Name _____ Date _____ Class _____

Enrich

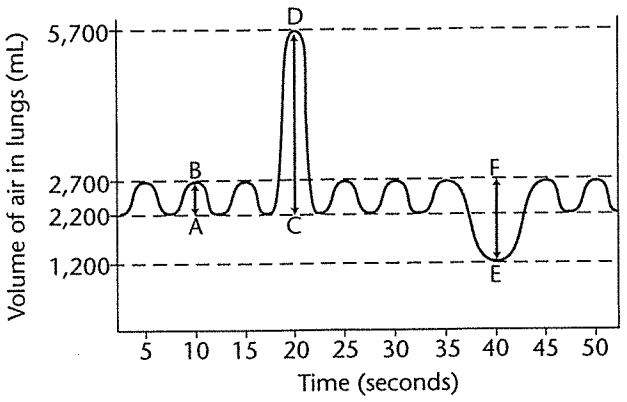
The Respiratory System

Read the passage and study the diagram. Then use a separate sheet of paper to answer the questions that follow.

Analyzing a Spirogram

The volume of air in the lungs increases as a person inhales and decreases as a person exhales. A *spirogram* is a graph of the volume of air in a person's lungs over time. Look at the spirogram shown below. Where the line of the graph moves upward the person is inhaling, and where the line of the graph moves downward the person is exhaling.

The first three breaths on the spirogram show normal breathing. During the fourth breath, however, the person inhaled as much air into his or her lungs as possible. The next two breaths show normal breathing again. Then, during the seventh breath, the person exhaled as much air from his or her lungs as possible.



1. During one cycle of breathing, a person begins to inhale, finishes inhaling, then begins to exhale, and finally finishes exhaling. What part of this cycle does a peak on the graph represent? What part of this cycle does a low point on the graph represent?
2. What is the total volume of air in the lungs after the person inhales during a normal breath? What is the volume after the person exhales during a normal breath?
3. What volume of air does the person inhale during a normal breath? This volume is represented by the line AB on the spirogram.
4. What is the maximum volume of air that can be inhaled after a normal exhalation? This volume is represented by the line CD on the spirogram.
5. What is the maximum volume of air that can be exhaled after a normal inhalation? This volume is represented by the line EF on the spirogram.

Name _____ Date _____ Class _____

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Smoking and Your Health

Read the passage. Then use a separate sheet of paper to answer the questions that follow.

Analyzing Smoking Costs

Each year people in the United States spend billions of dollars on cigarettes. However, the cost of the cigarettes themselves is not the only price that smokers pay. Smoking can also result in huge medical costs.

Each pack of cigarettes sold in the United States is taxed. These taxes are used to help run the national and state governments. Some of these taxes go toward government-sponsored health programs.

Data from 2008–2009 indicate the following costs for a single pack of cigarettes.

Average cost	$5.14
Federal tax	$1.01
Average state tax	$1.34
Smoke-related health costs	$10.28

1. About how many times more are smoke-related health costs than the average cost of a pack of cigarettes?
2. Suppose that all of the taxes on cigarettes were used to pay for smoking-related health costs. How much more money per pack would still have to be spent on health costs related to smoking?
3. What percentage of the total amount spent on a pack of cigarettes went toward taxes?
4. Do you think taxes on cigarettes should be higher or lower? Explain your reasoning.

Place the outside corner, the corner away from the bottom line, in the corner of your copy machine to copy onto letter-size paper.

Name _____ Date _____ Class _____

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The Excretory System

Read the passage and study the table. Then use a separate sheet of paper to answer the questions that follow.

Urinalysis

The table below lists some common urine tests, their possible results, and what these results indicate. Testing for the presence of protein, glucose, ketones, and nitrite involves chemical analysis. These tests are usually performed by dipping into the urine a strip of paper or plastic called a dipstick. There is a specific kind of dipstick for each type of test. If the dipstick changes color, the patient has the condition being tested. Testing for the presence of red and white blood cells is performed by looking at a urine sample with a microscope. Red and white blood cells are visible when magnified if they are present.

Test	Results	Condition Indicated by Test Results
color and texture	pale to dark yellow	normal
	foamy	presence of a protein
	red or red-brown	presence of red blood cells
presence of protein	slight color change in dipstick	kidney disease
	major color change in dipstick	severe kidney disease
presence of glucose	dipstick changes color	diabetes
presence of ketones	dipstick changes color	severe diabetes
presence of nitrite	dipstick changes color	bacteria in urine
presence of red blood cells	cells visible	kidney disease
presence of white blood cells	cells visible	bacteria in urine

1. A patient's urine tests positive for glucose and ketones. What do these results indicate?
2. The dipstick test for protein show a slight color change. What does this indicate?
3. A patient's urine test shows the presence of nitrite. What does this indicate? What other test could you perform to confirm this result?
4. Dipstick tests for protein, glucose, and nitrite show no color change. What do these results indicate?