3. Cellular Energetics

Starter Quiz ·

AP Biology Name: _____ Score: _____

1. An **enzyme** is a biological…
   - ☐ sugar for energy
   - ☐ catalyst that speeds up a reaction
   - ☐ strand of DNA
   - ☐ type of fat
2. The temperature at which an enzyme works fastest is its…
   - ☐ boiling point
   - ☐ optimum temperature
   - ☐ activation energy
   - ☐ freezing point
3. What is the main job of **ATP** in a cell?
   - ☐ to digest food outside the cell
   - ☐ to store genetic information
   - ☐ to build the cell wall
   - ☐ to carry usable energy to where it is needed
4. What does a plant use as raw materials for **photosynthesis**?
   - ☐ nitrogen and iron
   - ☐ carbon dioxide, water, and light
   - ☐ oxygen and glucose
   - ☐ protein and salt
5. What is the purpose of **cellular respiration**?
   - ☐ to release energy from glucose as ATP
   - ☐ to store genetic information
   - ☐ to build glucose from CO_2
   - ☐ to make the cell wall
6. Enzymes speed up reactions by raising the activation energy.

   ☐ True ☐ False

7. Each enzyme also has an optimum pH at which it works best.

   ☐ True ☐ False

8. ADP is recharged back into ATP using energy from respiration.

   ☐ True ☐ False

9. The green pigment that absorbs light for photosynthesis is _____.

   _____

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

    _____

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. **False**

   False. Enzymes lower the activation energy, so the reaction happens faster and at body temperature.

7. **True**

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

8. **True**

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

9. **chlorophyll**

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

10. **glycolysis**

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