18725 Versatile Lab Stool

Purpose:
To provide a low friction rotating platform on a convenient lab stool for experiments in angular momentum.
THIS IS A COMPONENT OF GYRO STUDIES, #18730

Useful Additional Materials:
Wood glue
Accessory mounting plug
Hand held weights, 1kg each
Gyroscope, bicycle wheel (#18700)
Accelerometer (#10-100)

Discussion:
The Turntable Top is designed to provide a low friction rotating surface to demonstrate experiments involving the conservation of angular momentum and rotational kinetic energy. It is capable of supporting one student, when placed on the assembled stool. The load should be uniformly centered to prevent the bearing from binding. The bearing should be kept free from debris, and can be periodically cleaned with a vacuum or high pressure air hose.

Experiments:
Experiments with gyroscopic precession and torque can be investigated using a bicycle wheel gyroscope. Other experiments and demonstrations, such as an accelerometer, can be attached to a shaped accessory mounting plug and placed on the stool top.

A student sitting on the turntable can have a one kg mass in each hand to demonstrate how angular momentum is conserved with the arms extended and with the arms withdrawn. A 1kg “beanbag” can be caught or tossed by a properly balanced student.

Time Allocation:
Initial assembly requires mating the two large slotted pieces, pounding them with a soft mallet or the palm of the hand, before securing them by inserting the prongs of the step. The hole in the step prongs should face upward. Dowels secure the step in place. The assembly can be made permanent by gluing the pieces and gluing the Turntable Top to the rest of the apparatus. Individual experiment times will vary depending methods of instruction, but normally the usual demonstrations will not exceed one class period.

Feedback:
If you have a question, a comment, or a suggestion that would improve this product, you may call our toll free number.