

3. Cellular Energetics

Starter Quiz · 课前小测

AP Biology

Name: _____ Score: _____

1. An **enzyme** is a biological...
 - ☐ catalyst that speeds up a reaction
 - ☐ sugar for energy
 - ☐ type of fat
 - ☐ strand of DNA
2. The temperature at which an enzyme works fastest is its...
 - ☐ optimum temperature
 - ☐ freezing point
 - ☐ boiling point
 - ☐ activation energy
3. What is the main job of **ATP** in a cell?
 - ☐ to carry usable energy to where it is needed
 - ☐ to store genetic information
 - ☐ to build the cell wall
 - ☐ to digest food outside the cell
4. What does a plant use as raw materials for **photosynthesis**?
 - ☐ carbon dioxide, water, and light
 - ☐ oxygen and glucose
 - ☐ protein and salt
 - ☐ nitrogen and iron
5. What is the purpose of **cellular respiration**?
 - ☐ to release energy from glucose as ATP
 - ☐ to build glucose from CO₂
 - ☐ to store genetic information
 - ☐ to make the cell wall
6. The green pigment that absorbs light for photosynthesis is _____.

7. The first stage, splitting glucose in the cytoplasm, is called _____.

8. Enzymes speed up reactions by lowering the activation energy.
 - ☐ True
 - ☐ False
9. Each enzyme also has an optimum pH at which it works best.
 - ☐ True
 - ☐ False
10. ADP is recharged back into ATP using energy from respiration.
 - ☐ True
 - ☐ False

AP Biology

1. **catalyst that speeds up a reaction**

An **enzyme** is a biological **catalyst** — it speeds up a reaction without being used up.

2. **optimum temperature**

Each enzyme has an **optimum** temperature where it works fastest — often around body temperature.

3. **to carry usable energy to where it is needed**

ATP is the cell's energy currency — it delivers energy in small, usable packets.

4. **carbon dioxide, water, and light**

Photosynthesis uses carbon dioxide + water + light energy to make glucose and oxygen.

5. **to release energy from glucose as ATP**

Cellular **respiration** breaks down glucose to release energy as ATP.

6. **chlorophyll**

Chlorophyll in the chloroplasts captures the light energy that drives the whole process.

7. **glycolysis**

Glycolysis splits glucose into two pyruvate molecules and makes a small amount of ATP.

8. **True**

By lowering the **activation energy**, an enzyme lets the reaction happen faster and at body temperature.

9. **True**

The wrong pH also changes the active site's shape, so each enzyme has a best pH too.

10. **True**

Respiration provides the energy to add a phosphate back to ADP, remaking ATP.