

## Science Shorts

### Diving Into Science

1. What are adaptations?
2. How do the adaptations of a jelly fish help it to survive?

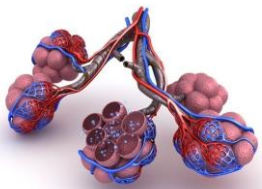


3. A cube box has a base that is  $36\text{cm}^2$ , its weight is  $72\text{ N}$ . What is the pressure it exerts on the floor?

HINT: You will need to convert the units.

4. What is the force exerted on the piston when a gas with a pressure of  $300\text{ kPa}$  acts on an area of  $0.060\text{m}^2$ ?

5. How are the human lungs adapted for gas exchange? Remember to include the names of specific structures.



6. What gases are exchanged during respiration?



$$F = P \times A$$

$$A = \frac{F}{P}$$

$$P = \frac{F}{A}$$

7. Describe the chemical test for oxygen

8. What does carbon dioxide do to a lighted candle?



**ANSWERS:**

1. A process of change over many generations by which an organism becomes better suited to its environment.
2. Liquid body is not compressed by high pressure, stingers to kill prey, colours for camouflage...
3. 20 000 Pa
4. 18 000 N
5. Alveoli and capillaries, thin walls to give short diffusion pathway, moisture to dissolve gases, good blood supply to maintain concentration gradient, hollow tubes as airways including trachea, bronchi and bronchioles.
6. Carbon dioxide and Oxygen
7. Oxygen relights a glowing splint
8. Carbon dioxide will extinguish a lighted candle.