

Chemicals & Human Health
Lung Toxicology Problem Set: Student Sheet

Directions

1. Answer the pre-questions.
2. Go to the website www.biology.arizona.edu/chh and click on the link to the Lung Toxicology Problem Set.
3. Write the correct answer in the column labeled Correct Answer. All of the answers can be found in the Lung Toxicology Problem Set.
4. Explain the correct answer.

Pre-Questions (circle the answer you think is correct)	Correct Answer (write the letter of the correct answer from the website)	Explain (explain the correct answer)
Which of the following is NOT found in the human lung? A. bronchiole B. trachea C. bronchi D. alveoli		Draw a picture and label the parts of the lung:
Which of the following is the smallest part of the lung where gas exchange occurs? A. bronchiole B. trachea C. bronchi D. alveoli		Approximately how many are there in the human body:
Which of the following alveolar cell types clean particles deposited in the lungs? A. macrophages B. epithelium type I C. epithelium type II D. fibroblasts E. capillaries		Draw a picture that includes all of the cell types and label:
One of the primary functions of the alveoli is to create a large surface area in the lungs. Why is a large surface area so important?		Explain:

<p>A. for energy storage B. to remove toxins from the blood C. to store oxygen for future use D. for gas exchange E. for the krebs cycle</p>		
<p>When do the alveoli develop in lungs in humans?</p> <p>A. during the first 1-2 years of life B. in the 1-5th week of pregnancy C. between 3 and 5 years of age D. during the last 6 weeks of pregnancy E. continually throughout a person's lifetime</p>		<p>Describe the stages of lung development:</p> <p>*Bonus Question: How do you think second-hand smoke may affect a child? Explain</p>
<p>Which of the following causes the most deaths in the US?</p> <p>A. AIDS B. motor vehicles C. homicide D. smoking E. alcohol</p>		<p>How is that attributed to the most deaths?</p>
<p>Which statement do you agree with?</p> <p>A. Environmental tobacco smoke (ETS), also known as second-hand smoke, has LESS toxic compounds than directly inhaled tobacco smoke. B. Environmental tobacco smoke (ETS), also known as second-hand smoke, has MORE toxic compounds than directly inhaled tobacco smoke.</p>		<p>Explain why.</p> <p>About how many toxic compounds are in cigarette smoke?</p>

<p>What is PM10?</p> <p>A. the number of packs per day that cause lung cancer in 10% of the population</p> <p>B. particles which are small enough to be deposited in the lungs</p> <p>C. a measure of the amount of pollen in a certain volume of air</p> <p>D. a measure of the severity of an asthma attack</p>		<p>How does this hurt the lungs?</p>
<p>Oxidants are one toxic component of cigarette smoke. Why are they dangerous?</p> <p>A. They block surfactant secretion so that alveoli collapse.</p> <p>B. They block the oxygen carrying capacity of hemoglobin.</p> <p>C. They cause cilia to quit beating so lungs get clogged with particles.</p> <p>D. They can damage the DNA of lung cells much like the sun damages skin cells.</p>		<p>What disease can be the end result of this damage?</p>
<p>Asthma is caused by decreased airflow in and out of the lungs due to:</p> <p>A. small abnormalities in airways</p> <p>B. reversible bronchial spasms</p> <p>C. destruction of alveolar walls</p> <p>D. allergic reaction in lung tissues</p>		<p>List three responses in the lung that cause asthma.</p> <p>What is a “trigger?” List 2 examples.</p>