

Student Sheet 8.2

Lifting a Load

Read Directions p. 76 STEPS 1-15

Directions Answer the questions as directed in the Procedure for Inquiry 8.2.

1. Motor force with three batteries in series:

4.5 N

2. Work done by a motor when it lifts a load 10.0 cm (0.10 m)

$$\text{Work} = \text{force} \times \text{dist}$$

$$\text{Work} = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

units

3. Weight of two washers:

0.5 N

4. Work to raise two washers 10.0 cm (0.10 m):

$$\text{Work} = \text{Force} \times \text{dist}$$

$$\text{Work} = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

5. Your estimate of the sled's weight:

Describe how you estimated the weight of your sled. There are 14 washers

6. Sled's actual weight:

4.5 N

Where did the extra weight come from?

7. Work to lift sled 10.0 cm (0.10 m):

$$\text{Work} = \text{force} \times \text{distance}$$

$$\text{Work} = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Will your motor have enough Force to lift the sled? Why or why not?