Student's Learning Activities
(Lichtenberg and the electrophorus)

Activity 1

You will watch a video with narration or listen to a story from your teacher_for the Georg Christoph Lichtenberg and his experiments with the electrophorus. Please write down the main points of the story, in your view, and discuss about them in your group. (Indicative important points of the story: the description of the function of electrophorus, Lichtenberg's experiments with the electrophorus, the dust formed specific figures in the resin cake of Lichtenberg's electrophorus, ……..)

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Activity 2

Based on the narration and the video (available at the website:
http://www.youtube.com/watch?v=rwwMSIBBxME)

A. Please describe the Lichtenberg's experiment with the electrophorus, which he presented in his lecture.

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B. Please interpret the production of sparks in the Lichetberg's electrophorus, exploiting the graphical representation (available at the website: http://www.engr.uky.edu/~gedney/courses/ee468/expmnt/ephorus.html)

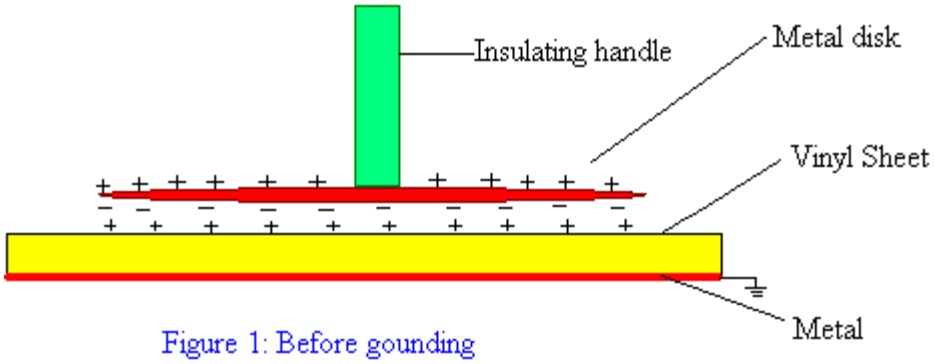

Figure 1: Before gounding

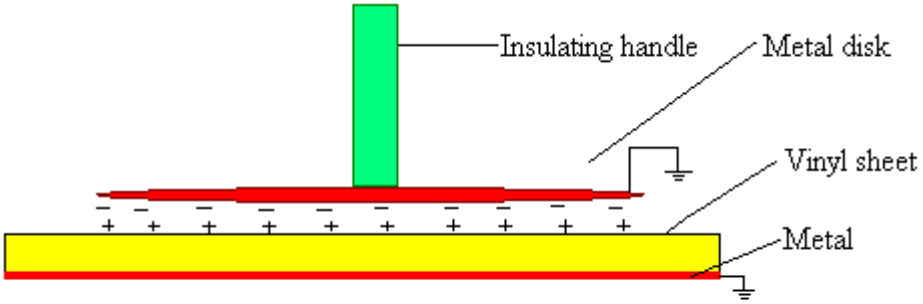

Figure 2: After grounding

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C. Based on the above activities A and B, please locate the role of the human body in the function of the electrophorus.

Activity 3

Based on the narration and the following video (available at the website: http://www.youtube.com/watch?v=RbKSFZX-IE8)
Please describe a) the dust formed specific figures in the resin cake of Lichtenberg's electrophorus and b) write the way which he interpreted them.

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Activity 4

Please research in the internet for the proper websites and write a text (500 words) in which the dust formed specific figures in the resin cake of Lichtenberg's electrophorus are interpreted scientifically.

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Activity 5

Please research on the web and write a text (500 words) in which is described the Wilcke's electrophorus and the Volta's electrophorus.

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Based in your above research and the activities of the lesson, please locate the contribution of Lichtenberg in the evolution of science.

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Activity 6

Using the list of ideas that describe the characteristics of science and the ways it develops, try to locate and write these ideas in the story you heard and the above activities. These ideas that scientists call Nature of Science (Nature Of Science-NOS-) are:

Characteristics of Nature of Science (NOS)

1. Science demands and relies on empirical evidence.
2. Knowledge production in science includes many common features and shared habits of mind.
3. Scientific knowledge is tentative but durable.
4. Laws and theories are related but distinct kinds of scientific knowledge.
5. Science is a highly creative endeavor.
6. Science has a subjective element.
7. There are historical, cultural, and social influences on science.
8. Science and technology impact each other, but they are not the same.
9. Science and its methods cannot answer all questions.

Scientists argue that in order to learn science one must first understand what exactly science is. Because it is difficult to define science, scientists give a list of its characteristics.

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