



GAS EXCHANGE IN HUMAN LUNGS

Student's worksheet

Names:

Class:

Aim: to analyze the importance of alveoli and to explain respiration process.

1st task - read about the structure of human lungs. Then scan the QR-code to open the model about alveoli.

The main part of the lungs consists of alveolar sacs. Alveoli have a thin membrane surrounded by a network of capillaries, and they are filled with air. The alveolar membrane is the gas exchange surface.



Observe the model in augmented reality. To do that, you need to click on the



(Android devices) or

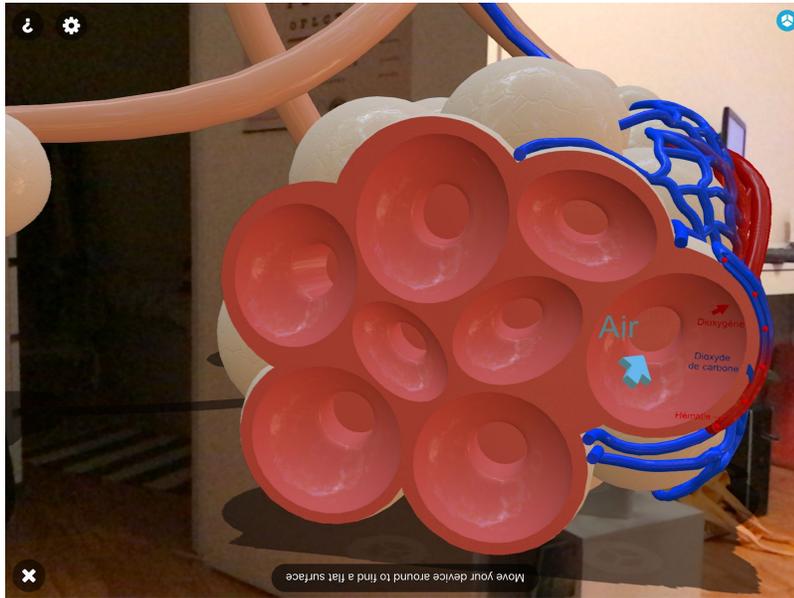


(Apple devices) button.



2nd task - observe the structure and function of alveoli and answer to five questions.

Turn the model so that you have the following view:



air – light blue arrow; oxygen – red arrow; carbon dioxide – dark blue arrow; blood – red spheres

1. Where is the network of capillaries located?
2. From where to where does the carbon dioxide move?
3. From where to where does the oxygen move?
4. What is the importance of alveoli?
5. How is breathing related to the bloodstream?

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3rd task - discuss with your group members what happens if large amount of alveoli get damaged. Please make sure that all of your group members have the opportunity to speak. Then write down your opinion in one sentence.

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GAS EXCHANGE IN HUMAN LUNGS

Teacher's worksheet

Aim: to analyze the importance of alveoli and to explain respiration process.

Duration: 15-20 minutes.

Background information:

- 1) students must be divided into groups (3-4 members in each group);
- 2) Sketchfab app and a QR-code reader must be downloaded in the devices (Apple devices must use the camera to scan the QR-code, no additional QR-code reader needed).

Materials: printed student worksheets, devices (phones or tablets) - at least two devices and one worksheet for one group.

Tasks on student's worksheet:

1st task - students read about the structure of human lungs. Then they need to scan the QR-code to open the model about alveoli.

The main part of the lungs consists of alveolar sacs. Alveoli have a thin membrane surrounded by a network of capillaries, and they are filled with air. The alveolar membrane is the gas exchange surface.



Model:

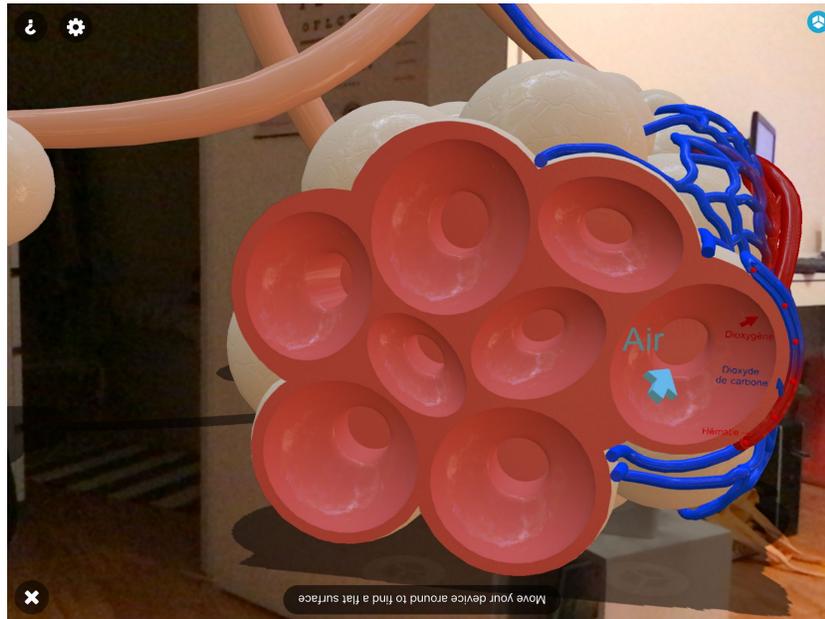
<https://sketchfab.com/3d-models/alveole-pulmonaire-17ce41e8a00d416384d54072653908db>

They need to observe the model in augmented reality. To do that, they need to click on the  (Android devices) or  (Apple devices) button. If somehow the model does not open after clicking on the AR button, then they should click on the settings and turn off the shadows (“AR Flood Shadow”).

To open the model in an Apple device, camera must be used to scan the QR-code.

2nd task - observe the structure and function of alveoli and answer to five questions.

They need to turn the model so that they have the following view:



air – light blue arrow; oxygen – red arrow; carbon dioxide – dark blue arrow; blood – red spheres



1. Where is the network of capillaries located? *It is located on the alveoli.*
2. From where to where does the carbon dioxide move? *From blood to alveoli.*
3. From where to where does the oxygen move? *From alveoli to capillaries.*
4. What is the importance of alveoli? *This is where gas exchange between the lungs and blood takes place.*
5. How is breathing related to the bloodstream? *Oxygen and carbon dioxide are constantly moving between alveoli and capillaries, providing oxygen for the cells and giving away carbon dioxide.*

3rd task - students discuss with their group members what happens if large amount of alveoli get damaged. Please make sure that all of the group members have the opportunity to speak. Then they write down their opinion in one sentence.

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