




Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

1 **Glucose molecules** that are produced by **green plants** can be

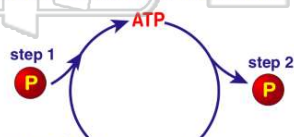


**A** converted into starch by dehydration synthesis and stored in roots  
**B** converted into cellulose by hydrolysis and stored in leaves  
**C** used as catalysts for metabolic activity  
**D** used as a raw material for photosynthesis

2 One way **human skeletal muscles** and some **bacteria** are **similar** is that they both

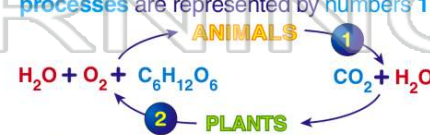
**A** reproduce asexually, using binary fission and regeneration  
**B** lack a nuclear membrane surrounding the chromosomes  
**C** carry out autotrophic nutrition when food becomes scarce in the environment  
**D** produce lactic acid when oxygen is not available for respiration

3 The diagram below represents part of the process of **cellular respiration**. Energy is **released** and made available for metabolic activities at



**A** step 1, only  
**B** step 2, only

4 In the material cycle shown below, which **processes** are represented by **numbers 1 & 2?**




**A** 1 – excretion, 2 – respiration  
**B** 1 – transpiration, 2 – excretion



## PREVIEW

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**B** structural components known as grana  
**C** enzymes necessary for carbon-fixation reactions  
**D** components known as mitochondria



Carbon dioxide + water + O<sub>2</sub> + ATP

Which **raw material**, represented by letter **X**, is needed for the stage 1 reaction to occur?

**A** chlorophyll      **C** PGAL  
**B** nitrogen        **D** C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>

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**Stage 1**  
 $X + 2 \text{ ATP} \rightarrow 2 \text{ pyruvic acid} + 4 \text{ ATP}$

**Stage 2**  
 $2 \text{ pyruvic acid} + \text{ oxygen} \rightarrow \text{ carbon dioxide} + \text{ water} + 34 \text{ ATP}$

What is the **net gain in ATP** from the two stages of this metabolic process?

**A** 40      **C** 34  
**B** 36      **D** 30

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**Stage 1**  
 $X + 2 \text{ ATP} \rightarrow 2 \text{ pyruvic acid} + 4 \text{ ATP}$

**Stage 2**  
 $2 \text{ pyruvic acid} + \text{ oxygen} \rightarrow \text{ carbon dioxide} + \text{ water} + 34 \text{ ATP}$

Which substance plays a major role in most of the **chemical reactions** that occur in a living cell?

**A** water      **C** glycerol  
**B** glycogen   **D** maltose



## ANSWER KEY

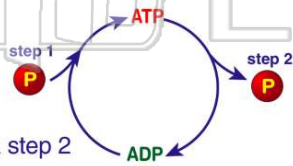
**Glucose molecules** that are produced by **green plants** can be



- A** converted into starch by dehydration synthesis and stored in roots
- B** converted into cellulose by hydrolysis and stored in leaves
- C** used as catalysts for metabolic activity
- D** used as a raw material for photosynthesis

(a)

The diagram below represents part of the process of **cellular respiration**. Energy is **released** and made available for metabolic activities at



- A** step 1, only
- B** step 2, only
- C** both step 1 & step 2

(b)

One way **human skeletal muscles** and some **bacteria** are **similar** is that they both

- A** reproduce asexually, using binary fission and regeneration
- B** lack a nuclear membrane surrounding the chromosomes
- C** carry out autotrophic nutrition when food becomes scarce in the environment
- D** produce lactic acid when oxygen is not available for respiration

(d)

In the material cycle shown below, which **processes** are represented by **numbers 1 & 2**?



- A** 1 – excretion, 2 – respiration
- B** 1 – transpiration, 2 – excretion
- C** 1 – photosynthesis, 2 – transpiration

(d)



## PREVIEW

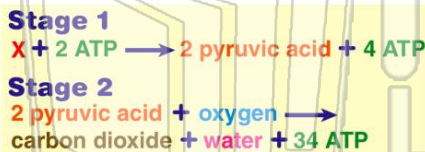
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- C** enzymes necessary for carbon-fixation reactions
- D** components known as mitochondria

(2) H<sub>2</sub>O

Which **raw material**, represented by letter X, is needed for the stage 1 reaction to occur?

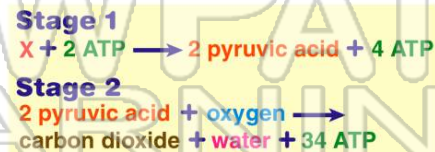
- A** chlorophyll
- B** nitrogen
- C** PGAL
- D** C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>



(b)

What is the **net gain in ATP** from the two stages of this metabolic process?

- A** 40
- B** 36
- C** 34
- D** 30



(a)

Which substance plays a major role in most of the **chemical reactions** that occur in a living cell?

- A** water
- B** glycogen
- C** glycerol
- D** maltose