New England Science Frameworks

Compiled by Jim Sirch, Education Coordinator, Yale Peabody Museum of Natural History

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Below are the current Science Standards for the New England states, with tie-ins, as closely as possible, to where the study of plants and botany are part of the science framework. Knowing these curricular connections will help non-formal educational institutions, e.g. nature centers, museums, zoos and more, cater their botanical programs to the standards. In an age of budget cuts, keying into the standards is critical in getting students to attend these institutions.

It was recently announced, as of 9/21/2011, that the states of Vermont, Maine and Massachusetts will be among a group of 20 states selected to lead an important effort to improve science education for all students.

Vermont, Maine and Massachusetts will help lead the development of Next Generation Science Standards (NGSS), which will clearly define the content and practices students will need to learn from kindergarten through high school. The NGSS process is being managed by Achieve, a non-profit, education-reform organization.

The development of the Next Generation Science Standards is a two-step process. The first step was the building of a framework that identified the core ideas and practices in natural sciences and engineering that all students should be familiar with by the time they graduate. In July, the National Research Council released A Framework for K-12 Science Education, developed by a committee representing expertise in science, teaching and learning, curriculum, assessment and education policy.

The second step is the development of science standards based on the A Framework. As a Lead State Partner, the states will guide the standard writing process, gather and deliver feedback from state-level committees and come together to address common issues and challenges. The Lead State Partners also agree to commit staff time to the initiative and, upon completion, give serious consideration to adopting the Next Generation Science Standards.

American students continue to lag internationally in science education, making them less competitive for the jobs of the present and the future. A recent U.S. Department of Commerce study shows that during the past 10 years, growth in Science, Technology, Engineering and Mathematics (STEM) jobs was three times greater than that of non-STEM jobs. The report also shows that STEM jobs are expected to continue to grow at a faster rate than other jobs in the coming decade.

VERMONT

June 31, 2011

The Living World – Life Science

S=Standard, number after colon = grade level; i.e. S34 = Standard for grades 3-4

S:34	Interdependence within Ecosystems	Students demonstrate their understanding of food webs In an ecosystem
S:38	Classification of Living Things	Students demonstrate their understanding of classification of organisms

S3-4:35
Students demonstrate their understanding of food webs in an ecosystem by:

- Recognizing that, in a food chain, all animals' food begins with plants.
- Researching and designing a habitat and explaining how it meets the needs of organisms that live there.

Science Concept:

1. Food for animals can be traced back to plants.
2. Organisms can survive best only in habitats in which their needs are met.

S5-6:35
Students demonstrate their understanding of a food web of a local aquatic or terrestrial environment.

Science Concept:
Food webs model the interdependent relationships that organisms engage in as they acquire their food and energy needs. Aquatic food webs are supported by microscopic plants and land food webs are supported by land plants.

S5-6:35
Students demonstrate their understanding of food webs in an ecosystem by developing a model for a food web of a local aquatic and local terrestrial environment.

S3-4:36
Students demonstrate their understanding of equilibrium in an ecosystem by explaining how one organism depends upon another organism to survive.
Classification of Living Things

SPK-K:38

Students demonstrate their understanding of classification of organisms by sorting and identifying examples of plants and animals.

Science concept:
Some living things are identified as plants or animals.

S3-4:38
Students demonstrate their understanding of classification of organisms by describing and sorting plants and animals into groups based on structural similarities and differences (e.g., all pine, spruce and coniferous trees have similar leaf structures; spiders have eight legs and insects have six.

Science Concept:
The great variety of living things can be sorted into groups in many ways using characteristics to describe which things belong to which group.

Natural Selection/Evolution

S3-4:39
Students demonstrate their understanding of natural selection/evolution by identifying differences in characteristics of a certain type of organism (e.g., dogs with long hair or short hair; humans with blue or brown eyes).

Science Concept:
Organisms of the same kind differ in their individual characteristics (traits) (e.g., even though all dogs are of the same species, they can have very different traits).

S5-6:39
Students demonstrate their understanding of natural selection/evolution by explaining, through engaging in simulations, how a variation in a characteristic (trait) enables an organism to survive; others, with less-advantageous traits, either move to new locations or die.

MAINE

2007

Science and Technology Section

E. The Living Environment

E. 1 Biodiversity

Performance indicators and descriptors

Grades 3-5

Students compare living things based on their behaviors, external features, and environmental needs.

a. Describe how living things can be sorted in many ways, depending on which features or behaviors are used to sort them, and apply this understanding to sort living things.
b. Describe the changes in external features and behaviors of an organism during its life cycle.

Grades 6-8

Students differentiate among organisms based on biological characteristics and identify patterns of similarity.

a. Compare physical characteristics that differentiate organisms into groups (including plants that use sunlight to make their own food, animals that consume energy- rich food, and organisms that cannot easily be classified as either.)
b. Explain how biologists use internal and external anatomical features to determine relatedness among organisms and to form the basis for classification *systems.*

RHODE ISLAND

March 2006

LS (Life Science)1. All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species.)

Grade span expectations (5-8)

LS1 (5-8) – INQ + SAE- 1 *Using data and observations about the biodiversity of an ecosystem make predictions or draw conclusions about how the diversity contributes to the stability of the ecosystem*

LS1 (5-6)-1 Students demonstrate understanding of biodiversity by…

1a.) Recognizing that organisms have different features and behaviors for meeting their needs to survive (e.g. fish have gills for respiration, mammals have lungs, bears hibernate.)

LS1 (7-8) -1 Students demonstrate understanding of biodiversity by…

1a.) Giving examples of adaptations or behaviors that are specific to a niche (role) within an ecosystem.

1b.) Explaining how organisms with different structures and behaviors have roles that contribute to each other's survival and the stability of the ecosystem.

LS1 (9-11) INQ + SAE + FAF – 1 *Use data and observation to make connections between, to explain, or to justify how specific cell organelles produce/regulate what the cell needs or what a unicellular or multi cellular organism needs for survival (e.g. protein synthesis, DNA replication, nerve cells).*

LS1 (9-11)-1 Students demonstrate understanding of structure and function-survival requirements by…

1bb.) Identify various specialized cells and common unicellular organisms in diagrams, photographs and/or microscopic slides.

LS1 All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, and species).

LS1- (5-8) SAE + FAF -2 *Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g. cells, tissues, organs, and systems).*

Ls1 (5-6)-2 Students demonstrate understanding of structure and function-survival requirements by…

2a.) Describing structures or behaviors that help organisms survive in their environment (e.g. defense, obtaining nutrients, reproduction, and eliminating waste)

LS1 (7-8)- 2 Students demonstrate understanding of structure and function-survival requirements by…

2c.) Observing, describing, and charting the growth, motion, responses of living organisms

LS1 All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species)

LS1 (K-4) POC -3 *Predict, sequence, or compare the life stages of organisms- plants and animals (e.g. put images of life stages of an organism in order, predict the next stage in sequence, compare two organisms).*

Grade span expectations (k-4)

LS1 (3-4)- 3 Students demonstrate an understanding of reproduction by…

3a.) Observing changes and recording data to scientifically draw and label the stages in the life cycle of a familiar plant and animal.

3b.) Sequencing the life cycle of a plant or animal when given a set of data/pictures

LS1 (5-8) POC-3 Compare and contrast sexual reproduction with asexual reproduction.

Grade span expectations (5-8)

LS1 (5-6) -3 Students demonstrate an understanding of reproduction by…

3c.) Investigating and comparing a variety of plant and animal life cycles

LS1 (7-8)-3 Students demonstrate an understanding of reproduction by…

3.b.) describing forms of asexual reproduction that involve the genetic contribution of only one parent (e.g. binary fission, budding, vegetative propagation, regeneration

3c.) Describing sexual reproduction as a process that combines genetic material of two parents to produce a new organism (e.g. sperm/egg, pollen/ova)

LS1 All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species)

LS1 (K-4) FAF -4 Identify and explain how the physical structures of an organism (plants or animals) allow it to survive in its habitat/environment (e.g. roots for water; nose to smell fire)

LSI (K-2) -4 Students demonstrate understanding of structure and function-survival requirements by..

4a.) Identifying the specific functions of the physical structures of a plant or an animal (e.g. roots for water; webbed feet for swimming)

LS1 (3-4) -4 Students demonstrate understanding of structure and function-survival requirements by..

4a.) Identifying and explaining how the physical structure/characteristics of an organism allows it to survive and defend itself (e.g. of a characteristic- the coloring of a fiddler crab allows it to camouflage itself in the sand and grasses of its environment so that it will be protected from predators)

4b.) Analyzing the structures needed for survival of populations of plants and animals in a particular habitat/environment (e.g. populations of desert plants and animals require structures that enable them to obtain/conserve/retain water.)

LS2- Matter cycles and energy flows through an ecosystem.

Grade span expectations (5-8)

LS2 (5-6)-5

Students demonstrate an understanding of equilibrium in an ecosystem by…

5a.) Identifying and defining an ecosystem and the variety of relationships within it (e.g. predator/prey, consumer/producer/decomposer, host/parasite, catastrophic events

LS2 (7-8)-5

Students demonstrate an understanding of equilibrium in an ecosystem by…

5a.) identifying which biotic (e.g. bacteria, fungi, plants, animals) and a biotic (e.g. weather, climate, light, water, temperature, soil composition. Catastrophic events) factors affect a given ecosystem.
5b.) analyzing how biotic and a biotic factors affect a given ecosystem
5c.) predicting the outcome of a given change in biotic and a biotic factors in an ecosystem
5d.) using a visual model (e.g. graph) to track population changes in an ecosystem

LS2 (9-11) INQ + SAE -3 *using data from a specific ecosystem, explain relationships or make predictions about how environmental disturbance (human impact or natural events) affects the flow of energy or cycling of matter in an ecosystem*

Grade span expectations (k-4)
LS2 (k-2)-6
Students demonstrate an understanding of food webs in an ecosystem by…
6a.) acting out or constructing simple diagrams (pictures or words) that shows a simple food web.
LS2 (3-4)-6
Students demonstrate an understanding of food webs in an ecosystem by…
6a.) Demonstrating in a food web that all animal's food begins with the sun
6b.) Using information about organisms to design a habitat and explain how the habitat provides for the needs of the organisms that live there
6c.) Explaining the way that plants and animals in that habitat depend on each other
LS2- Matter cycles and energy flows through an ecosystem
LS2 (5-8) SAE -7 *Given an ecosystem, trace how matter cycles among and between organisms and the physical environment (includes water, oxygen, food web, decomposition, recycling but not carbon cycle or nitrogen cycle*

Grade span expectations (5-8)
LS2 (5-6)-7
Students demonstrate an understanding of recycling in an ecosystem by…
7b.) Completing a basic food web for a given ecosystem
LS2 (7-8)-7
Grade span expectations (7-8)
Students demonstrate an understanding of recycling in an ecosystem by…
7b.) Developing a model for a food web of local aquatic and local terrestrial environments
7d.) Conducting a controlled investigation that shows that the total amount of matter remains constant, even though its form and location change as matter is transferred among and between organisms and the physical environment (e.g. bottle biology, mass of a closed system over time)

LS3 (k-4) SAE -7 Using information (data or scenario) explain how changes in the environment can cause organisms to respond (e.g. survive there and reproduce, move away, die)
Grade span expectations (k-4)

LS3 (5-8) MAS + FAF -8 *Use a model, classification system, or **dichotomous key** to illustrate, compare, or interpret possible relationships among groups or organisms (e.g. internal and external structures, anatomical features*
Grade span expectations (5-8)

LS3 (5-6) -8
Students demonstrate an understanding of classification of organisms by…

8a.)Stating the value of, or reasons for, classification systems
8b.) Following a taxonomic key to identify a given organism (e.g. flowering and non flowering plants)

LS3 (7-8) -8
Students demonstrate an understanding of classification of organisms by…
8a. Sorting organisms with similar characteristics into groups based on internal and external structures
8b.) Explaining how species with similar evolutionary histories/characteristics are classified more closely together with some organisms than others (e.g. a fish and human have more common with each other than a fish and jelly fish)
8c.) Recognizing the classification system used in modern biology

NEW HAMPSHIRE
June 2005

Science Process Skills

SPS1- Scientific Inquiry and Critical Thinking Skills

SELF DIRECTION
By the end of grade 2, all students will…
S:SPS4:2:7.1 Keep a visual or written journal.

By the end of grade 4, all students will apply skills from previous grades and …
S:SPS4:4:7.1 Keep a journal record of observations, recognizing patterns, summarizing findings, and reflecting on observations.

ACCOUNTABILITY & RESPONSIBILITY
By the end of grade 2, all students will…
S:SPS4:2:8.1 Take part in sharing information with another classroom or school as a group.

By the end of grade 4, all students will apply skills from previous grades and …
S:SPS4:4:8.1 Establish ongoing communication with students from other communities or countries to share and compare data.

SOCIAL RESONSIBILITY
By the end of grade 2, all students will…
S:SPS4:2:9.1 Collaborate, as a group, with another classroom or school.

By the end of grade 4, all students will apply skills from previous grades and …
S:SPS4:4:8.1 Establish ongoing communication with students from other communities or countries to share and compare data.

S:SPS4:4:9.1 Collaborate with other learners by letter, phone or online.

MAKING OBSERVATIONS & ASKING QUESTIONS
By the end of grade 6, all students will apply skills from previous grades and…
S:SPS1:6:1:5 Use a classification keys, such as a dichotomous key, to identify and distinguish among members of a group or set.

S:SPS1:6:1:6 Construct a simple dichotomous key.

S:SPS1:6:1:7 Compare methods of classification for a specific purpose.

By the end of grade 8, all students will apply skills from previous grades and …

S:SPS1:8:1:3 Investigate similarities and differences when making observations.

S:SPS1:8:1:4 Construct and use a dichotomous key to classify a given set of objects or organisms.

S:SPS1:8:1:5 Evaluate methods of classification for a specific purpose.

By the end of grade 11, all students will apply skills from previous grades and …

S:SPS1:11:1.2 Use complex classification criteria and keys to identify items/organisms.

S:SPS1:11:1.3 Evaluate complex methods of classification for a specific purpose.

S:SPS1:11:1.4 identify limitations of a given classification system and identify alternative ways of classifying to accommodate anomalies.

By the end of grade 6, all students will apply skills from previous grades and …

CONDUCTING SCIENTIFIC INVESTIGATIONS

S:SPS1:6:3:2 Use appropriate tools to collect and record data

By the end of grade 8, all students will apply skills from previous grades and …

REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS

S:SPS1:8:4.1 Use appropriate tools (including computer hardware and software) to collect , organize, represent, analyze and explain data.

SPS2-Unifying Concepts of Science

By the end of grade 6, all students will apply skills from previous grades and …

FORM AND FUNCTION

S:SPS2:6:5.2 Diagram and label the structure of the primary components of representative organs in plants and animals.

By the end of grade 8, all students will apply skills from previous grades and …

S:SPS2:8:5.1 Describe the relationship between structure and function in plants and animals

SPS3 – Personal, Social and Technological Perspectives

COMMON ENVIRONMENTAL ISSUES, NATURAL RESOURCES MANAGEMENT AND CONSERVATION
By the end of grade 6, all students will apply skills from previous grades and …
S:SPS3:6:2.3 Explore evidence that human-caused changes have consequences for the immediate environment as well as for other places and future times.

SPS4 – Science Skills for Information, Communication and Media Literacy

INTERPERSONAL AND COLLABORATIVE SKILLS
By the end of grade 8, all students will apply skills from previous grades and …
S:SPS4:8:6.2 Plan and develop team science projects.

S:SPS4:8:6.3 Articulate understanding of content through personal interaction and sharing with peers.

SELF DIRECTION
S:SPS4:8:7.1 Keep a journal of observations and investigations, and periodically evaluate entries to access progress toward achieving the understanding of key ideas.

COMMUNICATION SKILLS
By the end of grade 11, all students will apply skills from previous grades and …
S:SPS4:12:2.1 Select and use appropriate vocabulary to orally share and communicate scientific ideas, plans, results and conclusions resulting from investigations.

CREATIVITY AND INTELLECTUAL CURIOSITY
By the end of grade 11, all students will apply skills from previous grades and …
S:SPS4:12:5.1 Prepare multimedia presentations multimedia presentations, demonstrating a clear Sense of audience and purpose.

S:SPS4:12:5.2 Use electronic media to share information.

LIFE SCIENCE
LS1 – All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations & species).

Grades 3-4

CLASSIFICATION
S:LS1:4:1.1 Recognize and identify the various ways in which living things can be grouped.

S:LS1:4:1.2 Sort/classify living things using similar and different characteristics, and describe why organisms belong to each group or cite evidence about how they are alike or not alike.

LIVING THINGS AND ORGANIZATION

S:LS1:4:2.1 Recognize that living organisms have certain structures and systems that perform specific functions, facilitating survival, growth and reproduction.

S:LS1:4:2.2 Identify and describe the function of the plant structures responsible for food production, water transport, support, reproduction, growth and protection.

S:LS1:4:2.3 Identify and explain how the physical structures of an organism (plants or animals) allow it to survive in its habitat/environment (e.g. roots or water, nose to smell fire).

LS2 – Energy flows and matter recycles through an ecosystem.

RECYCLING OF MATERIALS

S:LS2:4:3.1 Recognize that plants and animals interact with one another in various ways besides providing food, such as seed dispersal or pollination.

S:LS2:4:3.2 Describe ways plants and animals depend on each other (shelter, nesting, food).

By the end of grade 8, all students will apply skills from previous grades and …

ENVIRONMENT

S:LS2:8:1.3 Using data and observations, predict outcomes when abiotic/biotic factors are changed in an ecosystem.

MASSACHUSETTS
October 2006

Life Science (Biology), Grades 3-5

Adaptations of Living Things

10. Give examples of how organisms can cause changes in their environment to ensure survival. Explain how some of these changes may affect the ecosystem

- Investigate how an invasive species changes the ecosystem
- Research local projects where humans are changing the environment to ensure a species' survival.

Life Science (Biology), Grades 6-8

Living Things and Their Environment

13. Give examples of ways in which organisms interact and have different functions within an ecosystem that enable the ecosystem to survive.

Standard #13

- Discuss the dispersal of pollen by bees and other insects and how it enables the reproduction and propagation of plants.
- Investigate the interactions of organisms in a local environment.

Standard #17

- Compare ecosystems with low and high biodiversity. Discuss the timeframes in which species have adapted to their environment.

See page 50 of the Massachusetts Science Curriculum Framework:

What It Looks Like In the Classroom
Adapted from a submission by Ellie Horowitz, MA Division of Fisheries and Wildlife

Biodiversity Days, Any Grade Level
There is a suggestion for schools to participate in Biodiversity Days, Any Grade Level. As an extension to the study of plants and animals, students can participate in Biodiversity Days, and investigate their schoolyards or join in a town wide effort. All of the information can be combined, scanned (My Plants would help here!), using digital cameras and computer software to create a school or town wide field guide. This data can be submitted and included in a statewide database. For more information about Biodiversity Days in Massachusetts, visit: http://www.maccweb.org/biodiversity_days.html

CONNECTICUT, 2010

Structure and Function — How are organisms structured to ensure efficiency and survival? **GRADE 2**			
2.2 — Plants change their forms as part of their life cycles.			
Core Science Curriculum Framework	**Grade-Level Concepts** *Students should understand that…*	**Grade-Level Expectations** *Students should be able to…*	**Assessment**
2.2.a. The life cycles of flowering plants include seed germination, growth, flowering, pollination and seed dispersal.	1. Flowering plants progress through a sequenced life cycle. First, seeds sprout (germinate), then seedlings grow into adult plants with leaves and flowers. If the flowers are pollinated, seeds develop that will grow into new plants to continue the life cycle. 2. Roots, stems, leaves, flowers and seeds are structures that develop during different stages of the plant's life cycle. 3. Seeds contain the beginnings of a new plant (embryo) and the food (energy source) the new plant needs to grow until it is mature enough to produce its own food. Different plant varieties produce seeds of different size, color and shape. 4. Environmental conditions, such as temperature, amount of light, amount of water and type of soil, affect seed germination and plant development. 5. A plant's seed will grow into a new plant that resembles but is not identical to the parent plant or to other new plants. For example, marigold plants produce marigold seeds that grow into new marigold plants. Individual marigolds,	1. Use senses and simple tools to observe and describe the roots, stems, leaves, flowers and seeds of various plants (including trees, vegetables and grass.) 2. Use magnifiers to observe and diagram the parts of a flower. 3. Describe the functions of roots, stems, leaves, flowers and seeds in completing a plant's life cycle. 4. Record observations and make conclusions about the sequence of stages in a flowering plant's life cycle.	**A19**. Describe the life cycles of flowering plants as they grow from seeds, proceed through maturation and produce new seeds. **A20**. Explore and describe the effects of light and water on seed germination and plant growth.

	however, vary in height, number of leaves, etc. 6. Seedlings are young plants that produce the structures that will be needed by the plant to survive in its environment: Roots and leaves begin to grow and take in nutrients, water and air; and the stem starts to grow towards sunlight. 7. Adult plants form more leaves that help the plant collect sunlight and air to make its food. They produce flowers that are the structures responsible for reproduction. 8. Flowers have structures that produce pollen, attract pollinators and produce seeds that can grow into new plants. Some flowers have structures that develop into fruits, berries or nuts that contain the seeds that can grow into new plants. 9. Some seeds fall to the ground and germinate close to the parent plant; other seeds are carried (dispersed) by wind, animals, or water to places far away. The structure of the seed is related to the way it is dispersed. **KEY CONCEPT WORDS:** life cycle, structures (body parts), seed, germinate, reproduce, flower, pollen, pollinator, seed dispersal	5. Compare and contrast how seeds of different plants are adapted for dispersal by water, wind or animals. 6. Conduct a fair test to explore factors that affect seed germination and plant growth.	

Heredity and Evolution — What processes are responsible for life's unity and diversity? **GRADE 3**			
3.2 — Organisms can survive and reproduce only in environments that meet their basic needs.			
Core Science Curriculum Framework	**Grade-Level Concepts** *Students should understand that…*	**Grade-Level Expectations** *Students should be able to…*	**CMT Expected Performances**
3.2.a. Plants and animals have structures and behaviors that help them survive in different environments.	1. Plants and animals have physical and behavioral adaptations that allow them to survive in certain environments. Adaptations are passed from parents to offspring. Individuals that happen to be bigger, stronger or faster can have an advantage over others of the same kind for finding food and mates. 2. Animals have behavioral and structural adaptations for getting food. Structural adaptations include things such as specialized teeth for tearing meat or grinding grasses; specialized beaks for cracking seeds, snatching insects, tearing meat or spearing fish; sharp claws for grasping; keen sense of smell, or long, sticky tongues for reaching food. Behavioral adaptations include actions such as following herds of prey animals, spinning webs or stalking. 3. Animals have behavioral and structural adaptations for protection from predators. Some animals have camouflage that allows them to stay concealed by blending in with their surroundings; some animals look like other animals to avoid being eaten. Structural adaptations include things such as sharp quills, hard shells or antlers. Behavioral adaptations include actions such as staying absolutely still, producing a bad odor, appearing or sounding scary, or fleeing. 4. Animals have behavioral and structural adaptations for surviving harsh environmental conditions. Animals that live in cold climates have insulating body coverings such as blubber, down or thick undercoats that keep	7. Compare and contrast the external features and behaviors that enable different animals and plants (including those that are extinct) to get food, water and sunlight; find mates; and be protected in specific land and water habitats. 8. Explain how behaviors such as hibernation, dormancy and migration give species advantages for surviving unfavorable environmental conditions.	**B3**. Describe how different plants and animals are adapted to obtain air, water, food and protection in specific land habitats. **B4**. Describe how different plants and animals are adapted to obtain air, water, food and protection in water habitats.

	them warm. Animals that live in hot climates keep cool by releasing heat from big ears or by panting, or by living underground. Some animals survive seasonal changes by slowing down body functions (hibernating in dens, tunnels or mud) or moving to more favorable conditions (migrating). 5. Plants have adaptations for getting the sunlight they need to survive. Examples include growing or facing toward sunlight and sending out chutes or tendrils to get taller than neighboring plants. 6. Plants have adaptations for protection from predators. Examples include spines, thorns and toxins (for example, poison ivy). 7. Plants have adaptations for surviving in different environmental conditions. Examples include dropping leaves in winter when sunlight and water are limited, having needle-shaped leaves that shed snow, or surviving drought by storing water in thick stems. **KEY CONCEPT WORDS:** adaptation, advantage, camouflage, hibernation, migration	9. Give examples of ways animals benefit from camouflage. 10. Evaluate whether an adaptation gives a plant or animal a survival advantage in a given environment. 11. Design a model of an organism whose adaptations give it an advantage in a specific environment.	