

# 32 Torque Feeler

## Purpose

To illustrate the qualitative differences between torque and force.

## Required Equipment/Supplies

meterstick  
meterstick clamp  
1-kg mass  
mass hanger

## Discussion

Torque and force are sometimes confused because of their similarities. Their differences should be evident in this activity.

## Procedure

**Step 1:** Hold the end of a meterstick in your hand so that your index finger is at the 5-cm mark. With the stick held horizontally, position the mass hanger at the 10-cm mark, and suspend the 1-kg mass from it. Rotate the stick to raise and lower the free end of the stick. Note how hard or easy it is to raise and lower the free end.

*Rotate meterstick.*

**Step 2:** Move the mass hanger to the 20-cm mark. Rotate the stick up and down about the pivot point (your index finger) as before. Repeat this procedure with the mass at the 40-cm, 60-cm, 80-cm, and 95-cm marks.

*Move mass farther from pivot point.*

- Does it get easier or harder to rotate the stick as the mass gets farther from the pivot point?

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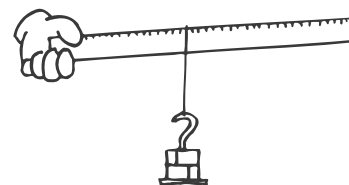
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## Analysis

2. Does the weight of the mass increase as you move the mass away from the pivot point (your index finger)?

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3. If the weight of the mass is not getting any larger, why does the difficulty in rotating the stick increase in Step 2?

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