

611-2345 (35-140) Weight of Air Apparatus

Description:

Prove that air has weight by comparing the weight of the can when full of air with the weight of the can when the air has been removed with a vacuum pump. A good classroom demonstration of an abstract concept, this apparatus is suitable for middle school level science and up. Apparatus consists of a 1000 mL leak-proof aluminum can with an attached valve and hose that accepts 1/4" diameter pressure tubing.

Additional Materials Needed

- Vacuum pump
- Valve fits 1/4" diameter pressure tubing*
- Triple beam balance

Assembly:

1. Screw the hose barb into the hose adapter.
2. Push the hose into the quick connect end of the adapter.
3. Push the hose into the quick connect connector on the bottle.
4. The hose can be removed for storage or weighing, if desired. To do this, pull back on the plastic ring that is on the quick connect fitting while pulling the hose out.

Operation

Prove that air has weight.

1. Weigh can on balance.
2. *Connect tubing* from vacuum pump *to valve* on hose.
3. Hold down button on the top of the valve while evacuating the bottle. *Pump out all air* inside.
4. Release button on valve before turning pump off.
5. When air is evacuated, weigh can again on balance. Subtract this value from first value.
6. Can should weigh about 1/2 gram less. What does this show?

Important:

Do not open or unscrew the bottle.

It may damage the seal and cause the air to leak.

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