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## LAB 8. THE PENDULUM CHALLENGE

### Introduction

You will swing a fishing sinker attached to a thread so that when the sinker reaches the bottom of its swing, a sharp blade cuts the thread. Your challenge is to predict exactly where the sinker will land on the floor. You don't get to test your prediction until your instructor witnesses it.

### Supplies

Vertical stand, horizontal bar, fine thread, fishing sinker, white paper, carbon paper, tape, target, plumb line, measuring tape, utility blade

### Activity

1. Tie the thread to the fishing sinker. Hang the sinker by the thread from the horizontal bar so that the knot is just below the level of the table top. (When the sinker is released as a pendulum, a blade fastened to the table top will cut the string right above the knot.) You may make the string any length you like.
2. Decide how to release the pendulum so that the blade cuts the swinging thread. Calculate where the sinker will land after the thread is cut.
3. Tape the target to the floor exactly where you predict the sinker will land.
4. Summon the instructor. Allow the instructor to attach the blade to the table top directly under the point where the thread is attached, so that the swinging thread meets the edge of the blade at a glancing angle.
5. Place a piece of carbon paper, carbon side down, atop the target.
6. While the instructor watches, position and release the sinker so that its thread is cut at the bottom of its swing and the sinker lands on the floor at the predicted spot.
7. Allow the instructor to remove the carbon paper and observe the carbon mark left by the landing sinker.

### Evaluation

Bullseye on first try	100
Second circle on first try	90
Third circle on first try	80
Bullseye on second try	93
Second circle on second try	83
Third circle on second try	73
Hit the paper in two tries	63
Thank you for playing	50