## Exercise 2

Next, the filter paper is given the shape of a cone. Then, the cone is put in a funnel. After that, impure water is poured through the filter cone. Finally, the volume of filtered water is measured and recorded.

# Exercise 3

- Purpose: The experiment was to show that <u>water alone cannot make iron rust</u>. Air must be present too.
- Apparatus: The equipment needed is two jars, <u>two iron nails</u>, some vegetable oil, <u>tap water</u>, and some boiled water.
- Procedure: First, a jar <u>is filled</u> with tap water, which of course contained tiny air bubbles. Then an iron nail <u>is put</u> in the jar.

Next, another jar <u>is</u> partially <u>filled</u> with <u>boiled water</u>. The water had to be allowed to cool before it <u>was poured</u> into the jar (so as not to create air bubbles). After that, a nail was put into the jar, and then the vegetable oil <u>was</u> <u>poured</u> on top of the boiled water <u>to prevent</u> any air getting in. then, the jars <u>are left</u> to stand for a few days.

- Observation: Three days later the nail in the tap water was seen rusty, but the nail in the boiled water was not.
- Conclusion: For iron or steel to rust, both <u>water</u> and <u>air</u> must be present. Therefore, to prevent iron or steel rusting, it is necessary <u>for us</u> to keep water and air out.

#### Exercise 4B

#### Equipment

The equipment needed for the experiment consisted of <u>two jars for hot and cold</u> water, some <u>water</u>, two <u>food colors</u> - blue and red, <u>two index cards</u>, a pair <u>of scissors</u>, and a large bowl or <u>shallow baking pan</u>.

#### Precedure 1

First, a jar <u>was filled with</u> very hot tap water. Then <u>red food color</u> was added to it. After that, the other jar was filled with very cold water. Then <u>blue food color war added</u>. More <u>water</u> was slowly <u>added</u> to the<u>blue water jar</u> until a bulge of water <u>was seen</u> at the rim. After that <u>a</u> <u>card</u> (or <u>piece of paper</u>) <u>was cut</u> so that it <u>was</u> about three inches long per side. Then a <u>card</u> <u>was</u> laid on <u>top of the blue jar</u>, and the card <u>was tapped</u> gently (so it <u>formed a seal</u>). After

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that, the blue jar <u>was picked up</u> and <u>was turned upside down</u>. (The water did not spill). Then <u>placed on top of the red jar</u>. Someone held both jars; then <u>slowly and carefully pulled the</u> <u>card</u> out.

## Observation 1

The water from the red jar <u>rose up</u> and <u>mixed</u> the blue jar's water. Then <u>the water turned</u> purple.

Procedure 2

The procedure <u>was repeated</u>, but this time with the red jar on top.

## **Observation 2**

The water from the blue jar <u>did not rise</u>. The hot and cold water <u>did not mix</u>. Both jars <u>had</u> <u>different colors</u>.

## Conclusion

Hot water is less dense than cold water. It rises up and mixes into the more dense cold water on top.