

Biological Systems and Processes

Lesson 9 - Review One

KS3 Biology

Miss Hindle



Skeleton and Muscles - key facts!

- The main functions of the skeleton are support, protection and producing blood.
- There are four types of joint. They are hinge, ball and socket, pivot and fixed.
- Hinge joints have movements backwards and forwards e.g. elbow.
- Ball and socket joints have movements in circular motions e.g. shoulder.
- Fixed joints have no movement e.g. skull.
- Pivot joints have movements around an axis e.g. ankle.
- Within a joint the cartilage and synovial fluid prevent friction between bones.
- Tendons link bone to muscles and ligaments link bone to bone.
- Muscles work in antagonistic pairs, when one relaxes the other one contracts.



Bones Practise!

- Match up the scientific name for bones to where they are found in the body

1. Skull

2. Patella

3. Scapula

4. Femur

5. Ulna

a) Forearm bone

b) Shoulder Blade

c) knee cap

d) Cranium

e) Thigh bone

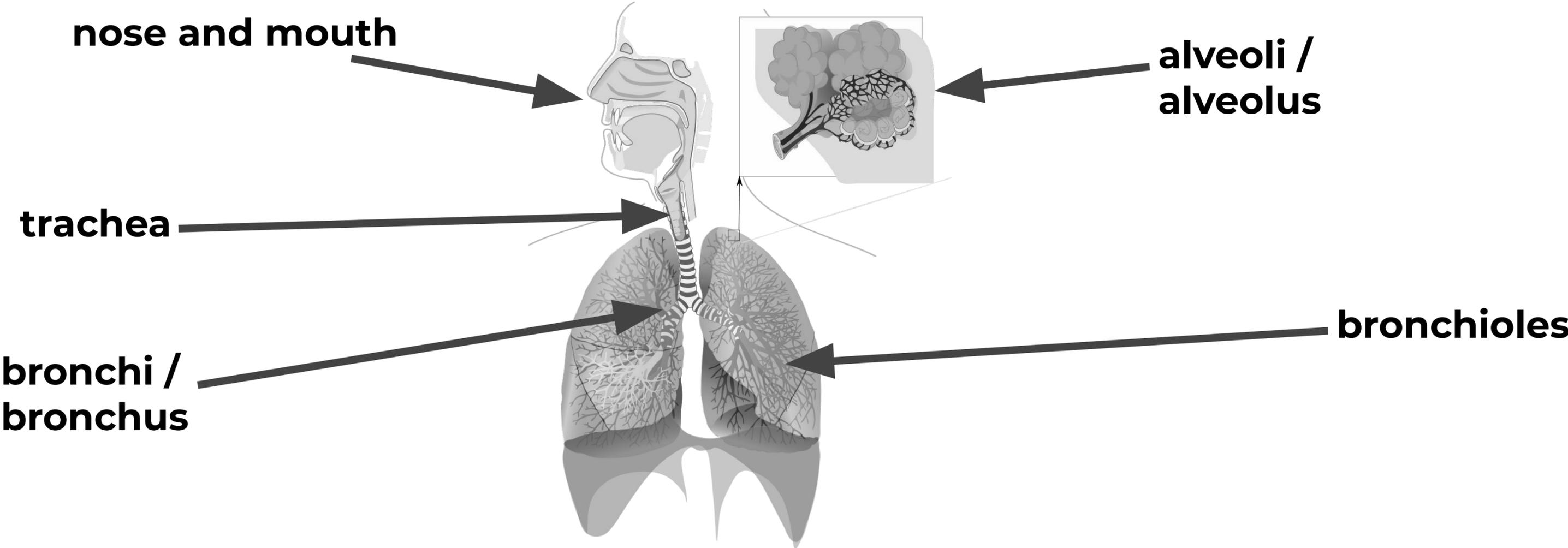


Skeleton and Muscle Questions

1. What are the three main functions of the skeleton?
2. What are the four different types joints called?
3. What kind of joint is at the knee?
4. What kind of joint is at the hip?
5. What kind of joints are in the spine?
6. What is the tissue called that links bones to muscles?
7. What is the type of tissue called that links bone to bone?
8. What are pairs of muscles working together called?



Respiratory System - key parts

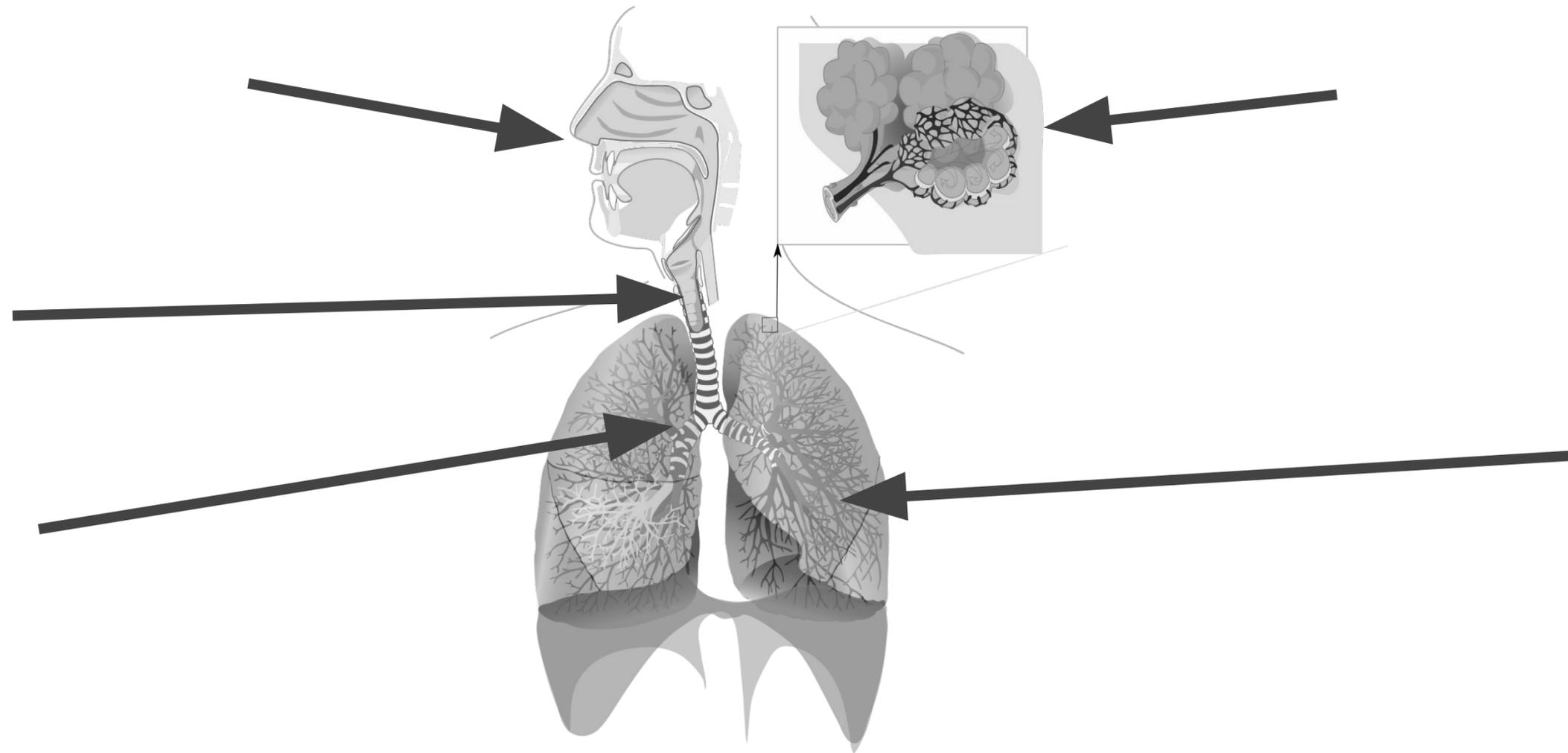


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Respiratory System

Fill in all the missing labels



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Aerobic and Anaerobic Respiration - key facts!

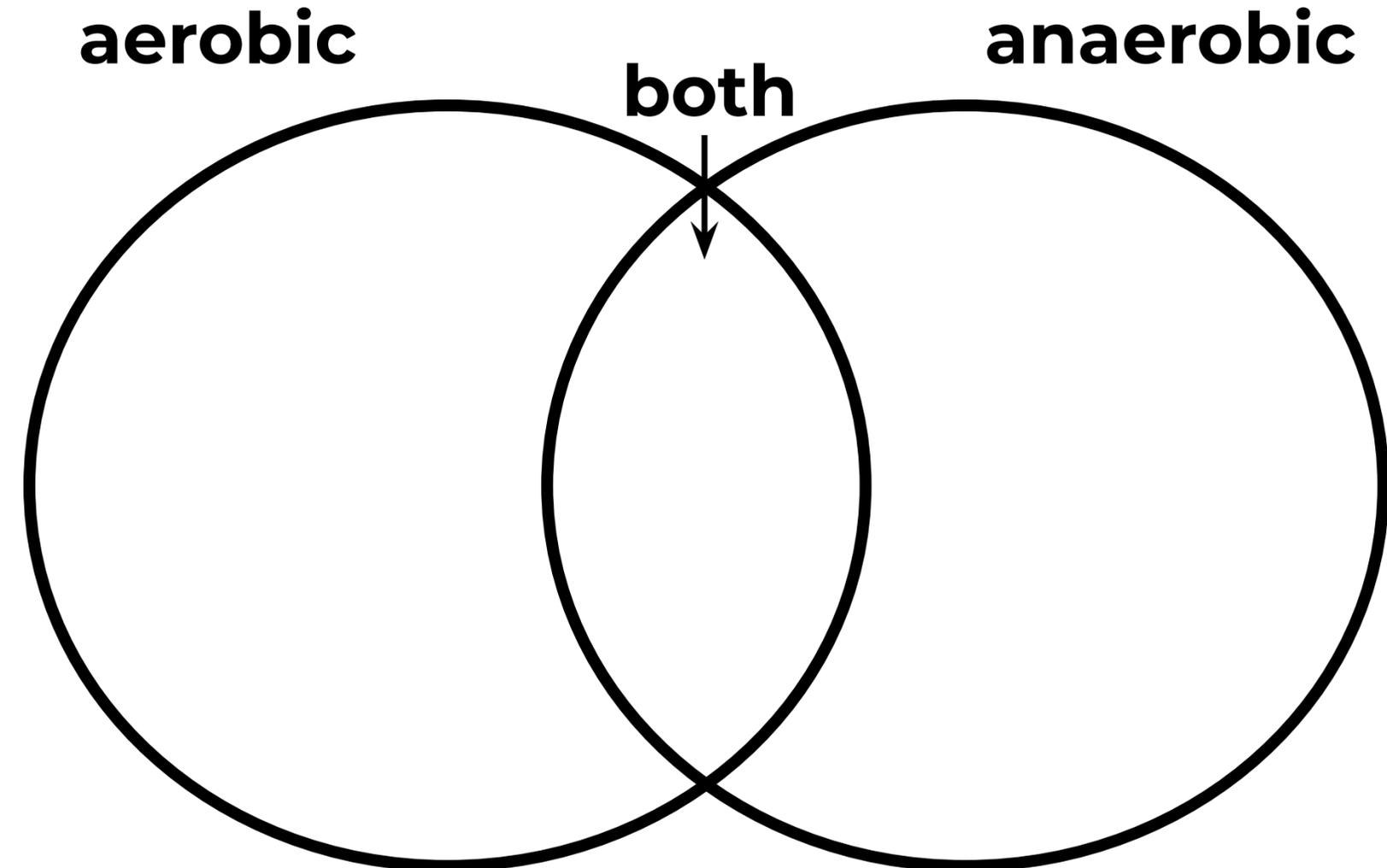
- The word equation for aerobic respiration is:
Glucose + Oxygen → Carbon Dioxide + Water
- The word equation for anaerobic respiration in animals is:
Glucose → Lactic Acid
- The word equation for anaerobic respiration in yeast and plants is:
Glucose → Ethanol + Carbon Dioxide
- Aerobic respiration uses oxygen. Anaerobic respiration takes place when no oxygen is present
- Aerobic respiration releases a lot more energy than anaerobic respiration
- Aerobic respiration takes place in the mitochondria. Anaerobic respiration takes place in the cytoplasm.



Respiration Summary

Sort the statements into aerobic, anaerobic or both:

1. Produces lactic acid
2. Doesn't need oxygen
3. Requires glucose
4. Releases a lot of energy
5. Releases a little energy
6. Needs oxygen
7. Carbon dioxide and water produced
8. Energy released



Breathing - key facts!

	Inhalation	Exhalation
What happens to the diaphragm?	Contracts and flattens	Relaxes and becomes curved
What do the rib muscles do?	Contract	Relaxes
What happens to the rib cage?	Moves upwards and outwards	Moves downwards and inwards
How does the volume in the thorax change?	Increases	Decreases
What happens to the pressure inside the lungs?	Decreases	Increases
Does air rush in or out of the lungs?	Air rushes in	Air rushes out

- We calculate breathing rate by the following equation:

$$\text{breathing rate} = \text{number of breaths} / \text{time}$$



Review One - Mixed Questions

1. What would the breathing rate be for someone who takes 45 breaths in 4 minutes?
2. What are the 3 functions of the skeleton?
3. What is the word equation for aerobic respiration?
4. What is the word equation for anaerobic respiration in plants?
5. What is the word equation for anaerobic respiration animals?
6. How does oxygen get into the bloodstream?
7. How are the alveoli adapted for increased gas exchange?



Exam Style Question -

Heart attacks are caused by fatty deposits building up in the arteries

Explain how these blockages can lead to heart attacks... (4 marks)

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