Life Science Across The Grades K-7

PHYSICAL

LIFE

EARTH

The Office of School Improvement has developed the Science Across the Grades companion document to assist educators in their work with the Grade Level Content Expectations (GLCE). The Across the Grades K-7 document provides a look at each GLCE in a matrix format across the grades. This "cross-grade" document allows grade levels to be easily compared with each other. You will find three separate matrices which include the disciplines of Physical Science, Life Science, and Earth Science. Within each grade band, the expectations have been aligned to show progression of a concept from one grade to the next.

The Grade Level Content Expectations

The Grade Level Content Expectations (GLCE) provide a set of clear and rigorous expectations for all students and provide teachers with clearly defined statements of what students should know and be able to do as they progress through school. The expectations represent a research-based approach to science development, promote the use of higher level thinking skills, and assure that all students will be prepared for future academic success.

Our Goal

The Office of School Improvement encourages local and intermediate school districts to continue the stellar work they have begun over the past years supporting the implementation of the Grade Level Content Expectations. The resources that have been generated and shared throughout the state are a wonderful example of Michigan educators' commitment to help students attain the concepts and skills necessary to meet these expectations. Within the hands of teachers, the Grade Level Content Expectations are converted into exciting and engaging learning for Michigan's students. The art of teaching is what makes the content of learning become a reality. Through the collaborative efforts of Michigan educators we can enable our young people to attain the highest standards, and thereby open doors for them to have fulfilling and successful lives.

Contact:

Michigan Department of Education
Office of School Improvement
Kevin Richard
(517) 373-4223
www.michigan.gov/mde

	K	1	2	3	4	5	6	7
Organization of Living Things	**L.OL.00.11** Identify that living things have basic needs. **L.OL.00.12** Identify and compare living and nonliving things.	**L.OL.01.13** Identify the needs of animals.	**L.OL.02.14** Identify the needs of plants.		**L.OL.04.15** Determine that plants require air, water, light, and a source of energy and building material for growth and repair. **L.OL.04.16** Determine that animals require air, water, and a source of energy and building material for growth and repair.			
		L.OL.01.21 Describe the life cycle of animals including the following stages: egg, young, adult; egg, larva, pupa, adult.	**L.OL.02.22** Describe the life cycle of familiar flowering plants including the following stages: seed, plant, flower, and fruit.					**L.OL.07.21** Recognize that all organisms are composed of cells (single cell organisms, multicellular organisms). **L.OL.07.22** Explain how cells make up different body tissues, organs, and organ systems. **L.OL.07.23** Describe how cells in all multicellular organisms are specialized to take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or organism needs. **L.OL.07.24** Recognize that cells function in a similar way in all organisms.

This sample across the grades tool is provided by the Michigan Department of Education as a resource to districts/schools.

	K	1	2	3	4	5	6	7
Organization of Living Things				**L.OL.03.31** Describe the function of the following plant parts: flower, stem, root, and leaf. **L.OL.03.32** Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, claws).				**L.OL.07.31** Describe growth and development in terms of increase of cell number and/or cell size. **L.OL.07.32** Examine how through cell division, cells can become specialized for specific functions.
				L.OL.03.41 Classify plants on the basis of observable physical characteristics (roots, leaves, stems, and flowers). **L.OL.03.42** Classify animals on the basis of observable physical characteristics (backbone, skin, shell, limbs, scales).		**L.OL.05.41** Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). **L.OL.05.42** Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.		
							L.OL.06.51 Classify organisms (producers, consumers, and decomposers) based on their source of energy for growth and development. **L.OL.06.52** Distinguish between the ways in which consumers and decomposers obtain energy.	

This sample across the grades tool is provided by the Michigan Department of Education as a resource to districts/schools.

	K	1	2	3	4	5	6	7
Organization of Living Things								**L.OL.07.61** Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats. **L.OL.07.62** Explain that carbon dioxide and water are used to produce carbohydrates, proteins, and fats. **L.OL.07.63** Describe evidence that plants make, use and store food.
Heredity		**L.HE.01.11** Identify characteristics (for example: body coverings, beak shape, number of legs, body parts) that are passed on from parents to young. **L.HE.01.12** Classify young animals based on characteristics that are passed on from parents. (for example: dogs/puppies, cats/kittens, cows/calves, chicken/chicks).	**L.HE.02.13** Identify characteristics of plants (for example: leaf shape, flower type, color, size) that are passed on from parents to young.			**L.HE.05.11** Explain that the traits of an individual are influenced by both the environment and the genetics of the individual. **L.HE.05.12** Distinguish between inherited and acquired traits.		
								L.HE.07.21 Compare how characteristics of living things are passed on through generations, both asexually and sexually.

	K	1	2	3	4	5	6	7
Evolution								**L.HE.07.22** Compare and contrast the advantages and disadvantages of sexual vs. asexual reproduction.
				L.EV.03.11 Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (for example: leaf shape, thorns, odor, color). **L.EV.03.12** Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (for example: sharp teeth, claws, color, body covers).		**L.EV.05.11** Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment. **L.EV.05.12** Describe the physical characteristics (traits) of organisms that help them survive in their environment. **L.EV.05.13** Describe how fossils provide evidence about how living things and environmental conditions have changed. **L.EV.05.14** Analyze the relationship of environmental change and catastrophic events (For example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.		
					L.EV.04.21 Identify individual differences (for example: color, leg length, size, wing size) in organisms of the same kind.	**L.EV.05.21** Relate degree of similarity in anatomical features to the classification of contemporary organisms.		

This sample across the grades tool is provided by the Michigan Department of Education as a resource to districts/schools.

	K	1	2	3	4	5	6	7
					L.EV.04.22 Identify how variations in physical characteristics of individual organisms give them an advantage for survival and reproduction.			
Ecosystems					**L.EC.04.11** Identify organisms as part of a food chain or food web.		**L.EC.06.11** List examples of populations, communities, and ecosystems including the Great Lakes region.	
					L.EC.04.21 Explain how environmental changes can produce a change in the food web.		**L.EC.06.21** Describe common patterns of relationships between and among populations. (competition, parasitism, symbiosis, predator/prey). **L.EC.06.22** Explain how two populations of organisms can be mutually beneficial and how that can lead to interdependency. **L.EC.06.23** Predict how changes in one population might affect other populations based upon their relationships in the food web.	
							L.EC.06.31 Identify the living (biotic) and nonliving (abiotic) components of an ecosystem. **L.EC.06.32** Identify the factors in an ecosystem that influence changes in population size.	

This sample across the grades tool is provided by the Michigan Department of Education as a resource to districts/schools.

	K	1	2	3	4	5	6	K	7
Ecosystems							**L.EC.06.41** Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems. **L.EC.06.42** Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).		

This sample across the grades tool is provided by the Michigan Department of Education as a resource to districts/schools.