

OPERATING INSTRUCTIONS

Centripetal Force Apparatus No. 72700-3

1. Introduction

This simple Centripetal Force Apparatus allows students to make an easy, quantitative study of the centripetal force on an object in uniform circular motion.

2. Description

The apparatus consists of a fire-polished glass tube which is used to direct the motion of a weighted cord. The tube is fitted with a protective holder. Nylon cord is included, as is a two-hole rubber stopper for use as a weight. Two paper clips, for use as stops, and twenty washers which serve as balancing masses complete the set.

Also required for use, but not included, are a stopwatch or clock with a sweep second hand; graph paper; and a meter stick.

3. Operation

NOTE: Use of this apparatus requires students to whirl a rubber stopper overhead. It should always be used far enough away from other members of the class that there is no danger of striking anyone with the stopper.

Thread one end of a 1.5m length of nylon cord through the glass tube. Attach the rubber stopper to one end of the cord as shown in Fig. 1. Slip one washer over the other end of the cord; leave several inches of cord free at the end. Attach one of the paper clips, bent open, to this end as shown in Fig. 2. This stop not only prevents washers from falling off, but it also permits the easy addition or removal of washers during the experiment.

Pull enough cord through the tube to allow the rubber stopper to revolve with a radius of about one meter. Place the second paper clip on the cord just below the tube, as shown in Fig. 2. NOTE: This stop must not touch the bottom of the tube at any time. In the experiment, it will provide a marker by which students can follow the motion of the cord.

In actual use, students will use six or more washers to provide centripetal force. At this point, however, students should get a feel for the apparatus with the single washer attached. Hold the cord between the bottom of the tube and the upper stop to prevent damage to the bottom of the tube, and whirl the stopper overhead. The top of the tube must be moved in small circles to keep the stopper moving at a constant frequency.

The apparatus is now ready to use in Sixth Edition PSSC experiment 6, "Centripetal Force," or other experiments in centripetal force.

4. Maintenance

The Centripetal Force Apparatus needs no special maintenance. If any difficulty develops, contact

Central Scientific Company, giving all details of the problem. Do not return this apparatus without written authorization from Central Scientific Company.

5. Accessories

Description	Cat. No.
Single-Action Stopwatch, .1 sec-15 min.	73531-55
Plain 1m Meter Stick	73115

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