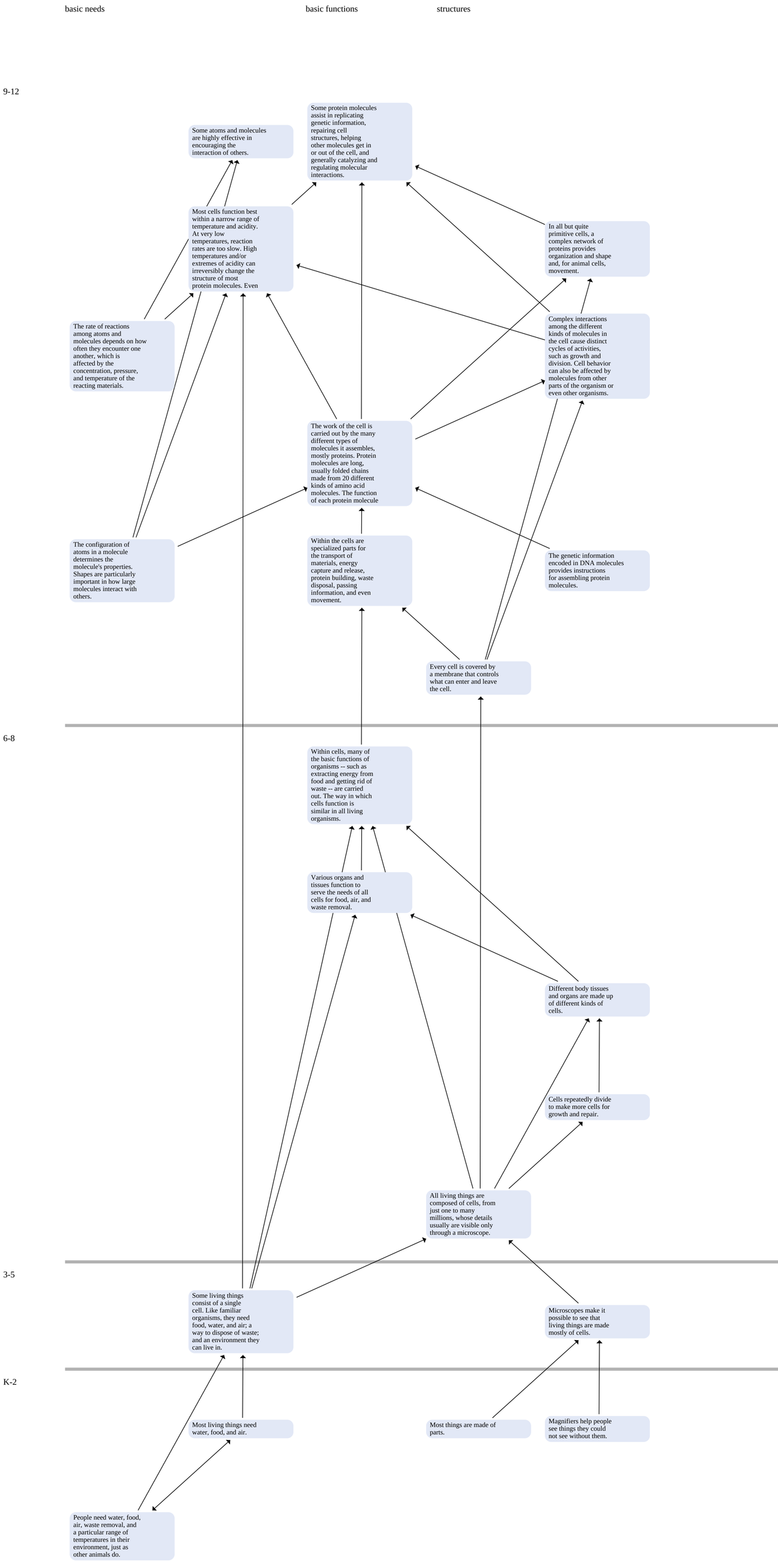
basic needs
basic functions
structures
9-12
Some protein molecules assist in replicating genetic information, repairing cell structures, helping other molecules get in or out of the cell, and generally catalyzing and regulating molecular interactions.
Some atoms and molecules are highly effective in encouraging the interaction of others.
Most cells function best within a narrow range of temperature and acidity. At very low temperatures, reaction rates are too slow. High temperatures and/or extremes of acidity can irreversibly change the structure of most protein molecules. Even
In all but quite primitive cells, a complex network of proteins provides organization and shape and, for animal cells, movement.
The rate of reactions among atoms and molecules depends on how often they encounter one another, which is affected by the concentration, pressure, and temperature of the reacting materials.
Complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. Cell behavior can also be affected by molecules from other parts of the organism or even other organisms.
The work of the cell is carried out by the many different types of molecules it assembles, mostly proteins. Protein molecules are long, usually folded chains made from 20 different kinds of amino acid molecules. The function of each protein molecule
The configuration of atoms in a molecule determines the molecule's properties. Shapes are particularly important in how large molecules interact with others.
Within the cells are specialized parts for the transport of materials, energy capture and release, protein building, waste disposal, passing information, and even movement.
The genetic information encoded in DNA molecules provides instructions for assembling protein molecules.
Every cell is covered by a membrane that controls what can enter and leave the cell.
6-8
Within cells, many of the basic functions of organisms -- such as extracting energy from food and getting rid of waste -- are carried out. The way in which cells function is similar in all living organisms.
Various organs and tissues function to serve the needs of all cells for food, air, and waste removal.
Different body tissues and organs are made up of different kinds of cells.
Cells repeatedly divide to make more cells for growth and repair.
All living things are composed of cells, from just one to many millions, whose details usually are visible only through a microscope.
3-5
Some living things consist of a single cell. Like familiar organisms, they need food, water, and air; a way to dispose of waste; and an environment they can live in.
Microscopes make it possible to see that living things are made mostly of cells.
K-2
Most living things need water, food, and air.
Most things are made of parts.
Magnifiers help people see things they could not see without them.
People need water, food, air, waste removal, and a particular range of temperatures in their environment, just as other animals do.