**WorksheetCloud: MEMORANDUM**
**Grade: 8**
**Subject: Natural Sciences**
**Topic: Electroscope**

## Activity 1

## How to make a  homemade electroscope

MATERIALS:

1. glass jar, with lid
2. 14 gauge copper wire, about 12 cm in length
3. plastic straw or plastic tubing
4. 2 small pieces of aluminium foil
5. piece of wool cloth
6. plastic ruler
7. glass rod

INSTRUCTIONS:

1. Twist one end of the copper wire into a spiral shape. This will increase its surface area.
2. Make a hole in the jar lid and push a small piece of the plastic tubing through the hole.
3. Put the other end of the copper wire through the straw so that the spiral end is on the outside of the lid.
4. Make a hook out of the pointed end of the copper wire.
5. Cut two rectangular strips of aluminium foil.
6. Put each piece of aluminium foil onto the hook. Make a small hole in the aluminium foil to allow it to hang from the hook.
7. Carefully put the hook end of the copper wire into the glass jar and close the jar.
8. Rub the ruler with the wool cloth for a minute.
9. Bring the ruler close to the spiral end of the copper wire.

**QUESTIONS:**

What did you observe when you brought the ruler close to the copper wire?

**The two pieces of aluminium foil moved apart.**

What happens if you move the ruler away from the copper wire?

**The aluminium foil pieces move back together.**

Why do the pieces of aluminium foil move apart?

**When you rubbed the plastic ruler with the wool cloth, the ruler became negatively charged. When the negatively charged ruler is brought close to the copper wire, the electrons on the wire are repelled downwards towards the aluminium foil. The pieces of aluminium foil then have extra electrons on them and they both become negatively charged. Two objects which are negatively charged will repel each other and so the pieces of aluminium foil move away from each othe**r.

Write a short paragraph to explain what would happen if you brought a positively charged object close to your electroscope.

**When a positively charged object is brought close to the electroscope the negative electrons are attracted towards the positively charged object and move up through the copper wire. This means that the pieces of aluminium have lost some electrons and so have an overall positive charge. Both pieces of aluminium foil are then positively charged. Like charges repel each other and so the pieces of aluminium foil move apart from each other.**