

Acids, Alkali and Chemical Cells topic summary

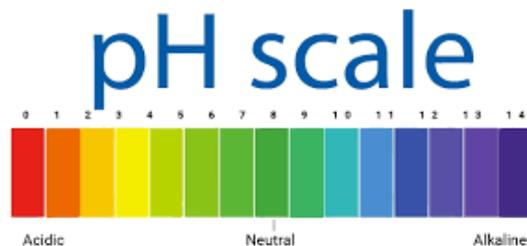
Name: _____

Success Criteria:

I can:	Tick off
◆ State that indicators, such as universal indicator, are chemicals which produce different colours when placed in acid and alkali/bases.	
◆ Carry out an experiment to show the colour change of universal indicator solution with acids or bases	
◆ Describe the colour change when universal indicator solution is added to an acid	
◆ Describe the colour change when universal indicator solution is added to a base	
◆ Carry out an experiment to show the pH of everyday substances	
◆ State the pH of some everyday substances	
◆ Identify that the pH value of acidic substances is less than 7	
◆ Identify that the pH value of alkaline/basic substances is greater than 7	
◆ Identify that the pH value of neutral substances is equal to 7	
◆ Carry out an experiment to show what happens to the pH when an acid is added to an alkali/base	
◆ Name 3 different indicators	
◆ State what is meant by an electrode	
◆ State what is meant by an electrolyte	
◆ State what is meant by electricity	
◆ State what is meant by a chemical cell	
◆ Carry out an experiment to show that electricity can be produced from metal electrodes and a citrus fruit e.g. lime, lemon, orange	
◆ Carry out an experiment to show that electricity can be produced when metal electrodes have an electrolyte between them	
◆ Explain how electricity can be produced when different metals are used as electrodes with an electrolyte between them	
◆ Investigate the voltage produced when different combinations of metal electrodes are used	
◆ Investigate the voltage produced when the distance between metal electrodes is changed	
◆ Investigate the voltage produced when the electrolyte concentration is changed	
◆ Investigate the voltage produced when the surface area of the electrodes is changed	

Indicators and pH scale

- An indicator is a chemical which changes to a different colour when placed in an acid or alkali/base
- pH paper or universal indicator are used to produce different colours with acids or alkali/base



Write down 3 facts about the pH scale

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Describe, or draw a labelled diagram, to show how you could use universal indicator solution to identify if a solution was an acid, an alkali or neutral.

→ Include the names of the pieces of equipment

→ Include the result you would expect for each solution

Everyday substances and pH

Complete the table to show the pH of some everyday substances that could be found in the home. Add two examples to each column.

Acidic	Neutral	Alkaline

Other indicators of pH

Write down the names of two other indicators you have used in Science

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Neutralisation

An example of neutralisation is the reaction between an acid and an alkali

What happens to the pH number of an **acid** when an **alkali** is added?

What happens to the pH number of an **alkali** when an **acid** is added?

Chemical Cells

Draw lines to match up the words and meanings:

Electrolyte

Converts chemical energy into electrical energy

Electrode

A conductor that completes the circuit

Electricity

The flow of charged ions

Chemical cell

Chemical compound that provides charged ions

Describe, or draw a labelled diagram, to show how you could make the maximum voltage from a lemon and metal electrodes.

→ Include the names of the pieces of equipment

→ Include the correct circuit diagram

How is the electricity produced?

The in the fruit have charged that travel along the electrodes to make electricity.

What can affect the voltage?

As part of this topic you investigated **one** of the following factors:

- Combination of metal electrodes used
- The electrolyte used
- The electrolyte concentration
- The distance between the electrodes
- The surface area of electrodes

In this space describe:

- how you set up your investigation
- how you collected your results
- your results
- what you found out in your investigation