Use special SHM apparatus designed so that a hole in a sliding arm driven by a synchronous motor executes truly simple harmonic motion. Set lantern at left side of a movable cart placed at the back of the lecture room, and detach rear end of bellows. Place SHM apparatus to right of the lantern, as close to the slide holder as possible, adjust its position so that the light shield is approximately centered in the light beam and perpendicular to the light beam, and focus the image of the small hole in the sliding arm. When the motor is started, this image executes simple harmonic motion. (The vertical line of small holes represents the center of the horizontal motion, and its image should be near the center of the screen.)

The amplitude if motion can be changed by moving the pin in the rotating disk to a different position in the radial slot in the disk.

The frequency of the motion can be changed by shifting gears. To shift gears, stop the motor and, after a slight clockwise motion, push or pull the gear mount which slides along the axle driving the rotating disk. The two frequencies available are 0.67 and 1.50 per second, corresponding to periods of 1.50 and 0.67 second. The lower frequency is the more satisfactory for use in observing in the motion such things as displacement, amplitude, velocity and acceleration.

Having defined linear simple harmonic motion as a linear, vibratory motion such that the acceleration is at all times directly proportional to and opposite to the displacement, use the lantern slide to show how the apparatus produces the motion and that the motion is truly simple harmonic. (Some lecturers may prefer to show the slide first and then demonstrate the motion.)

Note: Occasionally the motor fails to start at the higher frequency and a maximum amplitude. Start it by using a finger on a gear.