**Activity D: Electrical conductivity of plastic materials.**

**Part 1: Comparing electrical conductivity of plastic materials with that of other materials**

**Materials:** Source of electricity, electric bulb, cotton, metal, wood, samples of different plastic materials (PE, PP, PS, PVC)

**Procedure:** In groups discuss electrical conductivity of plastic materials and that of natural substances (cotton, wood, metal). Write down your hypotheses and compare them with the results of the experiment afterwards.

**Hypotheses:**........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

**Experiment:** Prepare a simple electrical circuit and connect into it a particular kind of plastic, cotton, metal and wood, respectively. Write your findings into the table

**Findings:** Complete the following table with your findings

|  |  |  |  |
| --- | --- | --- | --- |
| **Materials** | **Structural change in boiling water** | **Materials** | **Structural change in boiling water** |
| **Polyethylene (PE)** |  | **Cotton** |  |
| **Polypropylene (PP)** |  | **Metal** |  |
| **Polystyrene (PS)** |  | **Wood** |  |
| **Polyvinyl chloride (PVC)** |  |

What could you say about electrical conductivity of plastic materials?

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**Homework:** On the internet, look up information about using plastic materials as electrical conductors/ insulators.

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**Part 2: Static electricity and plastic materials**

**Materials:** Plastic spoon, cotton cloth, polystyrene balls

**Procedure:** In groups discuss and tackle the following problem:

When Ann came home, she took off her nylon stockings. When she then touched a metallic door handle, she screamed and jumped out of horror.

* What happened to Ann? What is the substance of the phenomenon?
* What caused the electric shock?

**Hypotheses:**........................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

Try to simulate the situation using a plastic bar, cotton cloth and polystyrene balls. Write down the test procedure and findings.

Procedure:

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**plastic bar**

**polystyrene**

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**Findings:**

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