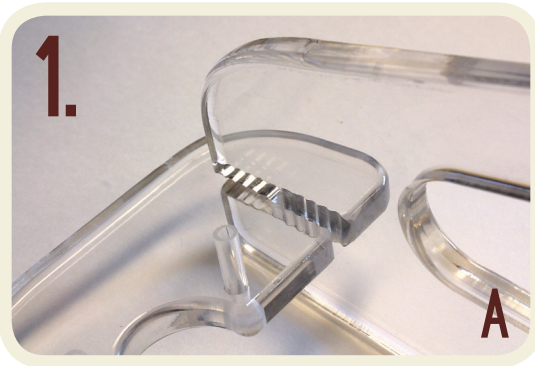


LARGE ACRYLIC PENDULUM WAVE DEMONSTRATION SET-UP INSTRUCTIONS

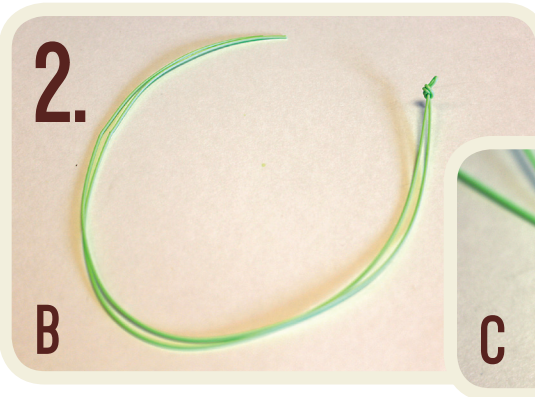
*SEE PAGE 4 FOR GLOSSARY OF TERMS



1. When setting up the **Pendulum Wave Demonstration** for the first time, the frame of the pendulum needs to be put together.

Interlock the notches on the ends to form the Wave Demonstration structure (A).

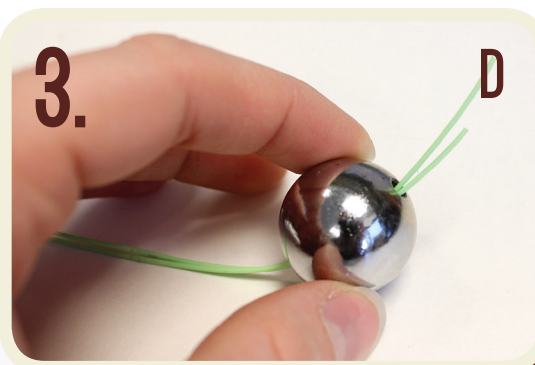
The pieces fit tightly, however, they can easily be taken apart for storage.



2. Take a piece of fly line and fold it in half, then tie a knot in the end where the line was folded (B-C).

This forms two strings to mount the pendulum to the frame with.

Repeat this process with all 9 pieces.



3. Thread both ends of a knotted fly line through one of the drilled steel balls (D).

Pull the ball all the way down to the knotted end so that they fit tightly against each other (E).

Repeat threading the fly line through the remaining steel balls (F).



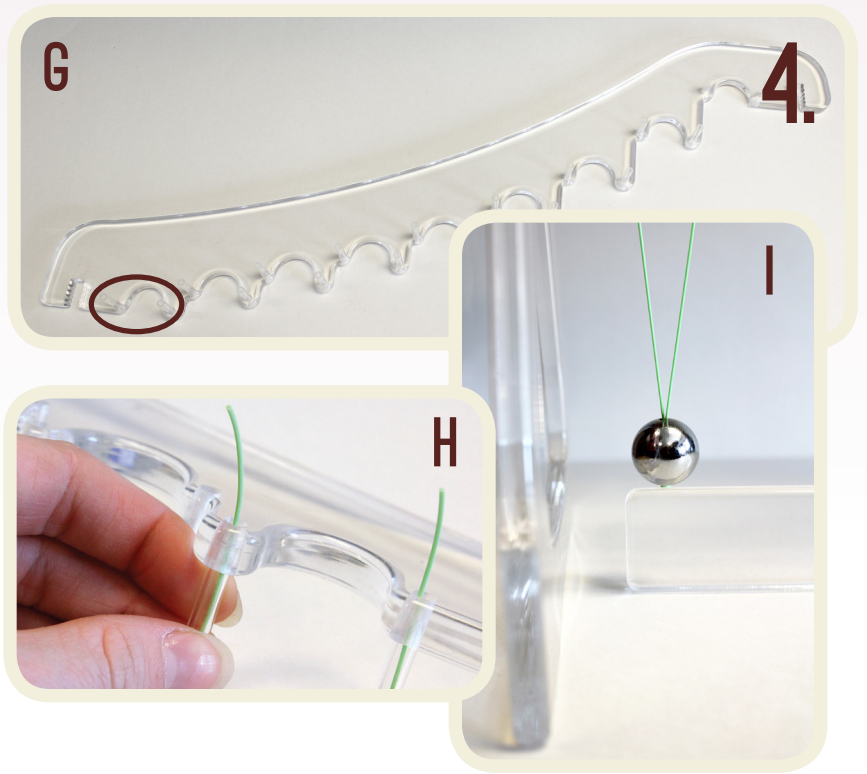
4. Prop the initiator stick onto its side and place it underneath the frame.

Start threading the fly lines of a pendulum to the first parallel set of tubes on the frame (as indicated by the circle in the image on the right) (G).

Pass each end of the line through a separate tube so that some of the fly line is extending past the acrylic frame (H).

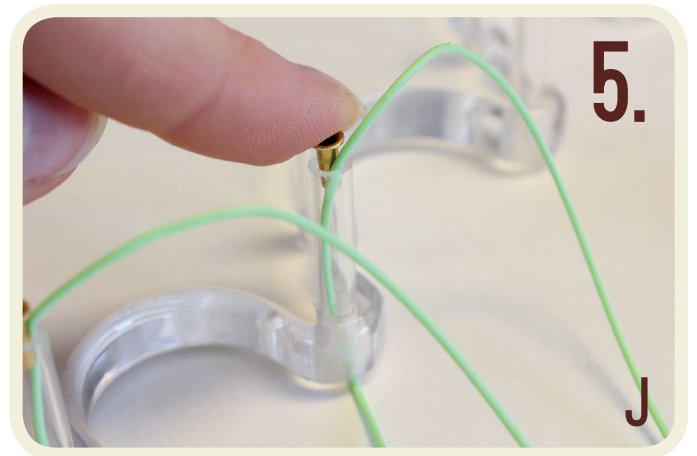
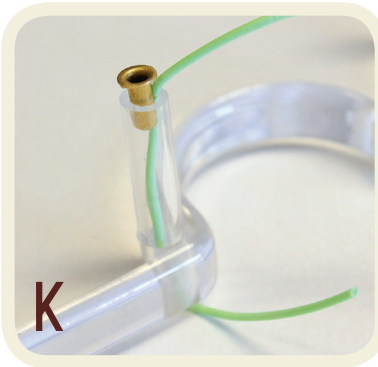
Adjust the length of the line so that the bottom of the ball aligns with the top of the initiator stick (I).

*After the Pendulum Wave Demonstration is **completely assembled**, the extra lines can be taped to the frame, or cut (do not cut lines until assembly and adjustments are finished).



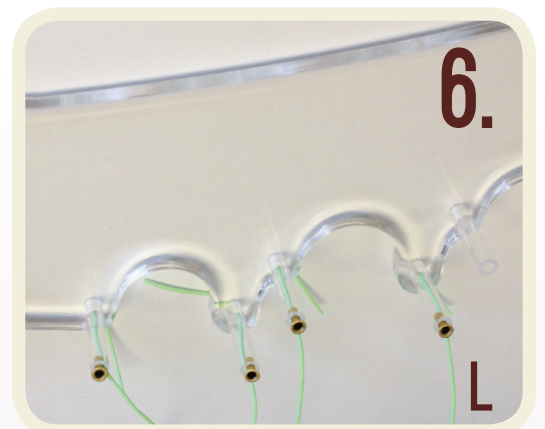
5. To keep the pendula in place, push the smaller end of a small brass eyelet into each tube opening, this will secure the fly line (J).

You may need to adjust the pendula later, so there is no need to push the eyelet in all the way at this point, just insert it enough to securely hold the line (K).



6. Repeat Step 4 and 5 with the remaining pendula, mounting them from left to right on the frame, aligning them to the initiator stick underneath (L).

Do this until all 9 pendula are attached and adjusted. The steel balls should form a straight line, with the same distance from the bottom of the balls to the table (M - SEE IMAGE ON NEXT PAGE).



7. When all pendula are attached to the frame, the lines can be adjusted to the exact lengths needed for ideal performance. See page 3 for these measurements.

8. Use the measurements below to adjust the pendula to the right lengths as needed.

Measurements can be made in the number of swings of each pendulum in a timeframe of 20 seconds, or by the distance (in cm) between the middle of each steel ball to the bottom of the tube it is attached to.

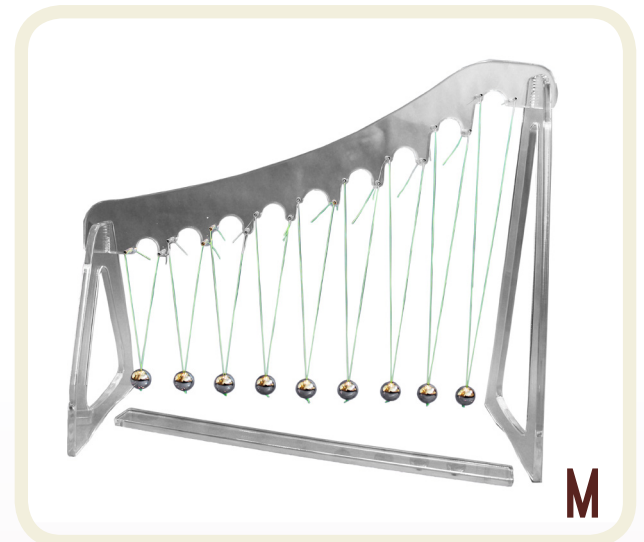
SWINGS IN 20 SECONDS*	LENGTH IN CM*
24	17.2
23	18.8
22	20.5
21	22.8
20	24.8
19	27.4
18	30.6
17	34.6
16	38.8

*from shortest to longest pendulum, left to right

9. To test the Wave Demonstration, hold the initiator stick against all steel balls and push them backward simultaneously. Then, quickly remove the stick and watch the Pendulum Wave Demo swing through its phases.

It might take several rounds of adjustments to get the Wave Demonstration to perform perfectly.

10. After all adjustments have been made and the Pendulum Wave Demonstration is performing as desired, the extra fly line can be taped or cut, and the eyelets can be pushed in completely.



GLOSSARY

Pendulum Wave Demonstration/Wave Demonstration - refers to the complete structure being assembled

ball/steel ball/drilled steel ball - the set includes 9 drilled steel balls (1 inch diameter)

string/line/fly line - the green string included with the set is thick rubber fly line

pendulum (singular) - a pendulum is an assembled set, consisting of one steel ball and knotted fly line

pendula (plural) - same as pendulum, however, pendula refers to multiple assembled pendulum

frame - made up of three clear acrylic parts, one curved top and two triangular side parts that can be assembled to form the Pendulum Wave frame

initiator stick - clear acrylic part used to initiate movement of the fully assembled Pendulum Wave Demo by pushing all pendula at the same time. The acrylic part is rectangular, approximately 18.5 x 1.5 inches in size. The initiator stick is also used for pendulum adjustments

tubes - refers to the 18 tubes attached to the curved (top) part of the frame, through which the fly line is threaded during assembly.

brass eyelets - the set includes 18 small brass eyelets used to secure the fly line to the frame by pushing them inside the tubes

