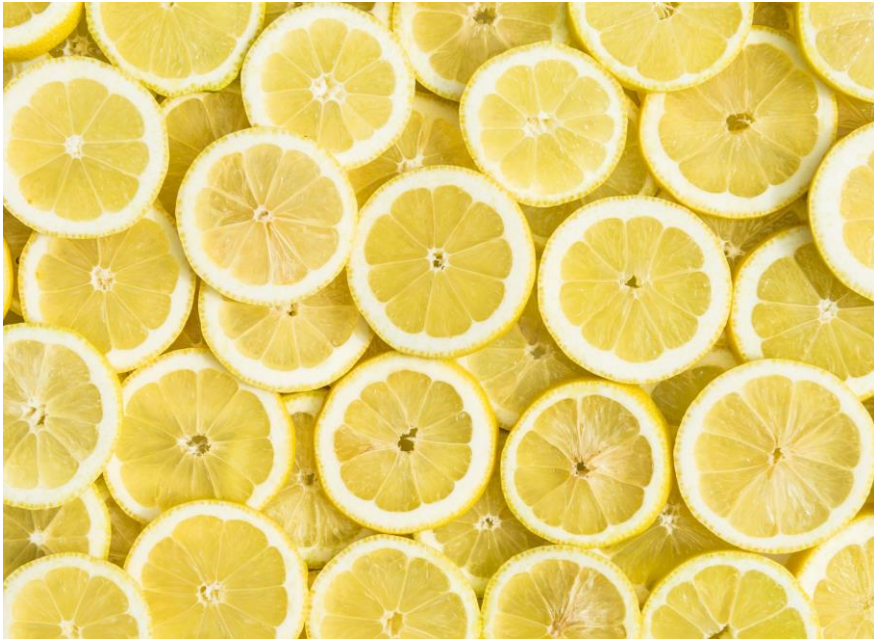


## **Corrosive**

Burns through skin  
and metal



**Harmful to  
the  
environment**



Which is the odd one out?

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Why?



# Today: Acids Vs. Alkalis

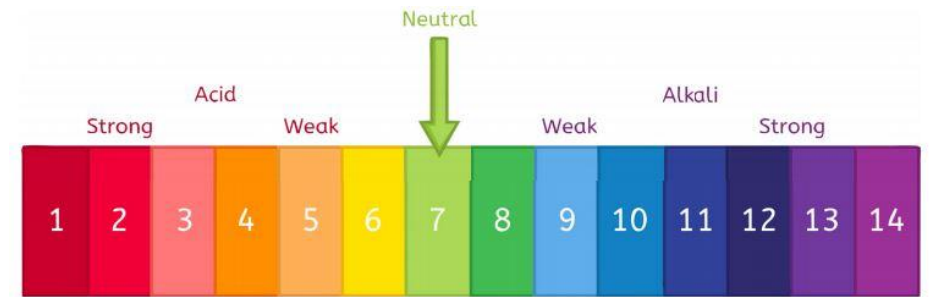
## Learning objective

- To be able to evaluate whether a substance is acid, alkali or neutral.



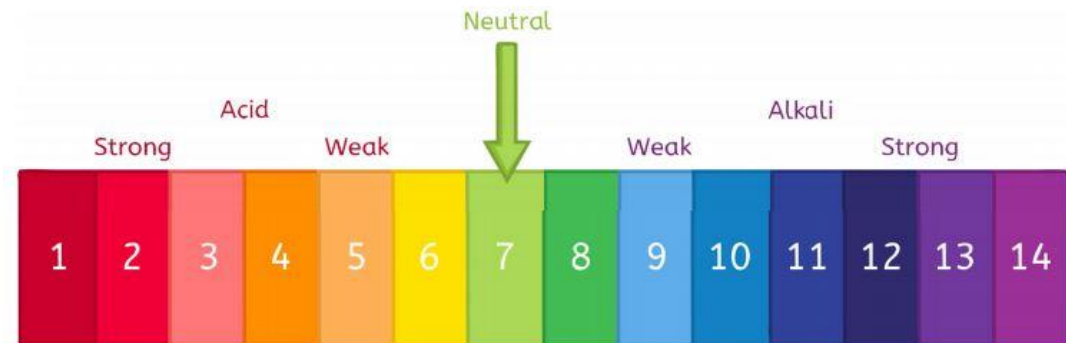
# Practical: Is a clear liquid always water?

- You will have 3 clear solutions.
- Think of the lab safety.
- Add 3 drops of the indicator to each of the 3 tubes of water. What colour do they go? Are they water?



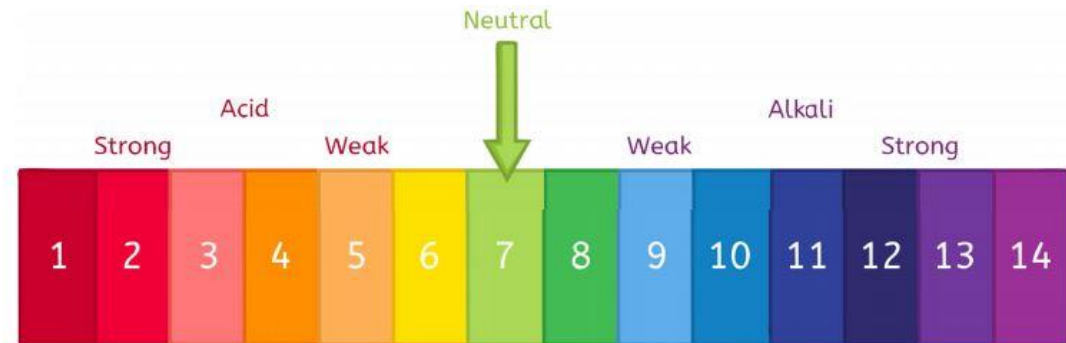
# Acids

- A substance with particular chemical properties including turning litmus red, neutralizing alkalis, and dissolving some metals.
- For example:
  - Lemons
  - Vinegar
  - Hydrochloric acid



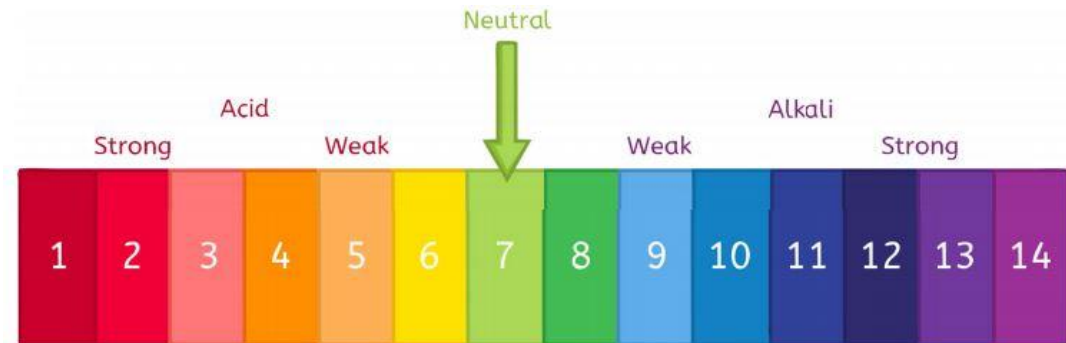
# Alkalis

- A substance with particular chemical properties including turning litmus blue and neutralizing or effervescing with acids.
- For example:
  - Toothpaste
  - Baking soda
  - Ammonia



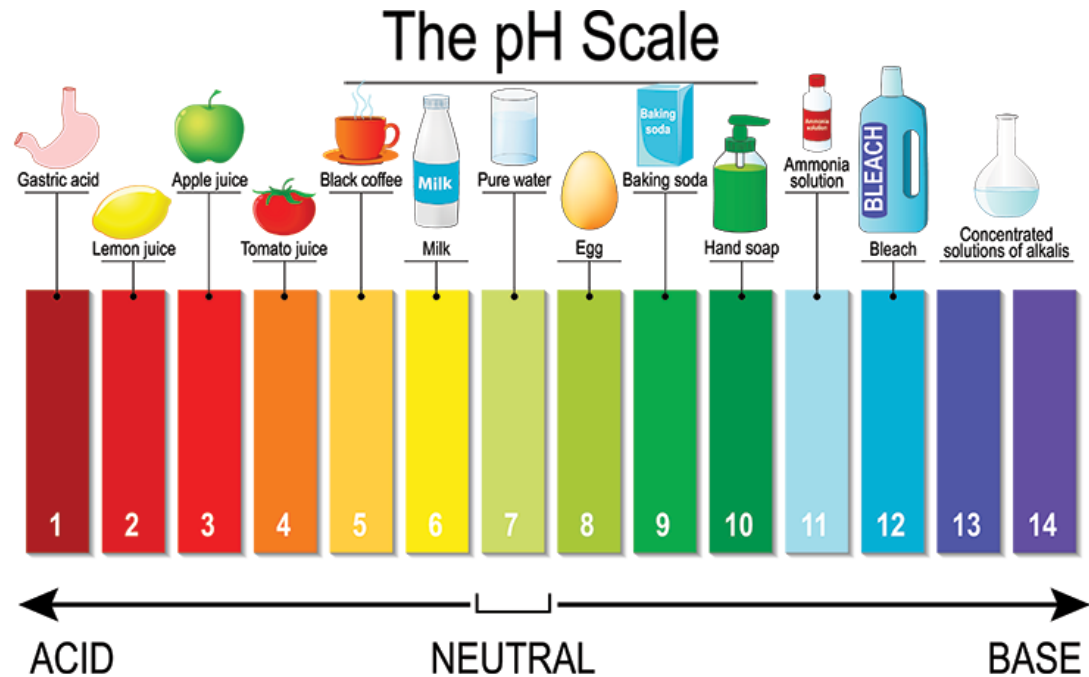
# Neutral

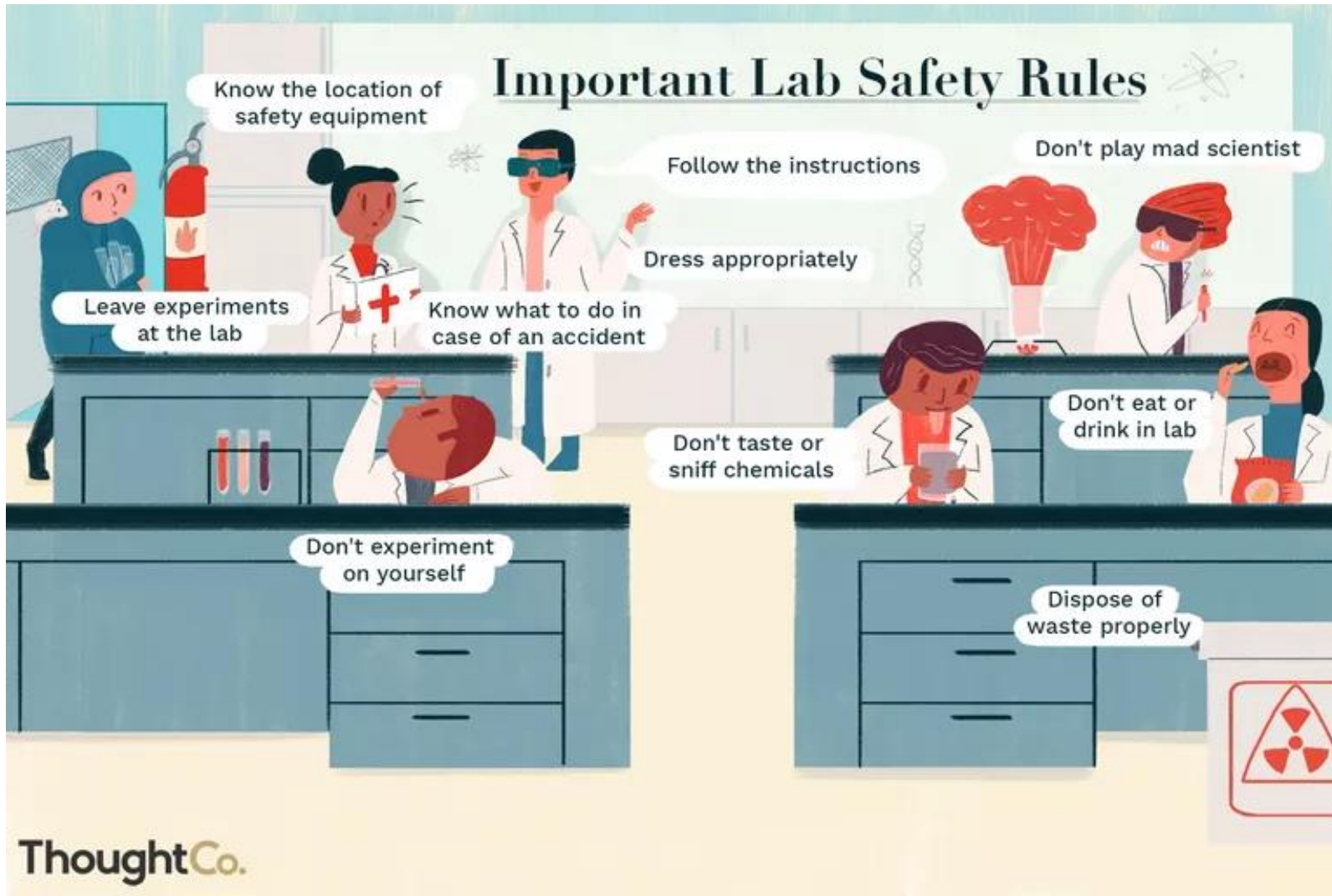
- A chemical reaction happens if you mix together an acid and an alkali.
- The reaction is called neutralisation.
- A neutral solution is made if you add just the right amount of acid and alkali together.
- For example:
  - Pure water



# How do we know?

- We use special chemicals called **indicators** to determine if a substance is acidic, alkaline or neutral.
- These turn different colours in **acids**, **alkalis** and **neutral** solutions.

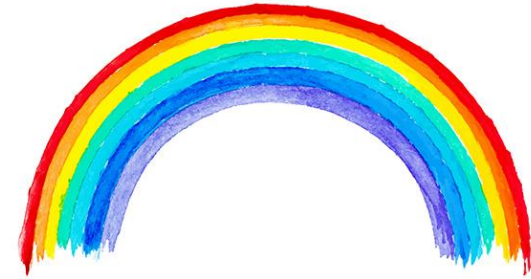




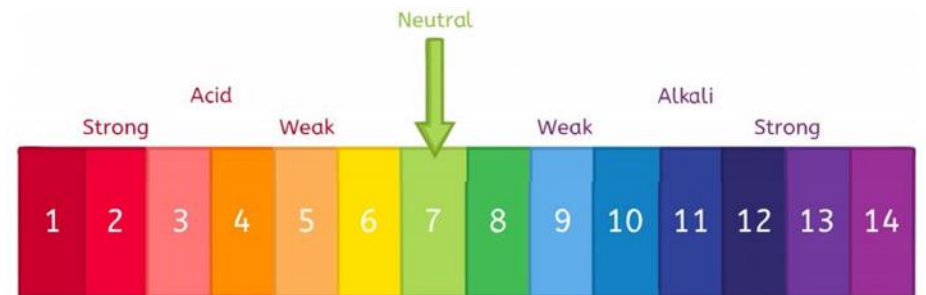
Lab safety

# Practical: Rainbow fizz

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Can you get the perfect colour scale?





# Quiz

- Whiteboards
- Which is it? – acid, alkali or neutral
- 9 questions
- Keep a tally of your score

Acid

Neutral

Alkali



Scouring  
Powder

Acid

Neutral

Alkali



Vinegar

Acid

Neutral

Alkali



Toothpaste

Acid

Neutral

Alkali



Dishwasher  
Tablet

Acid

Neutral

Alkali



Fizzy  
Orange

Acid

Neutral

Alkali



Saltwater

Acid

Neutral

Alkali



Tonic  
Water



Acid

Neutral

Alkali



Washing  
Powder

Acid

Neutral

Alkali



Lemon  
Juice

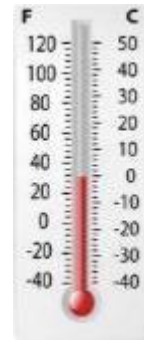
**Activity: 1. Name as many pieces of equipment below**

**2. Give a use for 3 pieces of equipment**

**EXT: Give a hazard for a piece of equipment**



W \_\_\_\_\_ Sc\_l\_s



T \_\_\_\_\_  
T \_\_\_\_\_



**LOb: Understand the ways to be lab safe and how to interpret symbols**

Spatula | Thermometer | Tripod | Bunsen Burner | Test Tube | Funnel |  
Goggles | Weighing scales | Conical flask | Measuring Cylinder | Glass  
beaker



# key facts



- 💡 Scientists and students need to take **safety precautions** in the lab as they are using **chemicals** and **fire**.
- 💡 **Walk in the lab**, follow instructions, **no eating and drinking**, correct **uniform**, **no sitting** during a practical.
- 💡 **Hazard symbols** are used to communicate quickly and cross language barriers. Popular symbols above ^^^
- 💡 **Risk assessments** are looking at what could go wrong with an activity and thinking of ways to prevent it from happening.