LESSON 21 Electricity: A Friend, a Foe

Grade Level: 8-10

1. Grades 8-10

2. Overview The uses of electricity are very well known in many communities. Without electricity, life can be very difficult for many people. While large scale use of electricity is to be encouraged, there is need to draw attention to the dangers of electricity if not properly used. Depending on what is easily available in a country, its electricity can be generated from different sources.

3. Purpose Electricity has been described both as a friend and a foe. The distinction between electricity as a friend and as a foe depends on how electricity is used. The purpose of this lesson is to show how we can control electricity and not allow electricity to control us.

4. Objectives Students will be able to:

i. Explain what electricity can do.
ii. Demonstrate the presence of electricity
iii. Explain the dangers of electricity
iv. Discuss why then electricity is a friend and a foe.

5. Resources/materials

- A torch cell, torch bulb, a piece of wire.
- A circuit board, pieces of wire.

6. Activities and Procedures Many of the students may come across electricity before they ever come to study and really understand what electricity is. That is why it is suggested here that the uses of electricity in the various homes and big cities be explored. Supply of household electricity to towns and villages is regarded as priority service by many African governments. *Household electricity* is used for quite a number of activities-lighting, heating, cooking, ironing, etc. The students should be guided to make a comprehensive list of the uses of electricity in their community.

The impact of electricity in every community is well felt. Some of the people who enjoy the services of electricity take un-necessary risks with electricity. The electricity generating companies which supply household electricity have gone to the extent of issuing warnings against careless handling of electricity transmitted through their high tension lines. It is necessary for the teacher to draw attention to these TEN

guidelines so that the students can, if need be, pass them on especially to illiterate people in their community. They were ADAPTED from a standard school textbook and pamphlets issued by some electricity companies:

- DO NOT CLIMB UP ELECTRIC POLES
- DO NOT PLAY WTH KITES NEAR POWER LINES
- DO NOT TOUCH BROKEN OVERHEAD LINES
- DO NOT PULL THINGS OFF POWER LINES
- DO NOT TOUCH WASHING LINES TO ELECTRIC POLES
- DO NOT FISH ANYWHERE NEAR POWER LINES
- DO NOT RIDE ON TOP OF LORRIES NEAR POWER LINES
- DO NOT CARRY LONG THINGS WHICH CAN TOUCH POWER LINES
- DO NOT MAKE AN UN-AUTHORISED CONNECTION TO POWER LINES
- DO NOT VANDALISE POWER LINES AND TRANSFORMERS

Many deaths have occurred to people who tamper with power lines.

In Lesson 17 where forces were discussed, reference was made to *non-contact forces*. Electricity was listed as a non-contact force. The students should be introduced to the simple production of electricity using a torch cell, wire and an indicator torch bulb. Many new words will of necessity be introduced into the vocabulary of the students- circuits, conductors, insulators, current, voltage, switch, meter, fuse, plug, socket, etc. The teacher should introduce the students to symbols used in the study of electricity. Simple calculations on electricity may be introduced. The circuit board is an invaluable piece of equipment to have when teaching lessons on electricity.

This lesson should draw attention to the fact that electricity can be of immense service to us. It can then be referred to as a *good servant*. However if we are not careful at home, and we do not control the use of electricity, it could be a *bad master*. The teacher should then along with the students draw up some guidelines especially for children at home to prevent electricity mishap.

Finally the teacher should guide the students to list the sources of electricity; how electricity is generated and distributed for public use in their community. What is the name of the electricity company? How efficient is the company? What are the problems of public electricity supply in their community?

7. Tying it all together Electricity power supply is a very important aspect of national development. There is an opportunity in this lesson to discuss energy needs and supply in a given community. Remote villages in many African countries clamour for the supply of electricity.

8. Assessment Assessment should focus on both the supply and safe use of electricity.

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10. References Ministry of Education and Culture (2000). **Step Ahead New Secondary Science Student's Book 2 Zimsci** Harare: Longman Zimbabwe (Pvt) Ltd.