

What is pH and why is it important to King's Mill Reservoir?

What is pH?

pH is the level of acidity or alkalinity/base in a solution.

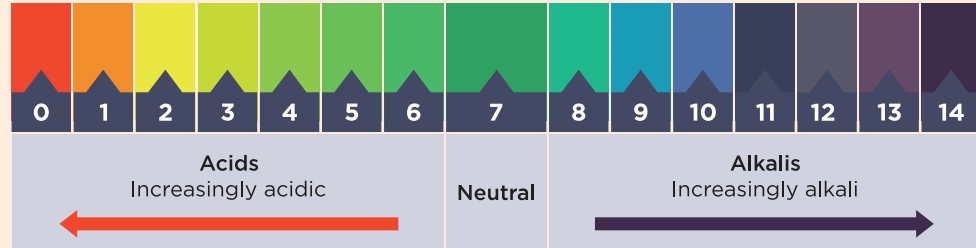
How do we measure pH?

We measure pH with a Universal Indicator solution. You can also use litmus paper to test if a solution is either acidic or basic (but not where it is on the pH scale).

As you can see the solution to the right has tested red, which means it is acidic.

Why measure the pH in the Reservoir?

The pH of a water body is important for the plants and wildlife that live there. The pH range goes from 0-14. For the wildlife to live and thrive in the reservoir the pH should be between 6.5 and 9.0.



What is pH and why is it important to King's Mill Reservoir?



Algae & insects

At the bottom of the food chain, algae and insects like a pH level of between **8.2 and 8.7**.



Carp

Carp can survive best at **6.5 to 9.0**.



Pike

Pike prefer a pH level between **6.5 and 8.0**.



Frog

Frogs (who live in small ponds around the site, rather than in the reservoir itself) need a minimum pH level of **4**.



What is pH and why is it important to King's Mill Reservoir?

pH in everyday life

When you mix an alkali with acid it neutralises it.



Milk of Magnesia

When we have an acidic tummy we take Milk of Magnesia - which is alkaline.



Toothpaste

We brush our teeth with toothpaste which neutralises the acid in our mouth to prevent tooth decay.

Instructions for testing the pH at King's Mill Reservoir

What you are going to do today

- Conduct an experiment to test the pH level of King's Mill Reservoir to see if it is the right pH range for aquatic (water) wildlife to thrive
- Compare the pH of the Reservoir with bottled water and tap water
- Test the pH of other everyday liquids such as a fizzy drink, tomato ketchup, vinegar and baking soda

Step one

Collect your water sample from the Reservoir. Our wildlife ranger will be able to advise you of the safest location for doing this.

Take care not to startle the wildlife or fall in.

You must never do this without an adult supervising.

Step two

There should be seven beakers on your table and a bowl for your used litmus papers. There will also be a jug of tap water and a bottle of sparkling water.

Your teacher will divide the Reservoir water you have collected amongst your class.

Label your Reservoir water so you don't get it muddled up with another sample.

Now pour a sample of the bottled water into a beaker and label that. Now the tap water.

Step three

Using the litmus paper and taking great care not to splash or drip liquids close to yourself, clothing or another person, dip the litmus paper into your first liquid.

Check the colour it shows against the chart and write it in the pH level column.

In the third column say whether you think this is acidic or alkaline. Or perhaps it is closer to neutral. Write your conclusions down.

Step four

Now put your other liquids into beakers and label them as you go. For the baking soda, we advise you add 2 heaped teaspoons and dilute with tap water.

Which ones are acidic and which are alkaline/ basic?

Step five

Wash your hands.



pH data recording sheet

LIQUID JAR NUMBER	LIQUID NAME	pH LEVEL	ACIDIC OR ALKALINE?
1	RESERVOIR		
2			
3			
4			
5			
6			
7			
8			
9			
10			



The acid test! True or false quiz

1. Alkaline turns litmus paper blue.

True False

2. Litmus paper is always red.

True False

3. Acids turn litmus paper blue.

True False

4. Acids can only be strong.

True False

5. Neutral liquids turn litmus paper green.

True False

6. An alkaline solution can be weak or strong.

True False

7. Vinegar has a pH close to 3.

True False

8. Baking soda has a pH close to 4.

True False

9. Acids are always strong.

True False

10. Tap water should always be over 6.5.

True False

