Flow of Matter in Ecosystems Map (p. 77)

- Plants use the energy from light to make sugars from carbon dioxide and water. (S01)
- Carbon and hydrogen are common elements of living matter. (J01)
- Air is a substance that surrounds us and takes up space. (K01)
- Most living things need water, food, and air. (K02)
- Plants and animals both need to take in water, and animals need to take in food. In addition, plants need light. (S01)
- Almost all kinds of animals need food. (S01)

**Flow of Matter**

- From the chemical elements that make up the molecules of living things pass through food webs, and are combined and rearranged in different ways. At each link in a food web, some energy is stored in newly made structures but much is dissipated into the environment as heat. Continual input of energy from sunlight keeps the process going. (S03)
- At times, environmental conditions are such that plants and marine organisms grow faster than decomposers can recycle them back to the environment. Layers of energy-rich organic material have been gradually turned into great coal beds and oil wells. (S01)
- Over a long time, matter is transferred from one organism to another repeatedly and between organisms and their physical environment. As in all material systems, the total amount of matter remains constant, even though its form and location change. (S01)
- The cycles continue indefinitely because organisms are decomposed after death to return food materials to the environment. (S04)
- Insects and various other organisms depend on food plant and animal material for food. (S01)
- Over the whole earth, organisms are growing, dying, decaying, and new organisms are being produced by the old ones. (S03)
- Food provides molecules that serve as fuel and building materials for all organisms. (S01)
- The idea of atoms explains the conservation of matter if the number of atoms stays the same no matter how the same atoms are rearranged, then their total mass stays the same. (J01)
- Atoms may stick together to form well-defined molecules, or may be pushed together to form large atoms. Different arrangements of atoms into groups compose all substances. (J01)
- Conservation of Matter

**Conservation of Matter**

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- Plants and animals both need to take in water, and animals need to take in food. In addition, plants need light. (S01)
- Almost all kinds of animals need food. (S01)
- From food, people obtain energy and materials for body repair and growth. (S01)
- Insects and various other organisms depend on food plant and animal material for food. (S01)
- Over the whole earth, organisms are growing, dying, decaying, and new organisms are being produced by the old ones. (S03)