Creatures in the Classroom – Science Curricular Connections Grades 1-4

Three Goals of Science and Technology, Grades 1-8: Science and Technology, 2007, Introduction

1. to relate science and technology to society and the environment
2. to develop the skills, strategies, and habits of mind required for scientific inquiry and technological problem solving
3. to understand the basic concepts of science and technology

Fundamental Concepts, Grades 1-8: Science and Technology, 2007, page 5 with added rationale notes

Matter	Matter is anything that has mass and occupies space. Matter has particular structural and behavioural characteristics.
Energy	Energy comes in many forms, and can change forms. It is required to make things happen (to do work). Work is done when a force causes movement.
Systems and Interactions Workshop note: -living things and their habitats	A system is a collection of living and/or non-living things and processes that interact to perform some function. A system includes inputs, outputs, and relationships among system components. Natural and human systems develop in response to, and are limited by, a variety of environmental factors.
Structure and Function Workshop note: -habitats, attributes of living things	This concept focuses on the interrelationship between the function or use of a natural or human-made object and the form that the object takes
Sustainability and Stewardship Workshop note: -developing a greater sense of care and responsibility to living things and their environment	Sustainability is the concept of meeting the needs of the present without compromising the ability of future generations to meet their needs. Stewardship involves understanding that we need to use and care for the natural environment in a responsible way and making the effort to pass on to future generations no less than what we have access to ourselves. Values that are central to responsible stewardship are: using non-renewable resources with care;, reusing and recycling what we can; switching to renewable resources where possible
Change and Continuity Workshop note: -observing life cycles and changes through growth and development	Change is the process of becoming different over time, and can be quantified Continuity represents consistency and connectedness within and among systems over time. Interactions within and among systems result in change and variations in consistency

A. Allore, N. Brockelbank, B. Vinski OLA 2013

Strand Connections, Grades 1-8: Science and Technology, 2007

Grade	Strand	Fundamental Concepts	Big Ideas	Overall Expectations
One	**Understanding Life Systems** Needs and Characteristics of Living Things	Sustainability and Stewardship	• living things grow, take in food to create energy, make waste, and reproduce *(Overall expectations 2 and 3).* • plants and animals, including people are living things *(Overall expectations 2 and 3)* • living things have basic needs (air, water, food, and shelter) that are met from the environment *(Overall expectations 1, 2 and 3).* • different kinds of living things behave in different ways *(Overall expectations 2 and 3).*	By the end of Grade 1, students will: 1. assess the role of humans in maintaining a healthy environment; 2. investigate needs and characteristics of plants and animals, including humans; 3. demonstrate an understanding of the basic needs and characteristics of plants and animals, including humans.
	Understanding Structures and Mechanisms Materials, Objects and Everyday Structures (habitat and animal attributes such as shells, etc)	Structure and Function Matter	• objects have observable characteristics and are made from materials *(Overall expectation 3)* • materials have specific properties *(Overall expectations 2 and 3)* • the materials and structure of an object determine its purpose *(Overall expectation 3)*	By the end of Grade 1, students will: 2. investigate structures that are built for a specific purpose to see how their design and materials suit the purpose; 3. demonstrate an understanding that objects and structures have observable characteristics and are made from materials with specific properties that determine how they are used.
	Understanding Earth and Space Systems Daily and Seasonal Changes	Change and Continuity	• changes occur in daily and seasonal cycles *(Overall expectations 1, 2 and 3)* • changes in daily and seasonal cycles affect living things *(Overall expectations 1 and 3)*	By the end of Grade 1, students will: 1. Assess the impact of daily and seasonal changes on living things, including humans; 2. Investigate daily and seasonal changes; 3. Demonstrate an understanding of what dally and seasonal changes are and of how these changes affect living things.

Grade	Strand	Fundamental Concepts	Big Ideas	Overall Expectations
Two	**Understanding Life Systems** Needs and Characteristics of Living Things	Structure and Function Sustainability and Stewardship	• animals have distinct characteristic *(Overall expectations 2 and 3)* • humans are animals *(Overall expectations 1, 2 and 3)* • there are similarities and differences among different kinds of animals *(Overall expectation 2)* • humans need to protect animals and the places where they live *(Overall expectation 1)*	By the end of Grade 2, students will: 1. assess ways in which animals have an impact on society and the environment, and ways in which humans have an impact upon animals and the places where they live; 2. investigate similarities and differences in the characteristics of various animals; 3. demonstrate an understanding that animals grow and change and have distinct characteristics.
	Understanding Earth and Space Systems Air and Water in the Environment	Change and Continuity Sustainability and Stewardship	• air and water are a major part of the environment *(Overall expectations 1, 2 and 3)* • living things need air and water to survive *(Overall expectations 1 and 3)* • changes to air and water affect living things and the environment *(Overall expectations 1 and 3)* • our actions affect the quality of air and water, and its ability to sustain life *(Overall expectations 1, 2 and 3)*	By the end of Grade 2, students will: 1. assess ways in which the actions of humans have an impact on the quality of air and water, and ways in which the quality of air and water has an impact on livening things/ 2. investigate the characteristics of air and water and the visible/invisible effects of and changes to air and/or water in the environment; 3. demonstrate an understanding of the ways in which air and water are used by living things to help them meet their basic needs.
Three	**Understanding Earth and Space Systems** Soils in the Environment	Systems and Interactions Change and Continuity Sustainability and Stewardship	• soil is made up of living and non-living things *(Overall expectations 1, 2 and 3)* • the composition, characteristics, and condition of soil determine its capacity to sustain life *(Overall expectations 1, 2 and 3)* • soil is an essential source of life and nutrients for many living things *(Overall expectation 3)* • living things, including humans, interact with soils and can cause positive or negative changes *(Overall expectations 1)*	By the end of Grade 3, students will: 1. assess the impact of soil on society and the environment, and of society and the environment on soils; 2. investigate the composition and characteristics of different soils 3. demonstrate an understanding of the composition of soils, the types of soils, and the relationship between soils and other living things

Grade	Strand	Fundamental Concepts	Big Ideas	Overall Expectations
Four	**Understanding Life Systems** Habitats and Communities	Systems and Interactions Sustainability and Stewardship	• plants and animals are interdependent and are adapted to meet their needs from the resources available in their particular habitats *(Overall expectations 1, 2 and 3)* • changes to habitats(whether caused by natural or human means) can affect plants and animals and the relationships between them *(Overall expectations 2 and 3)* • society relies on plants and animals *(Overall expectations 1and 2)*	By the end of Grade 4, students will: 1. analyse the effects of humans on habitats and communities 2. investigate the interdependence of plants and animals within specific habitats and communities 3. demonstrate an understanding of habitats and communities and the relationships among the plants and animals that live in them