

# LAB 5 CELLULAR RESPIRATION

## ANSWERS

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**What is cellular respiration question and answer?** It's the process of breaking down food materials within the cell to produce energy and then trapping that energy for ATP production. The process occurs in the cytoplasm and mitochondria of the cell. It is a catabolic process.

**What is the effect of germination versus non-germination on pea seed respiration?** The germinating peas need more ATP and thus will do more cellular respiration and consume more oxygen. As a result, the volume of oxygen in the pipette should decrease as time goes on. The non-germinating peas are not actively using ATP and therefore should not consume any oxygen.

**What factors affect cellular respiration lab answers?** The first three key factors affecting cellular respiration are temperature, glucose levels, and oxygen levels. The rate of respiration may vary depending on these factors. Additional factors that may affect cellular respiration are cell type, pH, light availability, carbon dioxide levels, and water content.

**Why was it necessary to correct the readings from the seeds with readings from the beads?** Because respirometers are sensitive to changes in gas volume, they are also sensitive to changes in temperature and air pressure; thus, students need to use a control respirometer containing nonliving matter (e.g., glass beads) instead of germinating seeds to measure and correct for changes in temperature and pressure.

**What is respiration question answers?** The transfer of oxygen from the outside environment to cells within tissues, as well as the removal of carbon dioxide in the

opposite way, is referred to as respiration. It is a biological reaction that takes place within the cells of living organisms.

**What is the cellular respiration quizlet?** Cellular respiration is the process of oxidizing food molecules, like glucose, to carbon dioxide and water. The energy released is trapped in the form of ATP for use by all the energy-consuming activities of the cell. Where does cellular respiration occur? In eukaryotes, glycolysis occurs in the cytosol..

**Do germinating seeds respire faster?** Although students should see several patterns in the combined results, the clearest pattern will be that seeds emerging from dormancy have higher respiration rates. Because all seeds require water for germination, seeds soaked over night or for a few hours before class typically have higher respiration rates.

**Why do germinating seeds consume more oxygen than dry seeds?** Cellular respiration rates increase to accommodate the cell-building activities required to break open the seed and produce the initial root and stem structures. There is a high rate of consumption of oxygen in seeds that are germinating as they are living and need extra oxygen to grow.

**Which is more actively undergoing cellular respiration, a germinating or a non-germinating pea?** Cellular respiration is more active in germinating peas rather than non-germinating peas due to the amount of oxygen.

**Why do germinating peas respire more than dry peas?** During germination, the stored nutrients in dry peas are broken down to provide energy for the seedling's metabolic processes. As a result, more cellular respiration takes place to convert the stored nutrients into usable energy (ATP).

**What is the main form of energy used in cells?** Adenosine triphosphate (ATP) is the source of energy for use and storage at the cellular level. The structure of ATP is a nucleoside triphosphate, consisting of a nitrogenous base (adenine), a ribose sugar, and three serially bonded phosphate groups.

**Why do germinating seeds undergo cellular respiration?** It is necessary for germinating seeds to undergo cellular respiration in order to acquire the energy they

need for growth and development. Unlike their mature relatives, seeds do not yet have the necessary photosynthetic abilities needed to produce their own energy sources.

**What is the effect of germination vs nongermination on pea seed respiration?**

The germinated peas would have a higher respiration rate because respiration provides them energy needed for them to germinate and grow.

**Why do non-germinating seeds consume less oxygen?** Germinating seeds have a higher metabolic rate and needed more oxygen for growth and survival, non-germinating peas needed to consume less oxygen for continued subsistence.

**What is the difference between germinated and non germinated peas?** The affect of germination on the rate of cell respiration in peas is that in peas that are germinated, the rate of cell respiration is higher because the cells are growing/going through mitosis which requires energy/ATP in order to be carried out which is generated through the process of cellular respiration.

**What is cellular respiration answers?** Cellular respiration is a series of chemical reactions that break down glucose to produce ATP, which may be used as energy to power many reactions throughout the body.

**What is respiration \_\_\_\_\_ \*?** Respiration is a metabolic process that occurs in all organisms. It is a biochemical process that occurs within the cells of organisms. In this process, the energy (ATP-Adenosine triphosphate) is produced by the breakdown of glucose which is further used by cells to perform various functions.

**Is cellular respiration biology?** Cellular respiration is the process by which biological fuels are oxidized in the presence of an inorganic electron acceptor, such as oxygen, to drive the bulk production of adenosine triphosphate (ATP), which contains energy.

**What is the cellular respiration formula?** When using chemical formulas, it is important to make sure the atoms on the left and right are balanced as nothing is created or destroyed in the process.  $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ATP$  is the complete balanced chemical formula for cellular respiration.

**How are photosynthesis and cellular respiration connected?** Photosynthesis makes glucose which is used in cellular respiration for making ATP. The glucose is then transformed back into carbon dioxide, which is used in photosynthesis. It helps cells to release and store energy. It maintains the atmospheric balance of carbon dioxide and oxygen.

**What is cellular respiration in one word?** Cellular respiration is the process by which cells derive energy from glucose. The chemical reaction for cellular respiration involves glucose and oxygen as inputs, and produces carbon dioxide, water, and energy (ATP) as outputs.

**What are the three phases of the cellular respiration process?** The reactions of cellular respiration can be grouped into three stages: glycolysis (stage 1), the Krebs cycle, also called the citric acid cycle (stage 2), and electron transport (stage 3). Figure below gives an overview of these three stages, which are further discussed in the concepts that follow.

**How does temperature affect cellular respiration?** Yes, to a point. Temperature increases the rate of cellular respiration until the ideal temperature is reached. After that, enzymes begin to denature and the overall rate of cellular respiration decreases.

**How does cellular respiration work in plants?** In summary, cellular respiration is a process that cells use to make energy. Plant cells use oxygen and glucose to make ATP, or cellular energy, and carbon dioxide.

**What is cellular respiration in short answer?** Cellular respiration is the process by which cells derive energy from glucose. The chemical reaction for cellular respiration involves glucose and oxygen as inputs, and produces carbon dioxide, water, and energy (ATP) as outputs.

**What is cellular respiration 7th grade answer?** Cellular respiration is the process by which organisms use oxygen to break down food molecules to get chemical energy for cell functions. Cellular respiration takes place in the cells of animals, plants, and fungi, and also in algae and other protists.

**What is cellular respiration also known as?** Cellular respiration or internal respiration is a chemical process in which food molecules are broken down into simpler molecules within the cells and energy is produced. Enzymes take part in the process of cellular respiration.

**What does cellular respiration always require?** Because oxygen is required for cellular respiration, it is an aerobic process. Cellular respiration occurs in the cells of all living things, both autotrophs and heterotrophs. All of them catabolize glucose to form ATP.

**What is the cellular respiration formula?** When using chemical formulas, it is important to make sure the atoms on the left and right are balanced as nothing is created or destroyed in the process.  $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{ATP}$  is the complete balanced chemical formula for cellular respiration.

**What is ATP in cellular respiration?** Adenosine triphosphate (ATP) is the source of energy for use and storage at the cellular level. The structure of ATP is a nucleoside triphosphate, consisting of a nitrogenous base (adenine), a ribose sugar, and three serially bonded phosphate groups.

**What is cellular respiration for dummies?** Cellular respiration is a series of chemical reactions that break down glucose to produce ATP, which may be used as energy to power many reactions throughout the body. There are three main steps of cellular respiration: glycolysis, the citric acid cycle, and oxidative phosphorylation.

**What are the 5 importances of respiration?** Respiration is important as it produces energy this is crucial for the ordinary functioning of the body. Respiratory affords cells with oxygen and expels poisonous carbon dioxide. The BBC notes that cells want energy for movement, multiplication, the synthesis of critical molecules and retaining body temperature.

**What is the process of respiration?** The lungs and respiratory system allow us to breathe. They bring oxygen into our bodies (called inspiration, or inhalation) and send carbon dioxide out (called expiration, or exhalation). This exchange of oxygen and carbon dioxide is called respiration.

**What is respiration class 5?** Respiration is the process that all living things go through to create the energy they need to live. This happens in the cells so it is also called cellular respiration. It usually involves exchanging two gases—oxygen and carbon dioxide. The cells take in oxygen and release carbon dioxide.

**What are the 4 stages of cellular respiration?** Cellular respiration is a metabolic pathway that breaks down glucose and produces ATP. The stages of cellular respiration include glycolysis, pyruvate oxidation, the citric acid or Krebs cycle, and oxidative phosphorylation.

**What is cellular respiration quizlet?** cellular respiration definition. The process of converting glucose into a form of energy (ATP) that is useable by cells.

**How do cells use oxygen?** Cells need oxygen for the efficient use of glucose in cellular respiration. Most organisms use this method to obtain energy. Oxygen binds to parts of glucose molecules, which release water, carbon dioxide, and energy. After all, this is done, the organism uses the energy to produce adenosine triphosphate (ATP).

**What are the 4 things about cellular respiration?** Cellular respiration is a metabolic pathway that allows cells to take apart food molecules and use their atoms as an energy source. This pathway takes electrons from food molecules and transfers them to oxygen, has energy transferred to ATP and arranges molecules into water, carbon dioxide and waste.

**What are the three products of cellular respiration?** Cellular respiration takes place within cells, in the cytoplasm and the mitochondria. All cells need energy, so all cells do cellular respiration, including both plant and animal cells. The products of cellular respiration are energy (or ATP), carbon dioxide, and water.

**What organelle does cellular respiration take place in?** The mitochondrion is the main organelle where cellular respiration occurs.

**Sunday 0:00**

In the dead of night, as the clock struck midnight, a solitary figure entered the dimly lit diner. Despite the late hour, the air crackled with anticipation as the customer

approached the counter.

**5:00**

With a voice as smooth as molasses, the customer placed their order: "I'll have the beef, please."

### **At the Counter**

The waitress, her eyes heavy with exhaustion, dutifully repeated the order. "Beef, got it."

### **Please**

As the customer waited for their meal, they couldn't help but wonder why they had chosen to visit this diner at such an ungodly hour. Perhaps it was the allure of the warm glow that emanated from the windows, or the promise of a hearty meal to soothe their weary souls.

### **Beef**

Finally, the order arrived, a steaming plate of tender beef smothered in gravy. As they savored each bite, the customer felt a sense of contentment wash over them. The diner may have been empty, but the food was just what they needed to end their long and eventful day.

## **The Hazard Communication Answer Book: The Employer's Guide to GHS and the New Hazard Communication Standard**

The Hazard Communication Standard (HCS) is a critical regulation that helps protect workers from exposure to hazardous chemicals. The Globally Harmonized System of Classification and Labeling of Chemicals (GHS) is a worldwide system that standardizes the way chemicals are classified and labeled.

**Question:** What are the key changes in the HCS that employers need to know about?

**Answer:** The revised HCS includes several key changes, including the adoption of GHS hazard classification criteria, standardized label elements, and safety data

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sheets (SDSs). These changes ensure that hazard information is consistent and easy to understand across workplaces.

**Question:** What are the benefits of using GHS?

**Answer:** GHS promotes global trade by harmonizing hazard communication worldwide. It makes it easier for workers to understand the hazards of chemicals, regardless of where they are located. GHS also reduces the risk of misclassification and mislabeling of chemicals.

**Question:** What are the employer's responsibilities under the revised HCS?

**Answer:** Employers must ensure that their workplaces are in compliance with the revised HCS. This includes updating hazard communication programs, training employees on the new requirements, and maintaining current SDSs for all hazardous chemicals.

**Question:** What resources are available to help employers comply with the revised HCS?

**Answer:** The Occupational Safety and Health Administration (OSHA) provides a wealth of resources to help employers comply with the revised HCS, including the "Hazard Communication Answer Book: The Employer's Guide to GHS and the New Hazard Communication Standard." This book provides comprehensive guidance on the revised HCS and answers many common questions about GHS.

### **Conclusion:**

The revised HCS and GHS are essential tools for protecting workers from exposure to hazardous chemicals. By understanding the new requirements and using the available resources, employers can effectively implement these regulations and ensure a safe and healthy workplace.

### **Trouble with Lichen: John Wyndham's Post-Apocalyptic Vision**

John Wyndham's seminal novel, "Trouble with Lichen," presents a haunting vision of a post-apocalyptic world, where a devastating virus has decimated humanity. The surviving fragments of civilization are left to grapple with the encroaching threat of a



strange and enigmatic organism known as lichen.

### **What is Lichen?**

Lichen is a unique composite organism that comprises a symbiotic union between fungi and algae or cyanobacteria. In Wyndham's novel, it exhibits unusual properties that pose a significant threat to the environment and the remnants of humanity.

### **What is the Trouble with Lichen?**

In "Trouble with Lichen," the virus that ravaged humanity has also mutated lichen, transforming it into a highly aggressive form. This lichen rapidly spreads across the land, enveloping and suffocating everything in its path. It blocks sunlight, preventing photosynthesis, and poisoning the atmosphere.

### **What are the Consequences of Lichen's Dominance?**

The dominance of lichen has catastrophic consequences for the survivors. Crops fail, famine ensues, and the ecosystem collapses. The surviving humans are forced to live in small, isolated settlements, struggling to eke out a meager existence amidst the hostile environment.

### **How does Lichen Challenge Humanity's Destiny?**

Wyndham's novel explores the profound implications of lichen's presence on humanity's future. As the lichen spreads, it forces the survivors to confront their own mortality and the fragility of civilization. The question arises: can humanity adapt and survive in a world where nature itself has turned against them?

### **Conclusion:**

"Trouble with Lichen" is a thought-provoking and chilling vision of a world where the boundaries between humanity and nature are blurred. Through the enigmatic and menacing presence of lichen, Wyndham challenges readers to consider the resilience of both species and the delicate balance that sustains life on Earth.

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