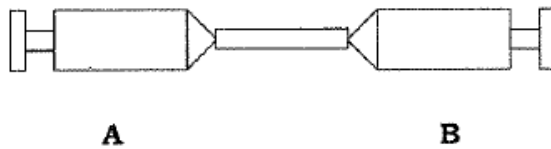


Pneumatics

1. Connect two syringes of the same size and a short length of tubing. Have both plungers all the way in.



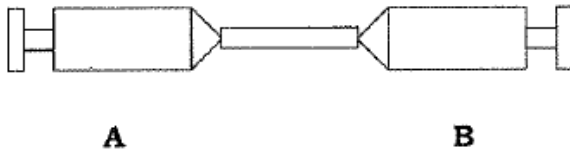
1.1 What do you think will happen when you try to pull either plunger out?

1.2 Try it. Were you right?

1.3 Why do you think this happened?

Hydraulics

1. Connect two syringes of the same size and a short length of tubing. Have both plungers all the way in.



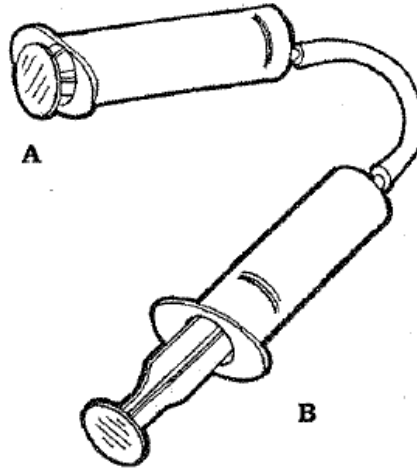
1.1 What do you think will happen when you try to pull either plunger out?

1.2 Try it. Were you right?

1.3 Why do you think this happened?

Pneumatics

2. This time make sure one plunger is out and the other is in, as in the diagram.



2.1 Try pushing in plunger B. What happened?

2.2 Now try pulling out the plunger that is all the way in. What happened?

2.3 When you pushed one plunger in, the other plunger moved in the opposite direction.
T or F?

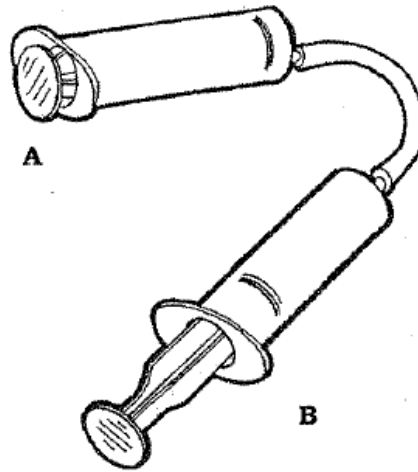
2.4 Take off one syringe and fill it with 5 ml of air. Push the other plunger all the way in and connect the two syringes with tubing. Now push the 5 ml of air out of the syringe into the other syringe. How much air goes into the other syringe? Explain your answer.



How much air goes into the other syringe?
Explain your answer.

Hydraulics

2. This time make sure one plunger is out and the other is in, as in the diagram.



2.1 Try pushing in plunger B. What happened?

2.2 Now try pulling out the plunger that is all the way in. What happened?

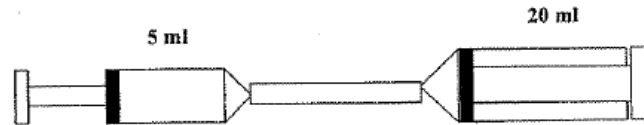
2.4 Take off one syringe and fill it with 5 ml of water. Push the plunger all the way in and connect the two syringes with tubing. Now push the 5ml of water out of the syringe and into the other syringe.

How much air goes into the other syringe?
Explain your answer.



Pneumatics/Hydraulics

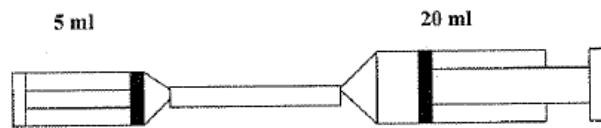
3. This time connect a medium and a small syringe together using a short length of tubing. Have the small syringe fully open and the large syringe closed.



Push in the small syringe plunger.

- 3.1 Is the amount of air that goes into the large syringe the same amount that was in the small one? Yes or No ?

3.2 Push the air into the small syringe.



- 3.3 When you push the air back into the small syringe, watch how far the small syringe plunger moves compared to how far the large syringe moved.

3.4 Which one moves farther? _____

3.5 Fill in this sentence: To move a plunger the farthest distance, have the _____ syringe move air to the _____ syringe.

Repeat the steps above with water instead of air.

- 3.6 Is there a difference or does it produce the same result? Explain

Use the weight lifting apparatus to perform the following experiments.

4.1 Hook up the large syringe to the input side of the apparatus and squeeze air or water from there into the large mounted syringe. How much weight did it lift? _____

4.2 Hook up the small syringe to the input side of the apparatus and squeeze air or water from there into the large mounted syringe. How much weight did it lift? _____

4.3 Which way seemed to have more force: When you pushed the air from the _____ syringe into the _____ syringe.

4.4 When you want to increase the amount of force , have the _____ syringe move air into the _____ syringe.

4.5 How does the answer to 4.4 compare to your answer in 3.5?
