

## The Respiratory System: Pulmonary Ventilation

1.
  - a. The relationship between pressure and volume is known as \_\_\_\_\_ Law.
  - b. Indicate the relationship with arrows below
    1.  $\uparrow$  volume  $\rightarrow$  \_\_\_\_\_ pressure
    2.  $\downarrow$  volume  $\rightarrow$  \_\_\_\_\_ pressure
2. Mark "I" for the muscles that control inspiration and "E" for the muscles which control forceful expiration.
  - a. \_\_\_\_\_ Diaphragm
  - b. \_\_\_\_\_ Internal intercostals
  - c. \_\_\_\_\_ External oblique and rectus abdominus
  - d. \_\_\_\_\_ External intercostals
3. Intrapulmonary pressure \_\_\_\_\_s ( $\uparrow$  or  $\downarrow$ ) during inspiration.
4.
  - a. What pressure is always negative and helps to keep the lungs inflated?  
\_\_\_\_\_ pressure
  - b. It is most negative during \_\_\_\_\_.
5.
  - a. If transpulmonary pressure equals zero, what will happen to the lungs?  
\_\_\_\_\_
  - b. This is known as a \_\_\_\_\_.
6.
  - a. When the bronchiole constricts, what will happen to resistance?  
\_\_\_\_\_ (use arrows)
  - b. To airflow? \_\_\_\_\_ (use arrows)
7. Name two other important factors that play roles in ventilation:
  - a.

b.

**For 8 through 10 fill in *constrict* or *dilate*, then ↑ and ↓ arrows:**

8. Histamine will \_\_\_\_\_ bronchioles → \_\_\_\_ resistance → \_\_\_\_ airflow
9. Epinephrine will \_\_\_\_\_ bronchioles → \_\_\_\_ resistance → \_\_\_\_ airflow
10. Acetylcholine will \_\_\_\_\_ bronchioles → \_\_\_\_ resistance → \_\_\_\_ airflow
11. Fibrosis will (↑ or ↓) \_\_\_\_ compliance making it \_\_\_\_\_ to inflate the lungs.
12. A decrease in surfactant will result in a \_\_\_\_ (↑ or ↓) in compliance.