Saliva Time – Teacher Notes on Activity

Health & Safety Warnings:
- Be careful with the Universal Indicator Paper – make sure that the paper is NOT toxic and be careful if any students may be allergic to any compounds found in the paper.
- Be wary of paper cuts.
- Do not allow children to eat the Universal Indicator Paper.

Background:
- Saliva is an alkaline liquid (pH 6.2-7.4) which should turn Universal Indicator Paper blue.
  - Saliva contains the enzyme salivary amylase which helps to break down food in the mouth.
  - Saliva also contains some antibacterial agents/substances which kill some bacteria before they enter the stomach.
- Universal Indicator Paper tests the pH of liquids (whether they are acidic or alkaline).
  - An example of an acid is fruit juice, e.g. orange juice contains citric acid (pH 3.5).
  - An example of an alkaline is washing powder, e.g. Daz and Persil (pH 10-11).
  - If a liquid turns Universal Indicator Paper turns blue then it is alkaline.
  - If a liquid turns Universal Indicator Paper turns red then it is acidic.
- Sodium is an alkali metal and reacts strongly with water.
  - It is in the same family of elements as Rubidium and Caesium.
- Sodium is used in street lighting.

Before the Experiment:
- Test the paper first to see how much saliva is needed to induce a change in the Universal Indicator Paper colour and how long this takes.
- Check that the flame test video loads properly.
- Get the YouTube video (link included) set up at 1.04mins in a background window and allow it to fully load.
- OR you can simply click the link provided in the PowerPoint, but MAKE SURE to manually fast-forward it to 1.04mins. (This is to reach the most relevant section of the video and to stop pupils getting dangerous ideas about gas burners).

Experiment:
- Give each child a small piece of Universal Indicator Paper.
- Get them to lick their finger and then wipe their finger onto the Universal Indicator Paper.
- If there is no colour change then get them to lick another finger and then wipe the paper.
- If you’re feeling daring then you can get the pupils to physically lick Universal Indicator Paper.
- Do so until a change in the Universal Indicator Paper is observed.

Activity:
- When on “Saliva Time” slide
  - Click once for details
  - Carry out Experiment.
  - Ask pupils what colour their saliva turned the paper.
  - Click a second time after you have carried out the experiment.
- Well we tested the professors and it turned red!
- This is quite unusual as it should be blue (as has been shown in the class).
- This doesn’t look normal – maybe he was poisoned?