

## Respiratory System

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### Functions:

Respiration

Diaphragm actions

Filter out bacteria

### Materials

- 25 water balloons :
- 5 Large balloons
- 20': 3/4" schedule 40 pvc piping:
- Bicycle Pump
- 1 schrader valve bicycle tube
- 35+ Thin Zip Ties
- Krazy Glue
- 5 pair Rubber/ latex Gloves (disposable)
- 4: 3/4" Schedule 40 elbow
- 8: 3/4". PVC 3-Way Tee
- 2: 3/4". PVC Sch. 40 Slip x Slip Ball Valve
- 3/4". diameter Round Dowel
- 1 box of chocolate pudding mix & all the stuff to make it

### Description:

Our project is a stand of pvc with two large balloons full of small water balloons representing the lungs and the alveoli, respectively. The PVC represents the Bronchial tubes and the esophagus, and the opening at the top is the nose. To "pressurize" the system we will use a high volume bicycle pump and a schrader or presta valve.

The model will be dry fit together with the PVC. Balloons will be glued on top at the openings. It will be pressurized by drilling a hole in the PVC and gluing it in.

### Principals:

Distribution of Weight

Pressure

Gas Exchange

Respiration

Balance

Removal of blood acids (“maintaining or helping to maintain blood pH”)

Sound production

Administration of drugs through inhalation or nasally ( anesthetics)

- Ventilate the lungs
- Extract oxygen from the air and transfer it to the bloodstream
- Excrete carbon dioxide and water vapour
- Maintain the acid base of the blood

Inspired Air

This contains approx:

- 79% nitrogen
- 20% O<sub>2</sub>
- 0.04% CO<sub>2</sub>
- Water vapour/Trace Gases

Expired Air

This contains approx:

- 79% nitrogen
- 16% O<sub>2</sub>
- 4% CO<sub>2</sub>
- Water vapour/Trace Gases

No questions, concerns, or special requirements

