

Electromechanical Efficiency

Dolphins



1. Determine the electrical work input to lift a single dolphin.

$$W_{in} = V \times I \times t =$$

2. Determine the mechanical work output when a single dolphin is lifted to maximum height.

$$W_{out} = F \times d = m \times g \times h =$$

3. Determine the % Efficiency for the machine lifting a single dolphin.

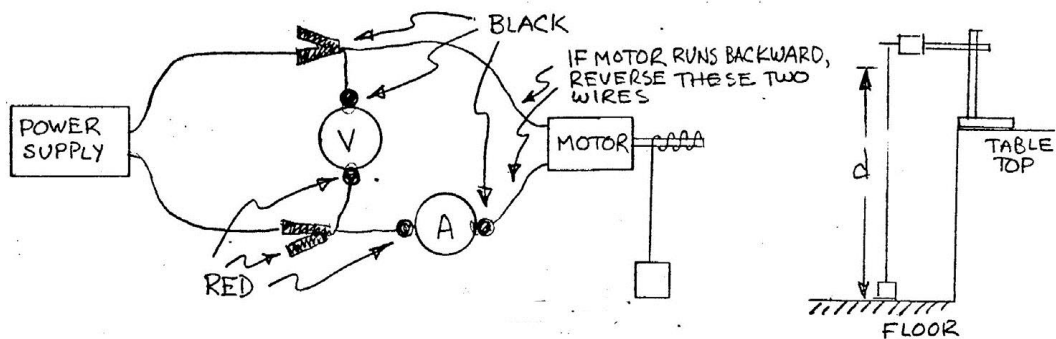
$$\% \text{ Efficiency} = \frac{W_{out}}{W_{in}} \times 100 =$$

Efficiency of a Small Electric Motor

This activity evolved from a lab in the early years of the PSSC Physics program.

1. Set up motor, power supply, and meters as shown in the photos and diagram below:





2. Let motor lift weight slowly. Record weight, distance, voltage, current, time.
3. Repeat, but with noticeably faster speed.
4. Calculate % Efficiency for both speeds using method noted in preceding Dolphins activity.
5. Based on your results, circle the best answer for each statement)

The efficiency of this motor was greater when the motor speed was <slow> <fast> .

In general, the efficiency for either speed is best described as <high> <low> .