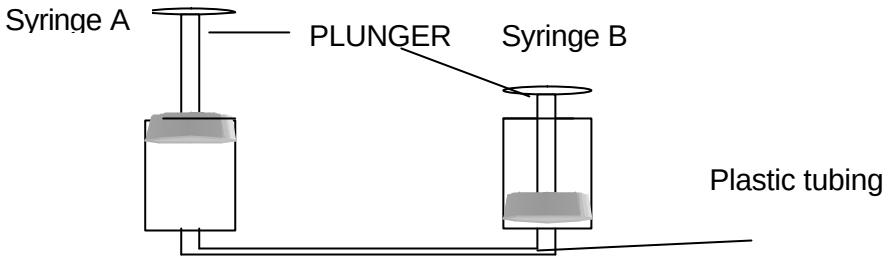
Systems & Control
Grade 7

Hydraulics & Pneumatics

Syringes can be used to demonstrate movement and the basic principles of pneumatics and hydraulics.

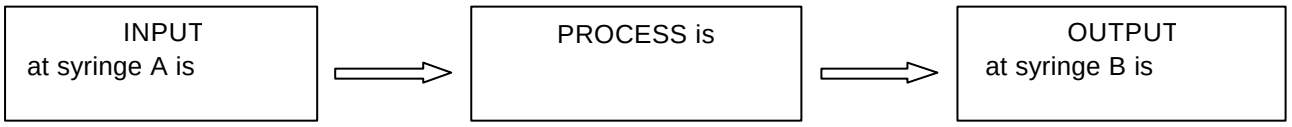


Set up the experiment as illustrated of the drawing above by doing the following:

- Connect two 10ml syringes with a 200 mm length of plastic tubing.
- Pull the plunger of syringe A completely out and push the plunger of syringe B fully in.
- Replace the plunger of syringe A and press slowly down.

Observe and write down what happens at syringe B

Complete the system diagram below:



Repeat the demonstration, but this time fill the system with water.

Observe and write down what happens at syringe B

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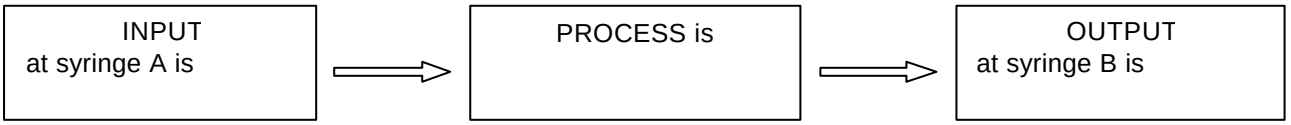
Syringe A is referred to as the **MASTER** cylinder and ***Syringe B*** as the ***SLAVE*** cylinder.

Complete the system diagram below:



When syringes are filled with air we are demonstrating **pneumatics.** True pneumatics use compressed air.
When syringes are filled with water we are demonstrating **hydraulics.** True hydraulics usually uses oil as the fluid.

- Which is the more effective? ……..
- Why do you think so? ……
- Explain why in this case syringes A is the master and syringe B is the slave: ……..

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