

## **Minnesota Education Standards Addressed by Classes at Long Lake Conservation Center\***

### Along the Portage (Voyageurs)

Social Studies Standards Addressed:

- ❖ Grades 4-8 MN History; B: Students will describe how early explorers and fur traders affected the development of Minnesota.

### Alpha Wolf

Science Standards Addressed:

- ❖ 5.1.1.1.1 Explain why evidence, clear communication, accurate record keeping, replication by others, and openness to scrutiny are essential parts of doing science.
- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.
- ❖ 9.4.2.1.1. Describe factors that affect the carrying capacity (the maximum population of a given species that can survive in a defined area)of an ecosystem and relate these to population growth.

### Archery

Science Standards Addressed:

- ❖ 5.2.2.1.3 Demonstrate that a greater force on an object can produce a greater change in motion.
- ❖ 6.2.2.2.1 Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.

Physical Education Standards Addressed:

- ❖ Grade 6; Standard 6: Students will seek personally challenging experience in physically active opportunities. Participate in a physical activity that you have never tried.

### Go Bats

Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.
- ❖ 7.4.2.1.2 Compare and contrast the roles of organisms with the following relationships: predator/prey, parasite/host, and producer/consumer/decomposer. Producer (any kind of green plant i.e. )/Consumer(any organism that cannot make it's own food i.e. frugivore, nectivore) Decomposer (breaks down dead organisms)

### Beaver Gnawin' Again

Science Standards Addressed:

- ❖ 5.1.1.2.1 Generate a scientific question and plan an appropriate scientific investigation, such as systematic observations, field studies, open-ended exploration or controlled experiments to answer the question.
- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.

- ❖ 7.4.2.1.2 Compare and contrast the roles of organisms with the following relationships: predator/prey, parasite/host, and producer/consumer/decomposer.

### Birding Basics

Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.
- ❖ 5.1.1.2.1 Generate a scientific question and plan an appropriate scientific investigation, such as systematic observations, field studies, open-ended exploration or controlled experiments to answer the question.

### Bog Trek

Science Standards Addressed:

- ❖ 5.3.1.2.1 Explain how slow processes, such as water erosion, and rapid processes, such as landslides and volcanic eruptions, form features of the Earth's surface. (Glaciation)
- ❖ 8.3.1.2.2 Explain the role of weathering, erosion, and glacial activity in shaping Minnesota's current landscape.
- ❖ 7.4.2.1.1 Identify a variety of populations and communities in an ecosystem (biological environment consisting of all the organisms living in a particular area) and describe the relationships among the populations and communities in a stable ecosystem.
- ❖ 7.4.2.1.3 Explain how the number of populations an ecosystem can support depends on the biotic (living factors) resources available as well as abiotic (non-living) factors such as amount of light and water, temperature range and soil composition .
- ❖ 7.4.2.2.2 Describe the roles and relationships among producers, consumers and decomposers (break down dead organisms) in changing energy from one form to another in a food web within an ecosystem.
- ❖ 7.4.4.1.2 Describe ways that human activities can change the populations and communities in an ecosystem.

### Canoeing

Science Standards Addressed:

- ❖ 5.2.2.1.2 *Identify the force* that starts something moving or changes its speed or direction of motion.
- ❖ 6.2.2.2.1 Recognize that when the forces acting on an object are balanced, the object remains at rest or continues to move at a constant speed in a straight line, and that unbalanced forces cause a change in the speed or direction of the motion of an object.

Physical Education Standards Addressed:

- ❖ Grade 6; Standard 6: Students will seek personally challenging experience in physically active opportunities. Participate in a physical activity that you have never tried.

### Can't See the Tree Through the Forest

Science Standards Addressed:

- ❖ 7.4.1.1.1 Recognize that all cells do not look alike and that specialized cells in multicellular organisms are organized into tissues and organs that perform specialized functions.

- ❖ 7.4.2.2.1 Recognize that producers use the energy from sunlight to make sugars from carbon dioxide and water through a process called photosynthesis. This food can be used immediately, stored for later use, or used by other organisms.

### Challenge Cooperation Course

#### National Health Standards Addressed

- ❖ Grades 6-8; 4.8.3: Demonstrate effective conflict management or resolution strategies.
- ❖ Grades 6-8; 5.8.3: Distinguish when individual or collaborative decision making is appropriate.
- ❖ Grades 9-12; 4.12.3: Demonstrate strategies to prevent, manage, or resolve interpersonal conflicts without harming self or others.

### Cross Country Skiing

#### Science Standards Addressed:

- ❖ 6.1.2.2.1 Apply and document an engineering design process that includes identifying criteria and constraints, making representations, testing and evaluation, and refining the design as needed to construct a product or system that solves a problem.
- ❖ 8.1.3.2.1 Describe examples of important contributions to the advancement of science, engineering and technology made by individuals representing different groups and cultures at different times in history.

### Deer Browse

#### Science Standards Addressed:

- ❖ 5.1.3.4.1 Use appropriate tools and techniques in gathering, analyzing and interpreting data.
- ❖ 5.4.1.1.1 Describe how plants and animal structures and their functions provide an advantage for survival in a given natural system.

### Dissolved Oxygen

#### Science Standards Addressed:

- ❖ 4.3.2.3.1 Identify where water collects on Earth, including atmosphere, ground and surface water, and describe how water moves through the Earth system using the processes of evaporation, condensation, and precipitation.
- ❖ 6.2.1.2.1 Identify evidence of physical changes, including changing phase or shape, and dissolving in other materials.

### Dumpster Diving

#### Science Standards Addressed:

- ❖ 5.3.4.1.1 Identify renewable and non-renewable energy and material resources that are found in Minnesota and describe how they are used.
- ❖ 5.3.4.1.2 Give examples of how mineral and energy resources are obtained and processed and how that processing modifies their properties to make them more useful.
- ❖ 5.3.4.1.3 Compare the impact of individual decisions on natural systems.
- ❖ 9.1.3.4.1 Describe how technological problems and advances often create a demand for new scientific knowledge, improved mathematics, and new technologies.

## Frog Pond

### Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.
- ❖ 5.4.2.1.2 Explain what would happen to a system such as a wetland, prairie, or garden if one of its parts were changed. For example: Investigate how road salt runoff affects plants, insects, and other parts of an ecosystem.
- ❖ 7.4.4.1.2 Describe ways that human activities can change the populations and communities in an ecosystem. (chemicals in the environment, bacterial resistance, pollution, deforestation, over-hunting, and urban sprawl)

## Global Positioning Systems

### Science Standards Addressed:

- ❖ 6.1.2.1.1 Identify a common engineered system and evaluate its impact on the daily life of humans.
- ❖ 9.1.2.1.1 Understand that engineering designs and products are often continually checked and critiqued for alternatives, risks, costs and benefits, so that subsequent designs are refined and improved.

## Hypothermia

### Science Standards Addressed:

- ❖ 7.4.1.1.2 Describe how the organs in the respiratory, circulatory, digestive, nervous, skin and urinary systems interact to serve the needs of vertebrate organisms.
- ❖ 6.2.3.2.3 Describe how heat energy is transferred in conduction, convection, and radiation.

## Lake Bottom Organisms

### Science Standards Addressed:

- ❖ 4.3.2.3.1 Identify where water collects on Earth, including atmosphere, ground and surface water, and describe how water moves through the Earth system using the processes of evaporation, condensation and precipitation.
- ❖ 4.3.4.1.1 Describe how the methods people utilize to obtain and use water in their homes and communities can affect water supply and quality.

## Lake Hike

### Science Standards Addressed:

- ❖ 5.1.1.2.1 Generate a scientific question and plan an appropriate scientific investigation, such as systematic observations, *field studies*, open-ended exploration or controlled experiments to answer the question.
- ❖ 5.3.1.2.2 Explain how slow processes, such as water erosion, and rapid processes, such as landslides and volcanic eruptions, form features of the Earth's surface.

### Loons, Lore, and More

#### Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.
- ❖ 7.4.2.1.2 Compare and contrast the roles of organisms with the following relationships; predator/prey, parasite/host, and producer/consumer/decomposer.
- ❖ 7.4.4.1.2 Describe ways that human activities can change the populations and communities in an ecosystem.

### Minnesota Trees

#### Science Standards Addressed:

- ❖ 5.1.1.2.1 Generate a scientific question and plan an appropriate scientific investigation such as systematic observations, field studies, open-ended exploration, or controlled experiments, to answer the question.

### Night Trek

#### Science Standards Addressed:

- ❖ 7.4.1.1.1 Recognize that all cells do not look alike and that specialized cells in multicellular organisms are organized into tissues and organs that perform specialized functions.
- ❖ 7.1.1.2.3 Generate a scientific conclusion from an investigation, clearly distinguishing between results (evidence) and conclusion (explanation).

### Oh Deer

#### Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.
- ❖ 5.4.4.1.1 Give examples of beneficial and harmful human interaction with natural systems.
- ❖ 7.4.2.1.3 Explain how the number of populations an ecosystem can support depends on the biotic resources available as well abiotic factors, such as amount of light and water, temperature range, and soil composition.

### Orienteering

#### Science Standards Addressed:

- ❖ 4.2.3.1.2 Describe how magnets can repel or attract each other and how they attract certain metal objects.
- ❖ 7.1.3.4.2 Determine and use appropriate safe procedures, tools, measurements, graphs and mathematical analyses to describe and investigate natural and designed systems in a physical science context.
- ❖ 7.1.3.4.2 Determine and use appropriate safe procedures, tools, measurements, graphs and mathematical analyses to describe and investigate natural and designed systems in a physical science context.

### Quick Frozen Critters

Science Standards Addressed:

- ❖ 5.1.1.1.4 Understand that different models can be used to represent natural phenomena and these models have limitations about what they can explain. For example: Food Web
- ❖ 7.4.2.1.2 Compare and contrast the roles of organisms with the following relationships: predator/prey, parasite/host, and producer/consumer/decomposer.
- ❖ 7.4.2.2.2 Describe the roles and relationships among producers, consumers and decomposers in changing energy from one form to another in a food web within an ecosystem.

### Resouce Distribution

Science Standards Addressed:

- ❖ 5.3.4.1.1 Identify renewable and non-renewable energy and material resources that are found in Minnesota and describe how they are used.
- ❖ 5.3.4.1.3 Compare the impact of individual decisions on natural systems.

### The Scoop on Poop

Science Standards Addressed:

- ❖ 5.1.1.1.1 Explain why evidence, clear communication, accurate record keeping, replication by others, and openness to scrutiny are essential parts of doing science.
- ❖ 5.1.1.1.3 Understand that different explanations for the same observations usually lead to making more observations and trying to resolve the differences.
- ❖ 5.1.1.2.2 Identify and collect relevant evidence, make systematic observations and accurate measurements, and identify variables (any factor that can exist in an experiment, plus example) in a scientific investigation (the question, hypothesis, experiment, conclusion).

### Snakes Alive

Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system. Adaptation
- ❖ 7.4.4.2.2 Explain how viruses, bacteria, fungi, and parasites may infect the human body and interfere with normal body functions (hand sanitizer)

### Snow Caves

Science Standards Addressed:

- ❖ 6.2.3.2.3 Describe how heat energy is transferred in radiation.

### Snow Snakes

Science Standards Addressed:

- ❖ 5.1.3.2.1 Describe how science and engineering influence and are influenced by local traditions and beliefs.

Physical Education Standards Addressed:

- ❖ Grade 6; Standard 6: Students will recognize physical activity as a positive opportunity for social and group interaction and communication.

- ❖ Grade 6; Standard 6: Students will seek personally challenging experience in physically active opportunities. Participate in a physical activity that you have never tried.

### Snowshoeing

Science Standards Addressed:

- ❖ 5.1.3.2.1 Describe how science and engineering influence and are influenced by local traditions and beliefs.
- ❖ 6.1.2.2.1 Apply and document an engineering design process that includes identifying criteria and constraints, making representations, testing and evaluation, and refining the design as needed to construct a product or system that solves a problem.

Physical Education Standards Addressed:

- ❖ Grade 6; Standard 6: Students will seek personally challenging experience in physically active opportunities. Participate in a physical activity that you have never tried.

### Star Gazing

Science Standards Addressed:

- ❖ 8.1.3.3.2 Understand that scientific knowledge is always changing as new technologies and information enhance observations and analysis of data.
- ❖ 8.3.2.1.1 Explain how the combination of the Earth's tilted axis and revolution around the sun causes the progression of seasons.
- ❖ 8.3.3.1.1 Recognize that the sun is a medium-sized star, one of billions of stars in the Milky Way galaxy, and the closest star to Earth.
- ❖ 8.3.3.1.4 Compare and contrast the sizes, locations, and compositions of the planets and moons in our solar system.
- ❖ 8.3.3.1.5 Use the predictable motions of the Earth around its own axis and around the sun, and of the moon around the Earth, to explain day length, the phases of the moon, and eclipses.

### Thicket

Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system. (camouflage)
- ❖ 5.4.2.1.2 Explain what would happen to a system such as a wetland, prairie, or garden if one of its parts were changed. (Examples; pollution, catastrophic events, fire, and introduced species)
- ❖ 7.4.2.1.2 Compare and contrast the roles of organisms with the following relationships: predator/prey, parasite/host, and producer/consumer/decomposer.

### Weasel Watch

Science Standards Addressed:

- ❖ 4.2.3.1.1 Describe heat transfer when a warm and cool object are touching or placed near each other.
- ❖ 5.4.1.1. Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.
- ❖ 6.2.3.2.3 Describe how heat energy is transferred in conduction, convection and radiation.

- ❖ 7.4.2.1.2 Compare and contrast the roles of organisms with the following relationships: predator/prey, parasite/host, and producer/consumer/decomposer.

### Web Works

Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.

### Who Gives a Hoot?

Science Standards Addressed:

- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system. (adaptation)

### Wilderness Meal/Snack

Science Standards Addressed:

- ❖ 5.4.4.1.1 Give examples of beneficial and harmful human interaction with natural systems.
- ❖ 7.4.4.1.2 Describe ways that human activities can change the populations and communities in an ecosystem.

### Woodcock Sky Dance

Science Standards Addressed:

- ❖ 5.1.1.2.1 Generate a scientific question and plan an appropriate scientific investigation, such as systematic observations, *field studies*, open-ended exploration or controlled experiments to answer the question.
- ❖ 5.4.1.1.1 Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.

\*While these standards are addressed, not all listed are fully met within the classes