

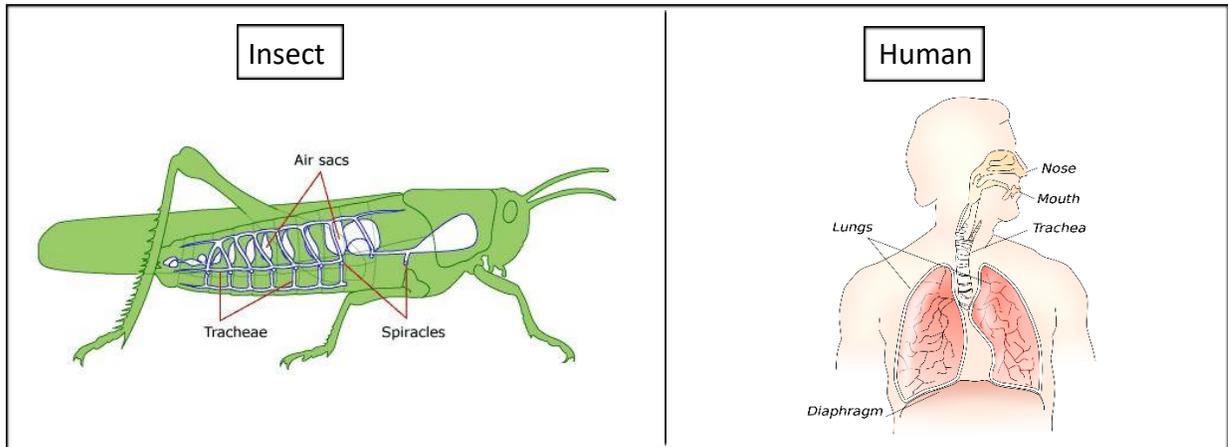


Name _____

Insect Structure

All animals, including insects, have multiple structural processes in place to keep the animal alive. These processes work together to sustain the insects that you are seeing today. Let's compare insect internal anatomy to ours to better understand these processes.

Respiration



Insects respire through spiracles using diffusion and a complex system of tracheae to oxygenate their cells. This system does not use hemolymph. Humans use their diaphragm to pull air into their body through the mouth and nose. They oxygenate their hemoglobin which then gets pumped throughout the body.

1. Explain Briefly. What are the similarities and differences between these two systems of respiration?

2. Using an insect that you learned about today as an example, name 1 advantage and 1 disadvantage of the insect's respiratory system.

3. List 1 advantage and 1 disadvantage of using hemoglobin to move oxygen throughout the body.



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1. Explain Briefly. What are the similarities and differences between these two systems of respiration?

Similarities: Insects and humans both use organs to store air. They both have tracheae to bring oxygen from the open into the body.

Differences: Insects use diffusion to bring air into the body and humans pull air into their lungs using the diaphragm. Insects use tracheae to move oxygen throughout the body to the cells. Humans use hemoglobin to transport oxygen throughout the body.

2. Using an insect that you learned about today as an example, name 1 advantage and 1 disadvantage of the insect's respiratory system.

Dragonfly

Advantage: The air sacs allow the insect to keep excess air in the body for when the insect is using more energy. They also allow insects to control the loss of moisture through the spiracles. They are able to close the spiracles in dry environments and still breathe.

Disadvantage: The tracheae need to diffuse oxygen to each individual cell. This limits the size of the insect.

3. List 1 advantage and 1 disadvantage of using hemoglobin to move oxygen throughout the human body.

Advantage: The use of hemoglobin can move oxygen throughout the body quickly and efficiently.

Disadvantage: The internal surface of the lungs are prone to drying out due to the fact we are warm-blooded.