

18.4: Procedures

Two different weights will be lifted, held, and lowered.

1. Hold one dumbbell in each hand. Lift and lower both dumbbells 2-3 times, then hold them above your head for about 10 seconds. Each team member should try this. Discuss and record whether it takes more energy, in general, to lift, to lower, or to hold a dumbbell. Also discuss and record whether there is more work, in general, to lift, to lower, or to hold a dumbbell.



Figure 18.4.1

2. Draw a table in which to record the work a dumbbell could do on a person's toe. **Do not fill in the data until you have read the instructions for obtaining that data.**

Table 18.4.1: Dumbbell & Toe

	Name Team Member	Weight Dumbbell	Distance Toe
1			
2			
3			
4			

3. Choose one of the dumbbells. While standing with one of the dumbbells overhead, have someone measure the distance from the overhead position of the dumbbell to your toe. Record the weight of the dumbbell chosen and the distance to the toe, for each person on your lab team.



Figure 18.4.2

4. Draw a table in which to record the force in Newtons for each dumbbell, and the mechanical work done lifting, holding, and lowering, each dumbbell. Read the instructions for obtaining the data.

Table 18.4.2: Mechanical Work

Dumbbell Weight (in lbs)	Dumbbell Weight (Newtons)	Work to Lift (Joules)	Work to Hold (Joules)	Work to Lower (Joules)

5. Write the weight in pounds (lbs) of each dumbbell in your data table. Convert pounds to Newtons. **1 Newton = 0.2248 lb**

6. Calculate and record the amount of mechanical work, in Joules, to lift each dumbbell 0.75 meters.
7. Determine and record the amount of mechanical work, in Joules, done while each dumbbell is held over head for about 10 seconds.
8. Determine and record the amount of mechanical work, in Joules, done to lower each dumbbell 0.75 meters.

Contributors and Attributions

- Template:ContribCCPhySc101L

18.4: Procedures is shared under a [CC BY](#) license and was authored, remixed, and/or curated by LibreTexts.