STUFF AND SUBSTANCE: INVESTIGATING RUSTING

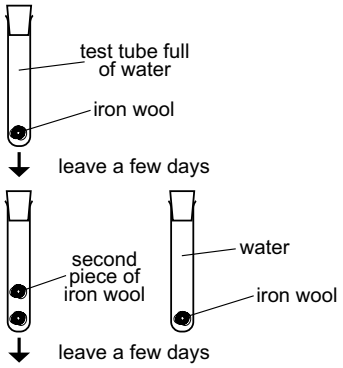
Rusting is a chemical change involving iron. When rusting happens objects made of iron lose their structural strength. You are going to investigate what is needed to make iron rust.

⚠ *Iron wool can be prickly. Wear protective gloves and avoid direct contact with the skin.*

Carry out the two tasks below and try to come up with an explanation which connects all of your observations. Use the ideas of atoms and substances in your explanations.

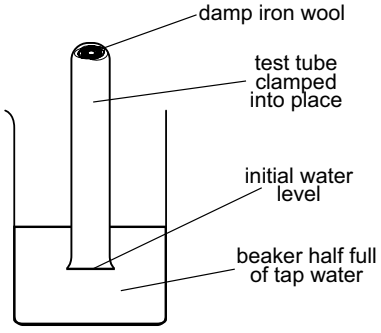
Task A Qualitative observation

1. Take a small piece of iron wool and put it into a test tube. Fill the test tube to the brim with tap water and seal with a bung. Put the test tube in a rack and leave for three days.
2. After three days, what do you observe?
3. Put a second piece of iron wool in this test tube and seal again with a bung. Be careful not to lose any water so you don't trap any air. Also prepare a second test tube as in step 1. Leave both test tubes for one more day.
4. After one more day what do you observe? How do the test tubes compare?



Task B Quantitative observation

5. Rinse some iron wool so that it is damp. Push the iron wool to the bottom of a test tube so it doesn't fall out when the tube is turned upside down.
6. Half fill a 100 cm^3 beaker with tap water. Clamp the test tube upside down so that the brim is submerged into the water by about 2 cm.
7. Leave for one week, noting the level periodically (every day if possible). What do you observe?



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