

# OPERATING INSTRUCTIONS

## Helical Spring Set No. 72701-11

### 1. Introduction

The Helical Spring Set can be used to demonstrate the extension of a spring in relationship to the force applied on it, and to study the change in gravitational potential energy with the change in elastic potential energy for such a system.

### 2. Description

A helical spring with rings at both ends is supplied for study with this set. In addition, three masses are included: a 500g mass with a double hook; a 1000g mass with a single hook; and a mass of approximately 220g with a hook at one end and an eye at the other.

Simple and easily available accessories are required. These include a meter stick; two C-clamps; a ring stand, clamp and rod; clothespins; and a paper pointer (a drinking straw may be used).

### 3. Operation

Clamp the base of the ring stand to a table top and arrange the clamp and rod as shown in Fig. 1. Hang the spring from the rod using one of the end rings; the spring should be about a meter above the floor. At the lower end of the spring, attach the paper pointer or drinking straw. Place a meter stick vertically behind the pointer, supporting it securely.

Place the 220g mass on the spring to relieve the initial spring tension. Place a clothespin on the meter stick at the level indicated by the pointer to mark the end of the spring. Add the other masses, one at a time, and record the positions of the end of the spring using clothespins.

These procedures give a good indication of the elastic changes caused by applying various masses on the spring. For a more detailed study of the spring's behavior, see Sixth Edition PSSC experiment 13, "Changes in Potential Energy." Of course, the Helical Spring Set can be used for a variety of experiments in any physics laboratory.

### 4. Maintenance

The Helical Spring Set 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.

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