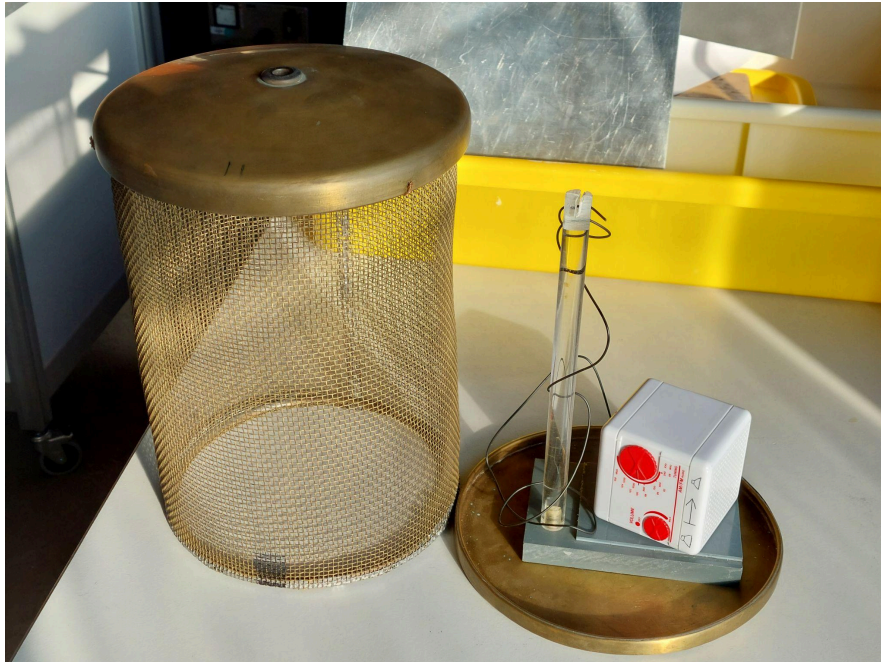


## 5B20.30/35 - Electroscope or a Radio in Faraday's cage

Key words: electricity, electric field, faraday's cage, electroscope



### **Equipment List:**

1. Faraday's cage
2. Electroscope
3. Radio
4. Device for charging the electroscope

### **How to assemble and operate:**

Electroscope:

- Charge the electroscope outside Faraday's cage, to show students that it works.
- Discharge the electroscope and place it in Faraday's cage.
- Attempt to charge the electroscope again while it is inside the faraday's cage, which will not have any effect on the electroscope, to show that the electroscope is isolated.
- One can also try to charge the electroscope and place it inside the faraday's cage to observe what happens.

Radio:

- Turn on the radio [make sure it's a radio using relatively lower frequencies]
- While the radio is playing a sound, put it inside Faraday's cage. The radio should become silent.

**Description/Theory:**

With this demonstration we can better visualize how the faraday's cage works and why it works.

**Comments/Notes:**

Faraday cages are designed to block electromagnetic signals, including those used by mobile phones. However, newer phones/speakers often operate on higher frequencies and have more sophisticated antennas, which can sometimes allow signals to penetrate or bypass the Faraday cage.