

11 Breathing – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary 词汇

Write each word three times. 把每个单词抄写三遍。

English	中文	Write it 3 times (English)		
intercostal muscles	肋间肌	_____	_____	_____
ribs	肋骨	_____	_____	_____
diaphragm	膈肌	_____	_____	_____
thorax	胸腔	_____	_____	_____
pressure	压力	_____	_____	_____
water vapour	水蒸气	_____	_____	_____
limewater	石灰水	_____	_____	_____

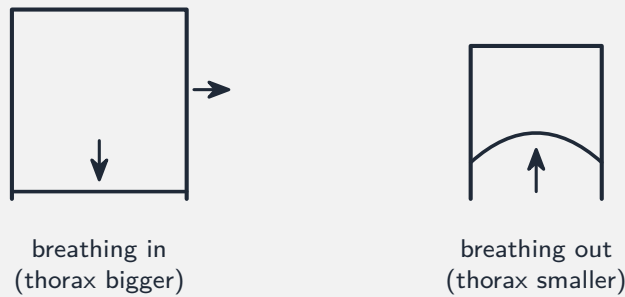
Recall

Breathing moves air in and out of the lungs by changing the size of the chest.

New ideas

Read these first, then do the Practice.

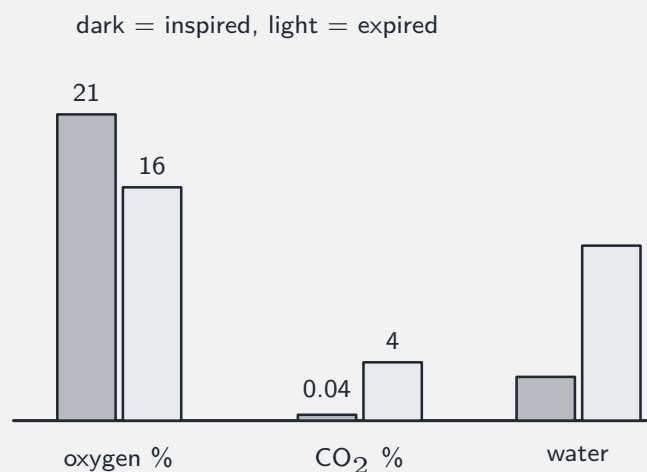
■ 1 How you breathe



Breathing in: the **intercostal muscles** 肋间肌 pull the **ribs** 肋骨 up and out, and the **diaphragm** 膈肌 flattens. The **thorax** 胸腔 gets bigger, the **pressure** 压力 drops, and air is pushed in.

Breathing out is the opposite: the thorax gets smaller, the pressure rises, and air is pushed out.

■ 2 Inspired and expired air



Expired air (breathed out) has **less oxygen**, **more carbon dioxide** and more **water vapour** 水蒸气 than inspired air. You can test for carbon dioxide with **limewater** 石灰水, which turns cloudy.

Watch out: breathing **in**, the diaphragm flattens and the ribs rise, so the thorax gets bigger, the pressure **drops**, and air rushes in. **Breathing** (moving air) is not the same as **respiration** (releasing energy in cells).

Practice

Try these in order.

11.6 When you breathe in, what happens to the diaphragm? [1]

11.7 When you breathe in, does the pressure in the chest rise or fall? [1]

11.8 Give two differences between inspired and expired air. [2]

11.9 Which chemical tests for carbon dioxide, and what does it do? [2]

11.10 During exercise, why do you breathe faster and more deeply? [1]

11.11 Challenge. When you breathe in, the chest volume increases. Explain how this causes air to flow into the lungs. [2]