Lights Out! Planning and Report

Group Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Part I***

Work in Groups of three students.

* One student is the researcher and so may have a MacBook open specifically for research.
* One student is a recorder, using this document as a guide. They may choose to record on a paper copy of this document. One group report only is to be handed in at the end of the activity. Each student in the group is to receive a copy of the report for their reference.
* The third student is the reader of this document, and is responsible for collecting, maintaining and returning the equipment.

Pat and Chris posed several important questions regarding their idea for constructing a makeshift torch. Identify and answer the questions as thoroughly as possible. Decide, as a group, how Pat and Chris should construct their torch to **maximise battery life** while still **providing a useful amount of light**.

They have a bulb and two batteries – do they need anything else to make a working torch? Will their light source last long enough to retrace their path and get back to the missing torch? State clearly what assumptions you made in answering the previous question(s).

Your group must write up a brief report that answers the questions above and analyses your circuit. Use appropriate electrical terminology: c*onductor, insulator,* *electrode, electrolyte, circuit,* *lead, cell, battery, voltage, current, resistance, series, parallel.* Circuit diagrams, using conventional symbols, of your circuit and supporting calculations should be included in your report.

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| --- | --- |
| Facts  (What we know from reading the scene.) | Questions  (Based on current knowledge) |
| Hypothesis  (Based on facts and questions) | Learning Issues  (What we need to learn) |

***Part II***

Your group has:

* a light bulb in a holder
* two batteries
* assorted small items that Pat and Chris might find in their pockets such as wires, Al-foil, Glad wrap, BluTac, an electrolyte drink, old cups (they were packing out their rubbish)
* old copper and zinc pieces that they found in the caves.

The lights are going out in 30 seconds. Construct a working flashlight, including a simple switching mechanism!

Lights Out! Group Report

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