

The FRAME Routine

Key Topic

Biogeochemical Cycles



is about...

the movement of matter and energy through processes that sustain life on Earth.

☐ Main idea

photosynthesis

☐ Main idea

Aerobic cellular respiration

☐ Main idea

Anaerobic cellular respiration

Basic function

Essential details

Converts radiant energy to chemical energy stored and used by plants

Essential details

Releases energy for growth, repair, and maintenance of cells

Essential details

Releases energy from glucose when no oxygen is present in cells

reactants

radiant energy, CO₂, H₂O

O₂, C₆H₁₂O₆

C₆H₁₂O₆, an e- acceptor

products

O₂, C₆H₁₂O₆

CO₂, H₂O, 38 ATP

2 ATP, lactic acid or ethanol, CO₂

The planet's living systems are powered by this process.

Why you breathe more rapidly when exercising and your heart beats faster.

The reason your muscles get sore after weightlifting

Extension: Create a Flipgrid video showing the three processes on the FRAME and describing how matter and energy flow through these processes.

So What? (What's important to understand about this?)

Energy and matter are conserved as they travel through the chemical reactions in photosynthesis, aerobic respiration, and anaerobic respiration.