Measuring Time Through the Ages

A. Fill in the Blanks

1. The breakdown of food in the cell to release energy is called _____.
2. Yeast can survive in the absence of air; they are known as _____.
3. The large, muscular sheet that forms the floor of the chest cavity is the _____.
4. Insects have a network of air tubes called _____ for gas exchange.
5. The accumulation of _____ in muscles causes cramps.

B. Match the Following;

Match the animal in Column A with its primary respiratory organ/structure in Column B.

Column A	Column B
1. Fish	A. Lungs
2. Earthworm	B. Spiracles and Tracheae
3. Human	C. Moist Skin
4. Frog	D. Gills
5. Cockroach	E. Lungs and Moist Skin

C. Practice Problems

Answer the following questions in the space provided.

1. What is the difference between breathing and cellular respiration?
2. Describe what happens to your ribs and diaphragm when you inhale.
3. How do fish breathe underwater? Explain the role of gills.
4. Why is it important for an earthworm's skin to be moist?
5. What are the end products of aerobic respiration? (Write the word equation).
6. Name the tiny, balloon-like structures in the lungs where the exchange of gases takes place.
7. How do insects, like a cockroach, get oxygen to their body cells?
8. What is anaerobic respiration? Give one example of an organism that performs it.
9. Why do you sometimes get muscle cramps after a long and strenuous run?

10. Trace the path of air from your nostrils to the lungs. Nostrils → _____ → _____ → Bronchi → Lungs

D. Warm-up Questions

Answer these quick questions to get your brain working!

1. What is the main gas that we take in from the air when we breathe?
2. What is the main waste gas that we release when we breathe out?
3. What are the primary respiratory organs in human beings?
4. The process of taking air into the lungs is called .
5. The process of expelling air from the lungs is called

E. Challenge Questions

Think critically to answer these questions.

1. A frog is an amphibian that can breathe through both its skin and its lungs. When do you think it would rely more on its skin for breathing, and when would it rely more on its lungs? Justify your answer.
2. Mountaineers climbing very high peaks like Mount Everest often need to carry oxygen cylinders. Why is this necessary?
3. Explain why it is not advisable to sleep in a small, completely sealed room with a charcoal fire burning inside.
4. What would happen to a fish if it were taken out of water? Explain why it cannot breathe in the air despite being surrounded by oxygen.
5. Yeast is used in the baking industry to make bread rise. This process involves respiration. What type of respiration is it, and what product makes the dough rise?

F. Word Problems & Application

Apply your knowledge to these real-world scenarios.

1. An athlete finishes a 400-meter sprint and is breathing heavily. Her leg muscles are aching. What substance has likely built up in her muscles, and why?
2. You take a test tube filled with limewater (a chemical that turns milky in the presence of carbon dioxide) and blow air into it through a straw. What change will you observe and what does it prove?
3. Why do you tend to yawn when you are feeling drowsy or bored?
4. If an insecticide is sprayed on a cockroach that blocks its spiracles, how will it affect the insect?

5. A doctor uses a stethoscope to listen to a patient's chest. What two main sounds related to the respiratory system is the doctor listening for?

G. True or False

1. During exhalation, the ribs move up and outwards. _____
2. Earthworms breathe through their lungs. _____
3. Plants respire only at night. _____
4. Breathing and cellular respiration are the same process. _____
5. Oxygen is carried in the blood by a pigment called hemoglobin. _____