S03 – Hydraulic Bore Pupil Sheet 1

Collect the following equipment:

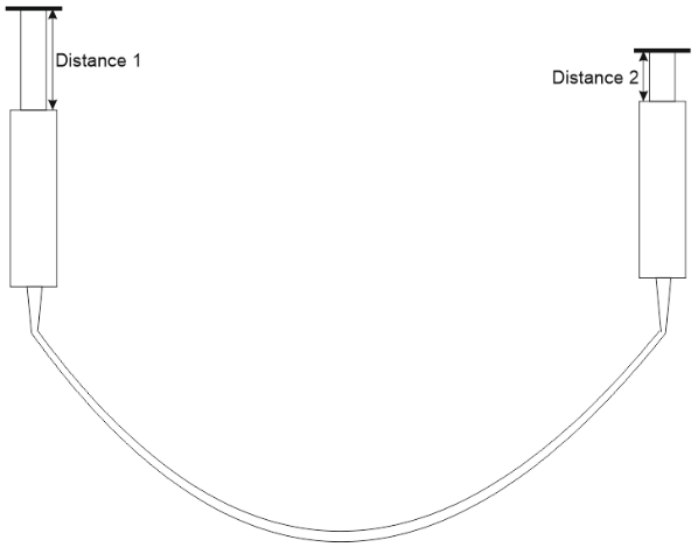
2x 10ml wide syringes
1x 10ml narrow syringe
1x tubing
1x beaker of water.

Experiment 1

1. Fill one wide syringe to the 10ml mark by drawing the plunger whilst the opening is in the water.
2. Attach the tubing to the end of the syringe.
3. Press the plunger in until water drips from the end of the tubing.
4. Place the free end of the tubing into the water beaker and pull the syringe plunger until the syringe has 10ml in it again.
5. Push the plunger all the way in on the second wide syringe. Attach the second wide syringe to the other end of the tubing.
6. Now complete the table below. Refer to the diagram underneath to help.

Volume in Syringe 1	Distance 1	Volume in syringe 2	Distance 2
10ml			
9ml			
8ml			
7ml			
6ml			
5ml			
4ml			
3ml			
2ml			
1ml			
0ml			

Diagram:



Experiment 2

1. When you have finished the table above push all of the water into one syringe.
2. Replace the empty syringe with the narrower syringe and repeat the experiment above.

Volume in Wide syringe	Distance 1	Volume in narrow syringe	Distance 2
10ml			
9ml			
8ml			
7ml			
6ml			
5ml			
4ml			
3ml			
2ml			
1ml			
0ml			

Questions:

1. What do you notice about the distances in experiment 1?

2. What do you notice about the distances in experiment 2?

3. Why is there a difference?

4. Can you think of a real-life application for this?