

## Cellular Respiration Adaptive Quiz (8th Grade)

### The Teacher Prompt:

Create an adaptive quiz on cellular respiration for 8th graders that:

1. Starts with 5 fundamental concept questions that all students should answer

### The Student Prompt:

2. Based on student performance, automatically branch to either:

- Remedial questions that break down concepts students struggled with
- Advanced questions that push high-performing students further

3. Provide immediate feedback after each question

4. End with a personalized study plan based on students specific performance

**\*\* The blue color prompt should be used by the teacher and it can be prompted to any AI tool such as ChatGPT, Claud, Copilot or Gemini**

**\*\* The purple prompt should be used by the student and should also include an uploaded student response to their cellular respiratory assignment. It can be prompted to any AI tool such as ChatGPT, Claud, Copilot or Gemini**

### The Output (for the teacher prompt):

#### Cellular Respiration Adaptive Quiz (8th Grade)

##### Fundamental Concept Questions (All Students Must Answer)

1. **What is the main purpose of cellular respiration?**
  - A) To produce oxygen
  - B) To break down glucose and release energy
  - C) To store energy as glucose
  - D) To create carbon dioxide
2. **Which organelle is responsible for cellular respiration in eukaryotic cells?**
  - A) Chloroplast

- B) Nucleus  
C) Mitochondria  
D) Ribosome
3. **Which of the following is a reactant in cellular respiration?**  
A) Oxygen  
B) Water  
C) Carbon dioxide  
D) ATP
4. **What is the main energy molecule produced during cellular respiration?**  
A) DNA  
B) Glucose  
C) ATP  
D) Starch
5. **Which type of organisms perform cellular respiration?**  
A) Only plants  
B) Only animals  
C) All living organisms  
D) Only bacteria
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### Adaptive Pathways

- **If a student gets 4 or 5 correct:** They move on to **Advanced Questions**.
  - **If a student gets 3 or fewer correct:** They receive **Basic Review Questions** to reinforce their understanding.
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### Basic Review Questions (For Students Who Scored 3 or Fewer)

6. **Which gas is needed for aerobic cellular respiration?**  
A) Nitrogen  
B) Oxygen  
C) Carbon dioxide  
D) Hydrogen
7. **Where does cellular respiration mainly take place?**  
A) Cytoplasm  
B) Nucleus  
C) Mitochondria  
D) Golgi apparatus
8. **What are the products of cellular respiration?**  
A) Oxygen and glucose

- B) Carbon dioxide, water, and ATP
  - C) Sunlight and ATP
  - D) Oxygen and ATP
9. **Which process produces more ATP: aerobic or anaerobic respiration?**
- A) Aerobic respiration
  - B) Anaerobic respiration
  - C) Both produce the same amount
  - D) Neither produces ATP
10. **What simple sugar is broken down in cellular respiration?**
- A) Starch
  - B) Glucose
  - C) Protein
  - D) Nucleic acid
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#### Advanced Questions (For Students Who Scored 4 or 5)

6. **Which stage of cellular respiration produces the most ATP?**
- A) Glycolysis
  - B) Krebs cycle
  - C) Electron transport chain
  - D) Fermentation
7. **How many ATP molecules are produced in aerobic cellular respiration from one glucose molecule?**
- A) 2
  - B) 18
  - C) 36-38
  - D) 100
8. **What role does oxygen play in cellular respiration?**
- A) It helps break down glucose
  - B) It is a final electron acceptor in the electron transport chain
  - C) It provides energy directly to the mitochondria
  - D) It is not involved in respiration
9. **Which of these is a difference between aerobic and anaerobic respiration?**
- A) Aerobic uses oxygen; anaerobic does not
  - B) Anaerobic produces more ATP
  - C) Only anaerobic occurs in humans
  - D) Aerobic happens only in plants
10. **Which of the following is a product of fermentation in muscle cells?**
- A) Lactic acid
  - B) Alcohol

- C) Oxygen
- D) ATP