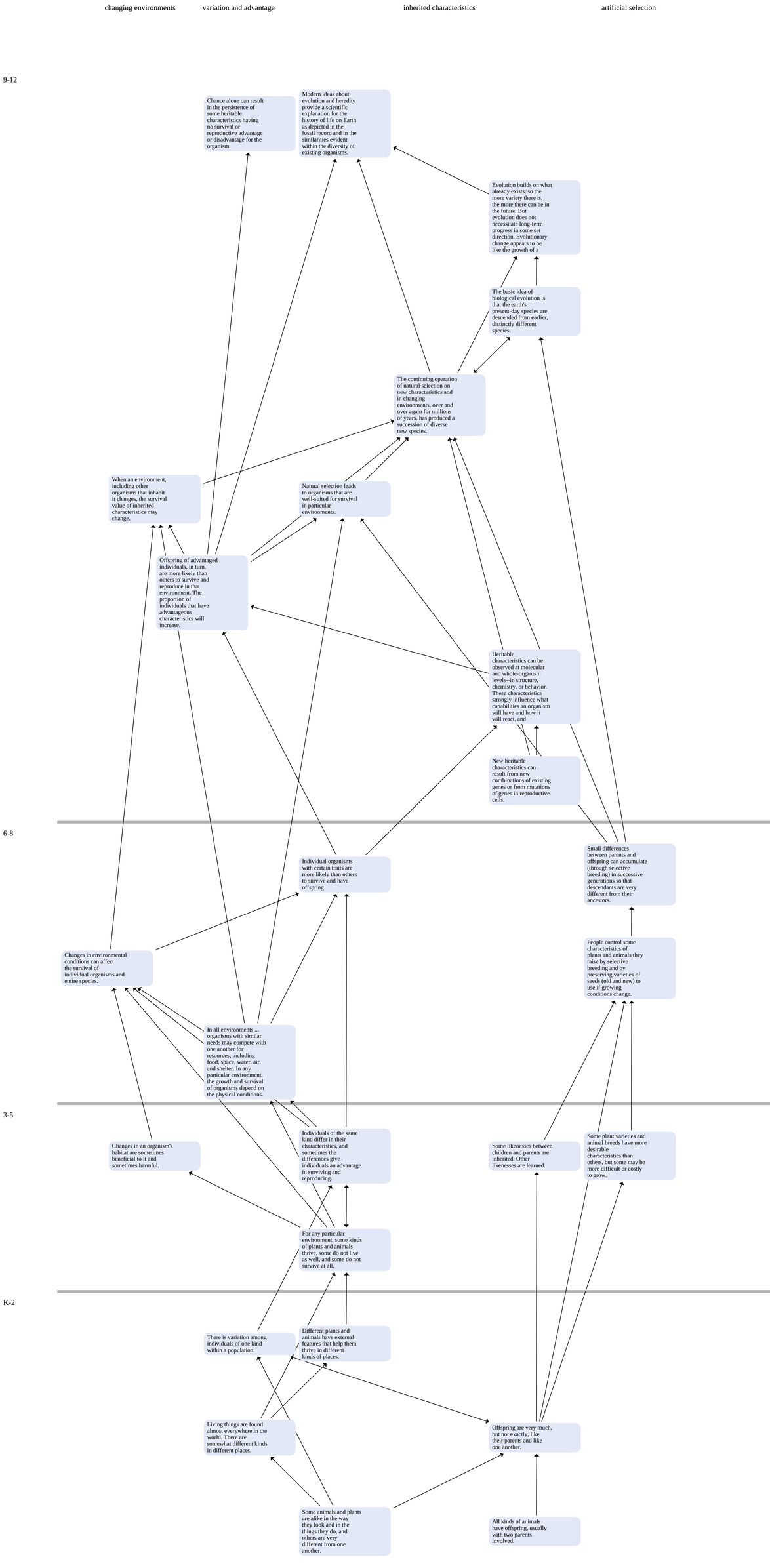
changing environments
variation and advantage
inherited characteristics
artificial selection
9-12
Chance alone can result in the persistence of some heritable characteristics having no survival or reproductive advantage or disadvantage for the organism.
Modern ideas about evolution and heredity provide a scientific explanation for the history of life on Earth as depicted in the fossil record and in the similarities evident within the diversity of existing organisms.
Evolution builds on what already exists, so the more variety there is, the more there can be in the future. But evolution does not necessitate long-term progress in some set direction. Evolutionary change appears to be like the growth of a
The basic idea of biological evolution is that the earth's present-day species are descended from earlier, distinctly different species.
The continuing operation of natural selection on new characteristics and in changing environments, over and over again for millions of years, has produced a succession of diverse new species.
When an environment, including other organisms that inhabit it changes, the survival value of inherited characteristics may change.
Natural selection leads to organisms that are well-suited for survival in particular environments.
Offspring of advantaged individuals, in turn, are more likely than others to survive and reproduce in that environment. The proportion of individuals that have advantageous characteristics will increase.
Heritable characteristics can be observed at molecular and whole-organism levels--in structure, chemistry, or behavior. These characteristics strongly influence what capabilities an organism will have and how it will react, and
New heritable characteristics can result from new combinations of existing genes or from mutations of genes in reproductive cells.
6-8
Individual organisms with certain traits are more likely than others to survive and have offspring.
Small differences between parents and offspring can accumulate (through selective breeding) in successive generations so that descendants are very different from their ancestors.
Changes in environmental conditions can affect the survival of individual organisms and entire species.
People control some characteristics of plants and animals they raise by selective breeding and by preserving varieties of seeds (old and new) to use if growing conditions change.
In all environments ... organisms with similar needs may compete with one another for resources, including food, space, water, air, and shelter. In any particular environment, the growth and survival of organisms depend on the physical conditions.
3-5
Changes in an organism's habitat are sometimes beneficial to it and sometimes harmful.
Individuals of the same kind differ in their characteristics, and sometimes the differences give individuals an advantage in surviving and reproducing.
Some likenesses between children and parents are inherited. Other likenesses are learned.
Some plant varieties and animal breeds have more desirable characteristics than others, but some may be more difficult or costly to grow.
For any particular environment, some kinds of plants and animals thrive, some do not live as well, and some do not survive at all.
K-2
There is variation among individuals of one kind within a population.
Different plants and animals have external features that help them thrive in different kinds of places.
Living things are found almost everywhere in the world. There are somewhat different kinds in different places.
Offspring are very much, but not exactly, like their parents and like one another.
Some animals and plants are alike in the way they look and in the things they do, and others are very different from one another.
All kinds of animals have offspring, usually with two parents involved.