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Martin's Tech Guide on

Open Evening Practicals

Welcome to our Open Evening practical demonstrations!

We have prepared a fantastic line-up of experiments and activities to enjoy and learn from. Let's dive into each one:

Gas Bubbles with Ignition:

Description: Witness the captivating sight of ignited gas bubbles and explore the properties of gases.

Procedure:

Fill a bowl with water, washing up liquid and a few drops of glycerol – we recommend 85% water, 10% washing up liquid and 5% glycerol (this helps to make the bubbles more stable). Attach suitable rubber tubing to a gas tap, submerge the end of the tube in the bowl and turn the gas tap on to form a layer of bubbles in the basin.

Turn off the gas tap and remove tubing from the bowl. Create a safe distance from the bowl and ignite the bubbles using a meter ruler with a burning wooden splint on the end, observing the colourful, plume of flames as the gas burns.

Discuss the chemical reactions involved and the fascinating nature of gases.

Dissection of Lungs:

Description: Get an up-close look at the intricate structure of lungs and how they function in breathing.

Procedure:

Perform a lung dissection or use prepared lung samples to showcase their anatomy.

Demonstrate inflation and deflation of the lungs using a small tube and a hand pump to help the audience understand the breathing process. **Tip: Bend the tube before removing the pump to prevent backflow of fluid from the lungs.**

Explain the importance of lungs in the respiratory system and their role in oxygen exchange.

You can also ask the audience to take part and perform a rat or heart dissection using prepared samples:
(SEA20047, BIO1092)



Fruity Battery:

Description: Explore the concept of generating electricity using fruits and other common materials.

Procedure:

Provide various fruits (e.g., lemons, oranges) and other materials (e.g., zinc nails, copper coins) for participants to create simple fruit batteries.



Connect the fruits and metals in a series to generate a small electrical current and power a LED or a small electronic device.

Discuss the principles of electrochemistry and how fruits can act as natural batteries.

(PY3068)

"Who Did It" – Murder Mystery (Circus of 3 practical):

Description: Become a detective and solve a thrilling murder mystery by analysing clues at a crime scene.

Procedure:

Draw a white outline on the ground to represent the crime scene.

Scatter various clues, such as footprints, fingerprints, and objects related to the case, around the area.

Encourage participants to play the role of detectives and deduce the culprit using forensic science techniques.

"Who Did It" – Chromatography of Ink:

Description: Analyse ink samples from a crime scene using chromatography to identify the matching ink.

Procedure:

Provide a crime sample with different ink types used.

Offer filter paper and pens for participants to perform chromatography tests on the ink from each pen.

Match the ink from the crime scene with the correct suspect pen to identify the potential culprit.

"Who Did It" – Fibre Analysis using Microscope:

Description: Delve into the microscopic world of fibres and their importance in forensic science and textiles.

Procedure:

Set up microscope stations with prepared slides of different fibres (e.g., cotton, wool, synthetic).

Allow participants to observe and compare the unique characteristics of each fibre under the microscope.

Explain how fibre analysis helps in solving crimes and identifying fabric materials.

"Who Did It" – Fingerprinting:

Description: Discover the uniqueness of fingerprints and their use in identification and forensic investigations.

Procedure:

Provide ink pads and blank cards for participants to create their fingerprints.

Explain the patterns and ridge details present in fingerprints that make them individualistic.

Showcase how fingerprinting is used for personal identification and solving crimes.

Renewable Energy:

Description: Explore sustainable energy sources and their significance in environmental preservation.

Procedure:

Set up interactive displays showcasing solar panels, wind turbines, and other renewable energy technologies.

Explain the functioning of each renewable energy source and how they contribute to a greener future.

(EL10058)



Hoffman Voltameter:

Description: Experience water electrolysis with the Hoffman Voltameter, splitting water into hydrogen and oxygen gases using electrical energy.

Procedure:

Set up the Hoffman Voltameter with water and electrodes.

Demonstrate the electrolysis process, showing the generation of hydrogen and oxygen gases.

Discuss the significance of electrolysis and its potential applications in hydrogen-based energy systems.

(CH0740B)



Ring Launcher – Electromagnetic Induction:

Description: Witness a classic demonstration of electromagnetic induction with the ring launcher.

Procedure:

Set up the ring launcher and a metal ring.

Show how dropping the metal ring through the launcher generates a magnetic field and induces a current in the ring, causing it to jump and hover above the launcher.

Explain the principles of electromagnetic induction and its importance in various technologies.

We hope you enjoy these engaging and educational practical demonstrations at your Open Evening! If you would like a full list of product codes for any of these activities, please get in touch with your local sales rep!