

Outline of the "Electric Hydroplane" LES

NOTE: This activity was designed within the framework of training sessions. It may require adaptation before being used with students.

PREPARATION



1 Catalyst

- Context
- Two videos dealing with a hydroplane and with a very simple electric motor



2 Activation of previous knowledge

- Construction of a network of concepts relating to electrical engineering
- Plenary session review

REALISATION AND INTEGRATION



3 Learning activities

Beginning with activities specific to each environment or each proposed environment

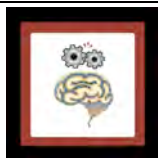
- Circuits, electromagnetism, Ohm's Law, power, electrical energy, potential energy, energetic output, Archimedes' and Bernoulli's principles



4 Establishing a plan

- What should the student do to respond to this mandate?
- The teacher benchmarks the questioning.

(See the student booklet)



5 Complex task

- Analysis of the Reed switch motor (RSM)
- Fabrication of an RSM
- Design of the bracket for the magnetic switch
- Testing the RSM
- Designing a propeller out of balsa wood



6 Synthesis activity

- Testing the propulsion system on a hydroplane (class hydroplane race)
- Various calculations related to the race
- Construction of two new networks of concepts
- Thinking about one's professional aspirations in relation to these ideas.