

IB Biology A

Curriculum Guide for Unit 3: Cell Energetics

Essential Ideas:

- Photosynthesis uses the energy in sunlight to produce the chemical energy needed for life.
- Cell respiration supplies energy for the functions of life.

Understandings:

- Photosynthesis is the production of carbon compounds in cells using light energy.
- Visible light has a range of wavelengths with violet the shortest wavelength and red the longest.
- Chlorophyll absorbs red and blue light most effectively and reflects green light more than other colors.
- Oxygen is produced in photosynthesis from the photolysis of water.
- Energy is needed to produce carbohydrates and other carbon compounds from carbon dioxide.
- Temperature, light intensity and carbon dioxide concentration are possible limiting factors on the rate of photosynthesis.
- Cell respiration is the controlled release of energy from organic compounds.
- ATP from cell respiration is immediately available as a source of energy in the cell.
- Anaerobic cell respiration gives a small yield of ATP from glucose.
- Aerobic cell respiration requires oxygen and gives a large yield of ATP from glucose.

Skill:

- Separation of photosynthetic pigments by chromatograph.