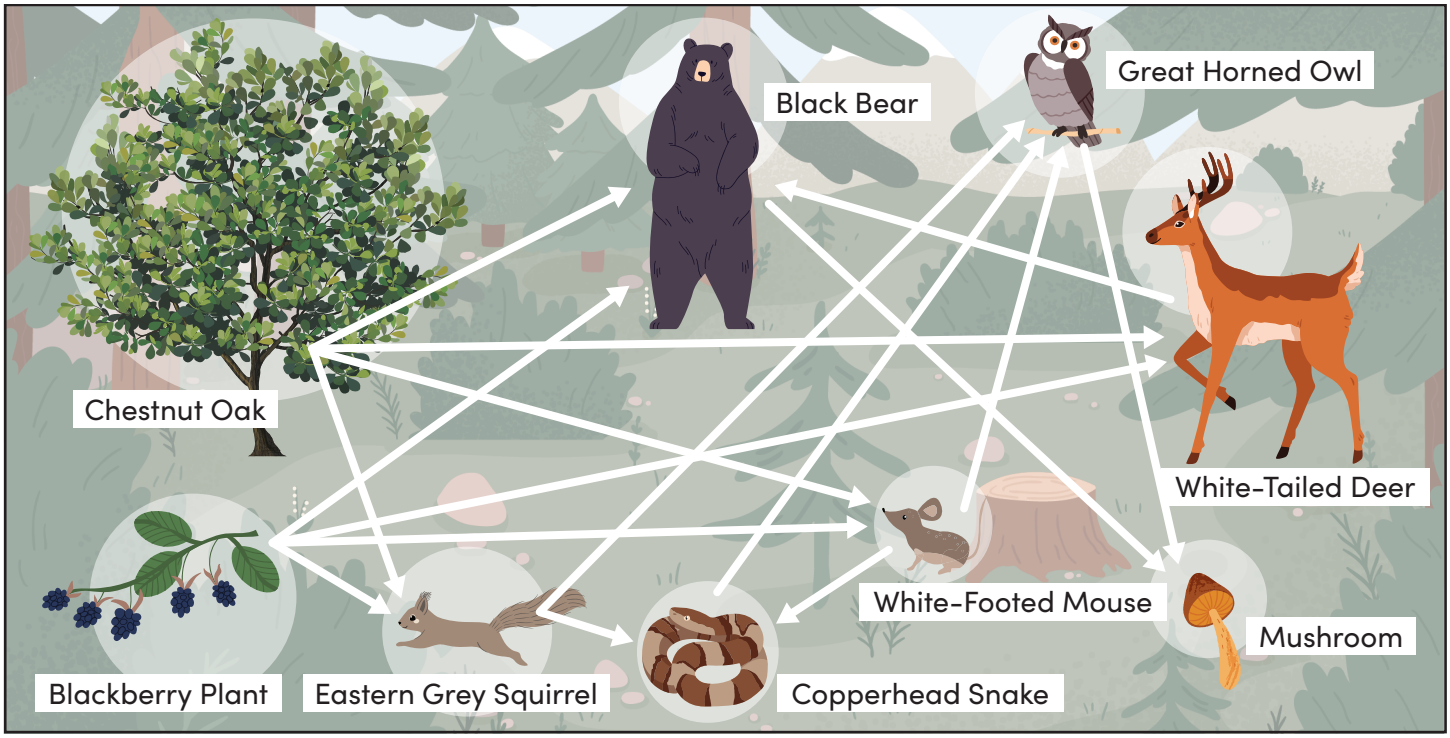
Name _____ Date _____ Answer Key

FOOD WEBS: CYCLING OF MATTER AND FLOW OF ENERGY

A **food web** is a map showing how matter and energy are transferred in an ecosystem. Use the food web of a temperate forest ecosystem to answer the questions.



1. Sort the organisms from the food web by writing their names in the appropriate column(s) of the table below. Some organisms will fit into multiple categories.

PRODUCERS	PRIMARY CONSUMERS	SECONDARY CONSUMERS	TERTIARY CONSUMERS	DECOMPOSERS
• Chestnut oak • Blackberry plant	• Eastern grey squirrel • Black bear • White-tailed deer • White-footed mouse	• Copperhead snake • Black bear • Great horned owl	• Great horned owl	• Mushroom

2. Plants make sugar during photosynthesis. Sugar is a carbon-containing molecule. Animals contain carbon molecules in their muscles. Describe one possible journey of a carbon molecule from carbon dioxide in the atmosphere to the muscle cell of a great horned owl.

(Sample answer) Chestnut oak trees take in carbon dioxide from the atmosphere to conduct photosynthesis and produce sugars. Eastern grey squirrels eat acorns from the oak tree. Some of the carbon-containing sugars from the acorns are used for energy, and some are broken down and used as materials for the squirrel's growth. Great horned owls hunt squirrels, and likewise use the carbon molecules from the squirrels for energy and growth, including muscle growth.

3. Explain how all living things, even black bears, ultimately get their energy from the sun.

(Sample answer) Photosynthesis is powered by sunlight, and it produces the sugars that producers store as energy. Primary consumers eat producers, secondary consumers eat primary consumers, and so on. Therefore, all energy sources that animals depend on for life processes can be traced back to energy from the sun.