03-02 How To Make the Centripetal Force Apparatus *Name: _____*

Materials

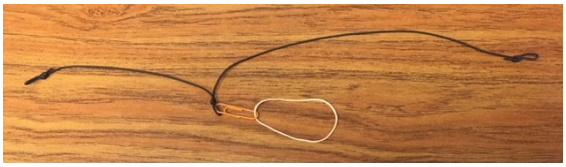
1. 15 cm of 1/4" PEX water pipe (from a hardware store such as Lowes)
2. 8 small paper clips
3. 2 rubber balls 35mm diameter (from OrientalTrading,com or Amazon.com) with a hole drilled through the center using a drill press
4. 1.18 mm micro cord similar to paracord (made by Atwood Rope Mfg available on atwoodrope.net)
5. 1 3" × 1/16" rubber band (size #18)

Handle

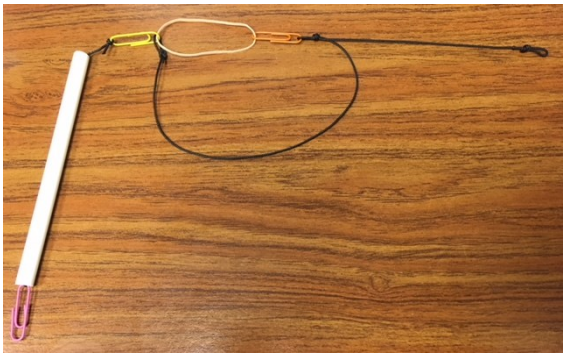
1. Use a 23 cm piece of micro cord.
2. Tie a small paperclip to one end using a slipped overhand knot.
3. Thread the cord through the pipe and tie a paperclip to the other end using a slipped overhand knot.
4. Make sure the knots tighten when you pull on the paperclips.

Radius and Safety Line

1. Use a 60 cm piece of micro cord.
2. Tie a small loop about 23 cm from one end using an overhand loop knot. The end of the loop should be at the 23 cm mark.
3. Tie a small loop at each end using an overhand loop knot.
4. Attach a paperclip to the center loop.
5. Attach the rubber band to the paperclip.



6. Attach the rubber band and longer length of string to the paperclip at one end of the handle.



Extra Length of String

1. Use a 35 cm piece of micro cord.
2. Tie a small loop at one end using an overhand loop knot.
3. Tie a paperclip to the other end using a slipped overhand knot. Make sure the knot tightens when you pull on the paperclip.

Balls

1. Take a 35 mm rubber bouncy ball and drill a hole through the center such that if the seam of the ball was the equator of the earth, the hole would be the axis of the earth.

2. Use a 11 cm piece of micro cord.
3. Tie a paperclip to one end using a slipped overhand knot.
4. Thread the cord through the hole in the ball.
5. Tie a paperclip to the other end using a slipped overhand knot. Make sure the knots tighten when you pull on the paperclips.
6. Make two balls.