

## 14502 HAND STROBE, ADJUSTABLE

### Purpose:

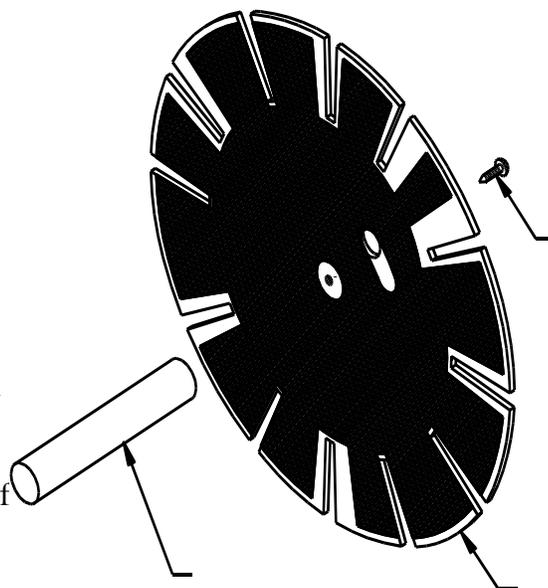
To examine repetitive motion in such a way as to make the object viewed appear to be stationary. Note: Adjust disk to obtain 1, 2, 3, 4, 6, or 12 open slots as desired before viewing vibrations and waves.

### Required Accessories:

Flap of tape, timer

### Assembly:

Hold the composite slotted disk so as to face the printed scale. Pass the screw down through the brass eyelet and into the hole in the wood handle. Tighten the screw and then back it off just enough to let the disk turn freely. Rotating the part with the scale printed on it will expose different numbers of slots in the main disk. In this way, a variety of strobe frequencies are available with a comfortable rate of rotation. Place an index



finger in the large hole and turn in either direction. Often a teacher or laboratory partner can look over the shoulder holding the handle and make simultaneous observations.

### Procedure:

Viewing an object at twice the frequency of its characteristic behavior will result in seeing two images of the object. Slowing down from that disk rotation to the very next occurrence of a stationary image, assures the operator that the strobe frequency is properly synchronized and matches the frequency of the object. Viewing at a sub-multiple of the frequency of the object will still present a stationary image, but it will not be as bright, and the frequency of the strobe does not match the frequency of the object. It is best to work with a partner who can find the number of seconds that it takes for some number of revolutions of the disk while the operator keeps the disk synchronized with the behavior of the object. Sometimes a flap of tape helps the partner in counting revolutions.

**Calculations:**

The frequency of the properly synchronized strobe when multiplied by the number of slots in use gives the frequency of the object viewed, or:

**Time Allocation:**

To prepare this product for the first experimental trial should take less than ten minutes. Actual experiments will vary with needs of students and the method of instruction, but are easily concluded within 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.