

Unit 7 – Matter & Energy in Ecosystems

B2.1A

Explain how cells transform energy (ultimately obtained from the sun) from one form to another through the processes of photosynthesis and respiration. Identify the reactants and products in the general reaction of photosynthesis.

B2.1B

Compare and contrast the transformations of matter and energy during photosynthesis and respiration.

B2.5C

Describe how energy is transferred and transformed from the sun to energy-rich molecules during photosynthesis.

B3.1A Describe how organisms acquire energy directly or indirectly from sunlight.

B3.1B

Illustrate and describe the energy conversions that occur during photosynthesis and respiration. (Repeat from Unit 3)

B3.1C

Recognize the equations for photosynthesis and respiration and identify the reactants and products for both. (Repeat from Unit 3)

B3.1D

Explain how living organisms gain and use mass through the processes of photosynthesis and respiration.

B3.1e

Write the chemical equation for photosynthesis and cellular respiration and explain in words what they mean.

B3.2A

Identify how energy is stored in an ecosystem.

B3.2B

Describe energy transfer through an ecosystem, accounting for energy lost to the environment as heat.

B3.2B.a I can describe energy transfer through an ecosystem.

B3.2B.b I can use identify how energy is lost as heat to the environment.

B3.2B.c I can use an energy pyramid to describe how energy is lost as heat to the environment.

B3.2C

Draw the flow of energy through an ecosystem. Predict changes in the food web when one or more organisms are removed.

B3.3A

Use a food web to identify and distinguish producers, consumers, and decomposers and explain the transfer of energy through trophic levels.

B3.3b

Describe environmental processes (e.g., the carbon and nitrogen cycles) and their role in processing matter crucial for sustaining life.

B3.3b.a I can describe how living organisms (including plants) contribute to the carbon cycle
B3.3b.b I can describe how living organisms (including plants) contribute to the nitrogen cycle.