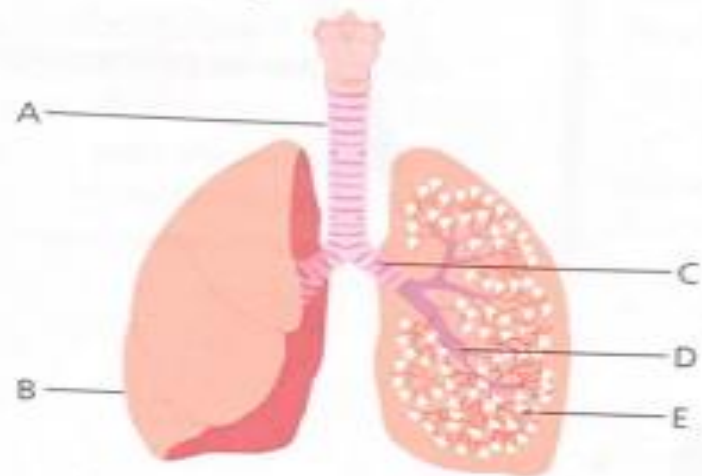




- 1 The diagram below shows the main organ in the respiratory system.



Choose the correct letter for each of these parts:

- a alveoli *e* [1]
- b bronchiole *d* [1]
- c trachea *A* [1]
- d lung *b* [1]
- e bronchus *C* [1]

- 2 Name the part of the lungs that matches each of these descriptions:

- a small air spaces where gas exchange takes place [1]
- b a reinforced tube that takes air down to one lung [1]
- c small tubes that lead air to millions of tiny air spaces.

1a E

b D

c A

d B

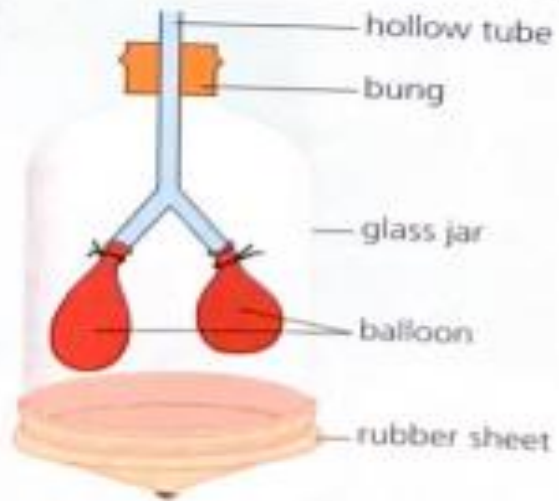
e C

2a Alveoli.

b Bronchus.

c Bronchioles.

3 The model lung in the diagram can be used to show how air is moved in and out of the lungs.



a Which two parts of the lungs does the hollow tube represent? *trachea and bronchi*

b What does the rubber sheet represent? *diaphragm*

c Describe what happens when the rubber sheet is pulled down. *air is going inside. (inhaling).*

d A model is never exactly like the real thing.

Name one part of the lungs that is not represented on this model. *alveoli*

3a Trachea and bronchi.

b The diaphragm.

c Air rushes in and the lungs inflate.

d Any one from: the bronchioles; the intercostal muscles; the alveoli.

4 When your chest expands, air moves into your lungs. Write the letters A-E in the correct order to describe the path the air takes.

A alveoli

B bronchi

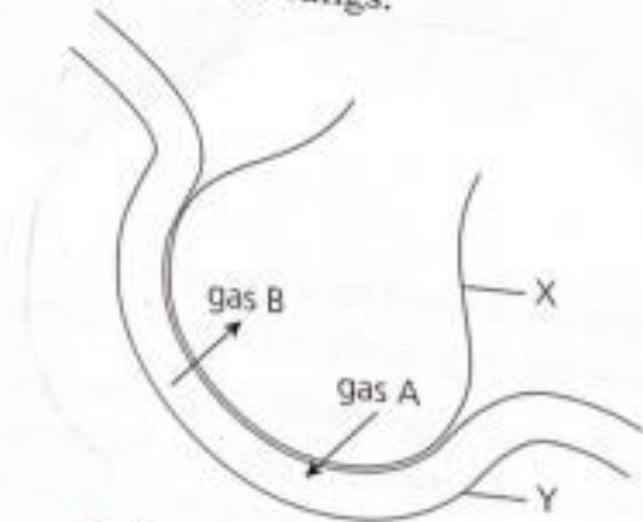
C trachea

D bronchioles

E nose

**4 E, C, B, D, A**

**5** The diagram below shows how gas exchange takes place in the lungs.



- a** Name parts X and Y. [2]
- b** Name gases A and B. [2]
- c** X and Y have very thin walls. Explain how this helps gas exchange. [1]

**5a** X alveolus; Y capillary.

**b** A oxygen; B carbon dioxide.

**c** This allows the air in the alveolus and the blood to get very close together, which speeds up diffusion/gas exchange.

7 Processes A, B, and C all involve oxygen and carbon dioxide.

A gas exchange

B breathing

C respiration

Choose the correct letter to match each of these descriptions:

a moving air in and out of the lungs

b the process that takes place in alveoli

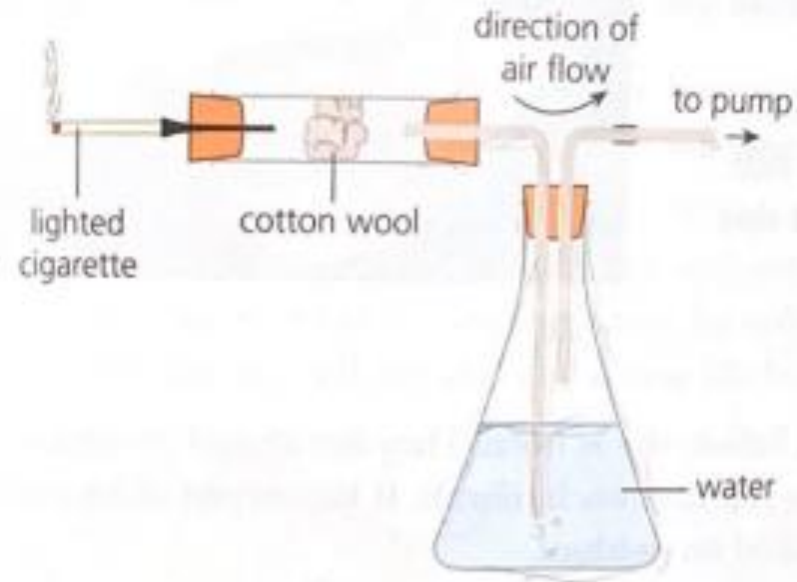
c a chemical reaction that takes place in every cell.

7a B

b A

c C

- 8** The apparatus in the diagram collects gases released by a burning cigarette.



- a** When a cigarette burns the cotton wool turns black and sticky. Name the black substance produced.
- b** The cotton wool in the apparatus represents the inside of a smoker's lungs. Describe one effect the black substance can have on lungs.
- c** When universal indicator is added to the water it turns red. What does this tell you about cigarette smoke?

**8a** Tar.

**b** Any one from: can cause lung cancer; can cause bronchitis; can cause emphysema; can reduce gas exchange.

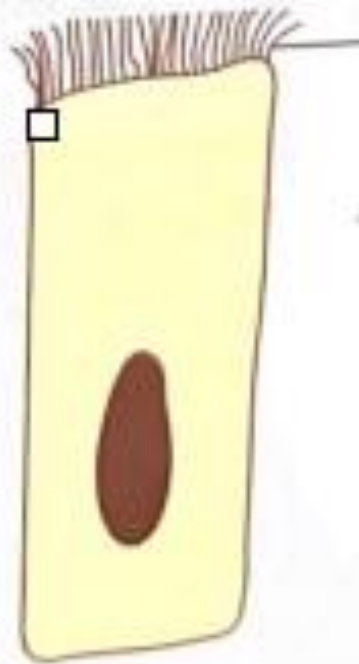
**c** It is acidic.

**d** It is addictive.

- 9 Two types of cell line the main airways in the lungs: cells that produce a sticky mucus, and ciliated cells like the one below.

The dust and micro-organisms in air stick to the mucus in the lungs.

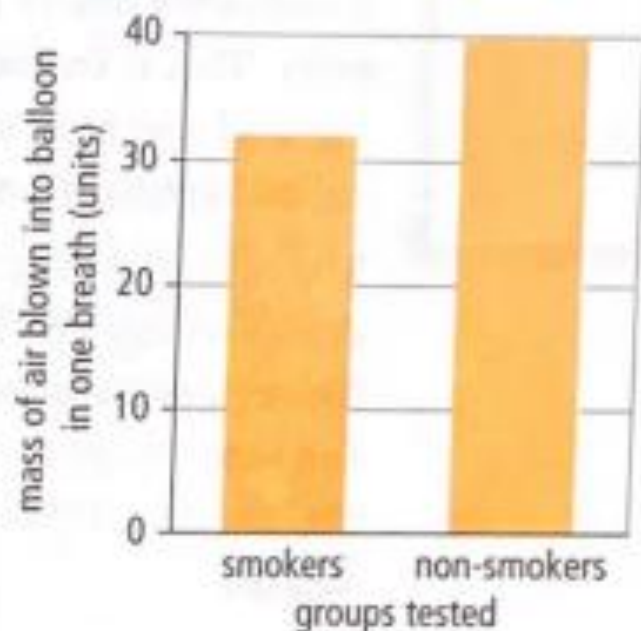
- a What do ciliated cells do to mucus?
- b The smoke from cigarettes destroys cilia. How can this cause more lung damage?



- 9a They waft it up the tubes in your lungs towards your throat, to be swallowed.
- b Mucus traps microbes. If the cilia are paralysed, they are unable to move the microbes out of your lungs, so the microbes multiply there and cause an infection.



- 11** 10 smokers and 10 non-smokers take part in an investigation. They are all aged 15. Each takes one breath and blows into a balloon as hard as possible. Their average results are shown in the bar chart.



- a** What is measured in this investigation? [1]
- b** Write down one factor that is kept the same. [1]
- c** Do the results support the idea that smoking damages lungs? [1]

**11a** Mass of air.

- b** Any one from: number of breaths taken; age of participants; size/type of balloon.
- c** Yes – on average, the 10 smokers blew out a lower mass of air than the non-smokers.