Interdisciplinary Unit

First Grade Unit 5

2015-2016

Concept: Conservation

Essential Question:

What is my role in taking care of the Earth?

Why must we be good stewards of the Earth?

Deepening Questions:

How do we get and use energy on Earth?

What makes up our world?

How do plants grow and change?

Why are plants important to our environment?

How can measurements be used to solve problems?

How have humans changed the earth over time?

Why is recycling important and how does it keep the Earth clean and protected for future generations?

Suggested Trade Book Resources:

The Lorax by Dr. Seuss (Lexile: 560)

Our Earth by Anne F. Rockwell (Lexile: 581, GR: H)

How Big is a Foot? By Rolf Myller (Lexile: 660, GR: K)

From Seed to Plant by Gail Gibbons (Lexile: 680, GR: M)

The Tiny Seed by Eric Carle (Lexile: 400, GR: L)

Splat the Cat: Oopsie-Daisy by J. E. Bright (Lexile: 540)

Conservation by Christine Peterson (Lexile: 1090, GR O)

The Earth and I by Frank Asch (Lexile: 50, GR: G)



Hook:

The Lorax by Dr. Seuss and
Waterloo Bridge, Gray Day

Monet, Claude

Compare/Contrast two “stories”

Section 1: Energy

States: Illinois (NOT-Minnesota, Indiana)

\*\*energy for sun section: Michigan, Missouri, Ohio

Deepening Question:

How do we get and use energy on Earth?

* Forms of energy
	+ - Energy hunt: http://firstgraderandomness.blogspot.com/2012/11/energy-hunt.html
	+ Heat and ways to generate heat
		- Heat activities (attachment)
		- Teacher notes on heat: http://www.brainpop.com/educators/community/lesson-plan/heat-background-information-for-teachers-and-parents/
		- Video on heat (https://www.youtube.com/watch?v=khZrs-UBq28)
	+ Sound (briefly touch upon) \*covered in other grades
	+ Light and sources of light
		- * Light reading passage (attachment)
		- Sun/stars
			* Sun worksheet (attached)
		- Artificial light
		- Shadows
			* Me and My Shadow reading passage (attachment)
* How we get energy
	+ Wind, gasoline, coal, etc.
		- Energy and its sources graphic organizer (attachment)
		- Energy sources worksheet (attachment)
* Sun as Source of Energy
	+ Sun and weather
	+ Solar energy
	+ Warming and cooling of air, water, soil
		- Investigating solar energy with thermometers activity (attachment)
* How People Use Electricity

\*Sound is in the textbook but is not in any of the 1st grade state standards

Section 2: Our Natural Earth (A Closer Look, Unit C, Chapter 5 Lessons 2-3)

States: Wisconsin,

For social studies (geography) Ohio, Illinois

 (NOT: Missouri, Michigan)

\*\*\*Minnesota, Indiana: only section on rocks and soils

Deepening Question:

What makes up our world?

* + - Book*: Our Earth* by Anne F. Rockwell
* Physical and Human Features

 \*\*Review geography lessons from Unit 2, Section 1 (Where I Live)

* + Physical Features
	+ Human Features
		- Human and Physical Features sort (smartboard) http://exchange.smarttech.com/details.html?id=d0a4d319-d443-4f00-bce9-6e989517e8b3
* Surface of the Earth
	+ Landforms
		- Landforms unit resources (attachment)
		- Landform book: http://thefirstgradefairytales.blogspot.com/2013/05/landforms-freebie-save-for-next-year.html?utm\_source=feedly
	+ Make a model (land and water)
* Rocks and Soils
	+ Describing rocks
		- Mystery rock activity (seen here: http://firstgraderandomness.blogspot.com/2013/03/rocks-and-soil-exploration.html)
	+ What are rocks made of?
	+ Classifying rocks
	+ What is soil?
		- We Dig Dirt mini-unit (attachment)
	+ Types of soil (topsoil, clay, sandy soil)
	+ What holds water
* Changing the land
	+ Weathering (How Rocks Change)
	+ Erosion (How Land Changes)
		- Weather and erosion article (attachment)

Section 3: Measurement

States: all

My Math-Chapter 1-4

Deepening Questions:

How can things in our world be measured?

How can we compare objects using measurement?

How can measurements be used to solve problems?

* Comparing Lengths
	+ - Pencil Length comparison activity (attachment)
		- Comparing Length spring (attachment)
* Compare and Order Lengths
	+ - Shamrock order by length (attachment)
* Nonstandard Units of Length
	+ Introducing non-standard units
		- Book: *How Big is a Foot?* By Rolf Myller
		- How Big is a Foot activities (attachment)
	+ Measuring in non-standard units
		- Measuring Flowers nonstandard units (attachment)
		- Measuring with Meatballs (attachment)
		- Measurement bumblebees (attachment)
		- Nonstandard measurement math center (attachment)
* Guess, Check and Revise (Problem Solving Strategy)
	+ - Nonstandard measurement task cards (attachment)

Section 4: Graphing

States: all

My Math, Chapter 7

Deepening Questions:

How can the collection, organization, interpretation, and display of data be used to answer questions?

* + - Ultimate Graphing Pack (TPT $5): https://www.teacherspayteachers.com/Product/Graphing-Primary-924883
* Types of Graph
	+ Tally Charts
	+ Take a Table (problem solving strategy)
* Picture Graphs
	+ Make a Picture Graph
	+ Read Picture Graphs
		- Reading a picture graph (attachment)
* Bar Graphs
	+ Make a Bar Graph
	+ Read a Bar Graph
* Lego Engineering Project (with computer ed. Teacher)
	+ Butterfly Lego Project (attachment)
		- Focus on math: measurement, bar graph
* Collecting Data
	+ - Class Data collection pack (attachment)
		- Birthday tall and bar graph (attachment)
	+ Comparing graphs
		- Comparing graph activities (attachment)

Section 5: Plants

States: Illinois, Indiana, Missouri, Ohio, Wisconsin (NOT: Minnesota)

\*Michigan-use parts to teach sun needed for plant growth

\*\*\*Use concepts and skills gained in section 3 and 4 (measurement/graphing) to study plant growth.

* Plant with Splat Measuring Unit: Use with Book “Oopsie Daisy: Splat the Cat” (attachment)

Deepening Questions:

How do plants grow and change?

Why are plants important to our environment?

* Overview of Plants
	+ Living vs. Non-Living
	+ What Plants Need
		- Plants Make their Own Food close reading passage (attachment)
		- Plant needs and plant parts activities (attachment)
	+ Parts of a Plant
		- <http://thefirstgradeparade.blogspot.com/2014/03/plants-aplenty.html>
		- Parts of a Tree close reading passage
	+ Different types of Plants
		- What Grows on Vines? Close reading passage (attachment)
	+ Flower, Fruits, Seeds
		- Book: *The Tiny Seed* by Eric Carle
		- Wind Helps Plants Grown close reading passage (attachment)
* Plants Grow and Change
	+ Plant life cycle
		- Life cycle of a plant close reading (attachment)
		- Plant life cycle (attachment)
* PERFORMANCE TASK: Informative/Expository: Complete an essay telling the steps in how plants grow (seed to flower/fruit.)
* Plants and the Sun
	+ - Growing plants experiments (attachment)
		- Plants and the sun student book and experiment (attachment)
* Plants in Different Places
* How do people use plants
	+ Plants we eat
	+ Products made from plants
		- Stuff from plants sort (attachment)
	+ Other ways plants help people (clean air)

Section 6: Earth Day!

States: all

Deepening Questions:

How have humans changed the earth over time?

Why is recycling important and how does it keep the Earth clean and protected for future generations?

A Closer Look Unit C, Chapter 6 Lessons 1-3)

* Natural Resources (air and water)
	+ - Natural resources graphic organizer (see example)
	+ Review needs/wants
	+ Things from plants
	+ Things from animals
	+ Other natural resources (soil, water, coal)
		- Label things in the room made from plants or animals
* Living Things on Earth
	+ Using Earth’s resources
		- Natural resources mini-unit (attachment)
		- We Need Fresh Water close reading passage (attachment)
* Pollution
	+ Air pollution
	+ Water pollution
		- Garbage in the Ocean close reading passage (attachment)
		- A Clean Drink of water close reading passage (attachment)
	+ Land polution
* Drawing Conclusions
	+ Surviving on the Earth (How plants and animals meet their needs)
* Saving Earth’s Resources
	+ How animals help
		- Earthworm vs. Gummy worm (http://firstgradewow.blogspot.com/2013/01/gummy-worms-vs-earth-worms.html)
		- Earthworms Do Great Work close reading passage (attachment)
	+ (reduce, reuse, recycle)
		- Maria Recycles close reading passage (attachment)
		- Energy Efficiency (picture search page 3)
		- Using energy wisely activity (attachment)
* Community activism
* Environmental Stewardship
	+ - Earth Day cause and effect foldable (attachment)
		- The Earth and I by Frank Asch
		- Read Earth Smart (wegivebooks.org) <http://www.wegivebooks.org/books/earth-smart>
* PERFORMANCE TASK: Informative/Expository: Create a poster to show different ways/things people can do to help take care of the earth (first grade an essay and then publish to a poster.)
* Earth Day celebrations
	+ - Earth Day math review activities (attachment)
		- Earth Day packet and activities (TPT $6) <https://www.teacherspayteachers.com/Product/Earth-Day-230221>

Section 7: Time

States: all

Deepening Question: Why do we need to tell time?My Math, Chapter 8, Lessons 4-9

* Analog vs. digital clocks
	+ Time to the Hour
		- Analog
		- Digital
	+ Time to the Half Hour
		- Analog
		- Digital
* Time to the Hour and Half Hour (practice)
	+ - I have who has game (time to hour and half hour) (attachment)
		- Telling Time with Chloe the Clock (attachment)
		- Clock search (attachment)

ELA Standards:

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| CCSS.ELA-LITERACY.RI.1.2 | Identify the main topic and retell key details of a text. |
| CCSS.ELA-LITERACY.RI.1.6 | Distinguish between information provided by pictures or other illustrations and information provided by the words in a text. |
| CCSS.ELA-LITERACY.RI.1.9 | Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures). |
| CCSS.ELA-LITERACY.W.1.1 | Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure. |
| CCSS.ELA-LITERACY.W.1.8 | With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. |

Standards by State:

Ohio

Social Studies

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| SS-Geo-5 | Places are distinctive because of their physical characteristics (landforms and bodies of water) and human characteristics (structures built by people.) |
| SS-Govt-4 | Individuals are accountable for their actions. |

Science

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| ESS.1.1 | The sun is the principal source of energy. |
| LS.1.1 | Living things have basic needs, which are met by obtaining materials from the physical environment. |
| LS.1.2 | . - Living things survive only in environments that meet their needs. |

Michigan

Science

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| MI.E.ES.01.11 | Identify the sun as the most important source of heat which warms the land, air, and water of the Earth. |
| MI.E.ES.01.12. | Demonstrate the importance of sunlight and warmth in plant growth. |

Social Studies

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| 1 – G2.0.1 | Distinguish between physical (e.g., clouds, trees, and weather) and human (e.g., buildings, playgrounds, sidewalks) characteristics of places. |
| 1 – G5.0.1 | Describe ways in which people modify (e.g., cutting down trees, building roads) and adapt to theenvironment (e.g., clothing, housing, transportation) |
| 1 – P4.2.1 | Develop and implement an action plan to address or inform others about a public issue. |
| 1 – P4.2.2 | Participate in projects to help or inform others. |

Missouri

Science

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| MO.1.1.2.A.b. | Compare the temperature of hot and cold objects using a simple thermometer |
| MO.1.1.2.C.a | Identify light from the Sun as a basic need of most plants |
| MO.1.3.1.A.b. | Identify the basic needs of most plants (i.e., air, water, light) |
| MO.1.3.1.D.c. | Identify the relationships between the physical structures of plants and the function of those structures (e.g., absorption of water, absorption of light energy, support, reproduction) |
|  | MO.1.3.1.A.c. Predict and investigate the growth of plants when growing conditions are altered (e.g., dark vs. light, water vs. no water)  |
| MO.1.3.1.D.a. | Identify and compare the physical structures of a variety of plants (e.g., stem, leaves, flowers, seeds, roots) |
| MO.1.3.1.E.a. | Distinguish between plants and animals based on observable structures and behaviors |
| MO.1.4.1.A.a. | Identify ways man depends on plants and animals for food, clothing and shelter |
| MO.1.5.2.F.b | Compare temperatures in different locations (e.g., inside, outside, in the sun, in the shade) |
| MO.1.7.1.A.a. | Pose questions about objects, materials, organisms and events in the environment |
| MO.1.7.1.A.b. | Plan and conduct a simple investigation (fair test) to answer a question |
| MO.1.7.1.B.b. | Make observations using simple tools and equipment (e.g., magnifiers/hand lenses, magnets, equal arm balances, thermometers) |
| MO.1.8.1.A.a. | Observe and identify that some objects occur in nature (natural objects); others have been designed and made by people |
| MO.1.7.1.C.a. | Use observations as support for reasonable explanations |
| MO.1.8.1.B.a. | Describe how tools have helped scientists make better observations (e.g., magnifiers, balances, thermometers) |
| MO.1.8.3.A.a. | Identify a question that was asked, or could be asked, or a problem that needed to be solved when given a brief scenario (fiction or nonfiction of individuals solving everyday problems or learning through discovery) |

Social Studies

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| 5. A. 1 | Read maps |
| 7.A.1 | Identify visual, graphic and auditory aids(globes, maps) |
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Wisconsin

Science

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| WI.1.A.4.1. | When conducting science investigations\*, ask and answer questions that will help decide the general areas of science being addressed |
| WI.1.A.4.2. | When faced with a science-related problem, decide what evidence\*, models\*, or explanations\* previously studied can be used to better understand\* what is happening now |
| WI.1.B.4.3. | Show\* how the major developments of scientific knowledge in the earth and space, life and environmental, and physical sciences have changed over time |
| WI.1.C.4.4. | Use simple science equipment safely and effectively, including rulers, balances, graduated cylinders, hand lenses, thermometers, and computers, to collect data relevant to questions and investigations |
| WI.1.C.4.5. | Use data they have collected to develop explanations\* and answer questions generated by investigations\* |
| WI.1.D.4.2. | Group\* and/or classify objects and substances based on the properties of earth materials |
| WI.1.D.4.5. | Construct\* simple models\* of what is happening to materials and substances undergoing change\*, using simple instruments or tools to aid observations and collect data |
| WI.1.E.4.1. | Investigate\* that earth materials are composed of rocks and soils and correctly use the vocabulary for rocks, minerals, and soils during these investigations |
| WI.1.E.4.2. | Show\* that earth materials have different physical and chemical properties, including the properties of soils found in Wisconsin |
| WI.1.E.4.3. | Develop descriptions\* of the land and water masses of the earth and of Wisconsin's rocks and minerals, using the common vocabulary of earth and space science |
| WI.1.E.4.7. | Using the science themes\*, describe\* resources used in the home, community, and nation as a whole |
| WI.1.E.4.8. | Illustrate\* human resources use in mining, forestry, farming, and manufacturing in Wisconsin and elsewhere in the world |
| WI.1.F.4.1. | Discover\* how each organism meets its basic needs for water, nutrients, protection, and energy\* in order to survive |
| WI.1.F.4.2. | Investigate\* how organisms, especially plants, respond to both internal cues (the need for water) and external cues (changes in the environment) |
| WI.1.F.4.3. | Illustrate\* the different ways that organisms grow through life stages and survive to produce new members of their type |
| WI.1.F.4.4. | Using the science themes\*, develop explanations\* for the connections among living and non-living things in various environments |
| WI.1.H.4.3. | Show\* how science has contributed to meeting personal needs, including hygiene, nutrition, exercise, safety, and health care |

Social Studies

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| A.4.2 | Locate on a map or globe physical features such as continents, oceans, mountain ranges, and land forms, natural features such as resources, flora, and fauna; and human features such as cities, states, and national borders |
| A.4.4 | Describe and give examples of ways in which people interact with the physical environment, including use of land, location of communities, methods of construction, and design of shelters |
| A.4.8 | Identify major changes in the local community that have been caused by human beings, such as a construction project, a new highway, a building torn down, or a fire; discuss reasons for these changes; and explain their probable effects on the community and the environment |
| A.4.9 | Give examples to show how scientific and technological knowledge has led to environmental changes, such as pollution prevention measures, air-conditioning, and solar heating |
| B.4.8 | Compare past and present technologies related to energy, transportation, and communications and describe the effects of technological change, either beneficial or harmful, on people and the environment |
| D.4.7 | Describe how personal economic decisions, such as deciding what to buy, what to recycle, or how much to contribute to people in need, can affect the lives of people in Wisconsin, the United States, and the world |

Minnesota

Science

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| 1.1.1.1.1. | Scientists work as individuals and in groups to investigate the natural world, emphasizing evidence and communicating with others. |
| 1.1.3.1.1. | Designed and natural systems exist in the world. These systems are made up of components that act within a system and interact with other systems. |
| 1.3.1.3.1. | Earth materials include solid rocks, sand, soil and water. These materials have different observable physical properties that make them useful. |
| 1.4.2.1.1. | Natural systems have many components that interact to maintain the system. |
| 1.4.3.1.1. | Plants and animals undergo a series of orderly changes during their life cycles. |

Social Studies

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| 1.1.1.1.1 | Demonstrate ways good citizens participate in the civic life of their community; explain why participation is important.For example: Ways to participate—pick up trash in park, vote, help make class decisions. |
| 1.3.2.3.1 | Compare physical and human characteristics of a local place and a place far away on a globe or map (such as a place in an equatorial or polar region). |

Illinois

Science

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| 1.11.4.01. | Understand how to design and perform simple experiments. |
| 1.12.4.01. | Distinguish between living and non-living things. |
| 1.12.4.04. | Identify the basic needs of living things: animals need air, water, food, and shelter; plants need air, water, nutrients, and light. |
| 1.12.4.05. | Understand the functions of component parts of living things. |
| 1.12.4.06. | Understand that some characteristics of living things are inherited from parents, such as the color of a flower in a plant, or the number of limbs on an animal. Understand that other features, however, are acquired by an organism through interactions with its environment (or learned) and cannot be passed down to the next generation merely through reproduction. |
| 1.12.4.07. | Understand the concept of food chains and food webs and the related classifications of plants or animals (e.g., producers, decomposers, consumers, herbivores, carnivores). |
| 1.12.4.08. | Know that the world contains many kinds of environments, and that different animals and plants are suited to live in different environments. |
| 1.12.4.09. | Understand that each plant or animal has different structures that serve different functions in its growth, survival, and reproduction. Understand the concept of animal camouflage and how it relates to the survival of living things. |
| 1.12.4.13. | Understand that human activities can change the number of species in an area, whether by increasing it or decreasing it. |
| 1.12.4.29. | Understand that Earth's basic materials are land, water, and air. |
| 1.12.4.30. | Understand that a natural resource is any material found on Earth that is used by people. Understand the difference between renewable and nonrenewable resources. Know that fossil fuels come from animals and plants, and that oil, coal, and natural gas are examples of fossil fuels. |
| 1.12.4.31. | Identify which everyday materials decompose most slowly (e.g., plastics, glass and ceramics decompose slower than metals, wood, or food substances). |
| 1.12.4.32. | Understand that the surface of the earth changes. Know that some changes are due to slow processes (e.g., erosion, weathering), whereas others are due to sudden events (e.g., landslides, volcanic eruptions, earthquakes, asteroid impacts). |
| 1.12.4.33. | Understand that some rocks contain plant and animal fossils. Know how they were formed. |
| 1.12.4.37. | Understand that land formations (mountains, valleys, shorelines, and caves) change slowly over time, and identify the major natural causes of such changes: (a) Slow causes: erosion, caused by wind, rain, glaciers, water freezing inside cracks of rocks (which expands and splits the rocks), the growth of tree roots; (b) Sudden causes: rare catastrophes (e.g., earthquakes, volcanic activity, asteroid impacts, floods). |
| 1.13.4.05. | Know that scientists accept a theory that is supported by tests and experiments until it is disproved or improved upon. |
| 1.13.4.11. | Identify ways that science and technology affect people's lives (e.g., in transportation, medicine, agriculture, communication) and careers. |
| 1.13.4.13. | Identify ways to reduce, reuse, and recycle materials. |
| 1.13.4.14. | Know that using measuring tools results in greater accuracy than making estimates. |
| 1.13.4.15. | Identify basic scientific instruments and their functions (e.g., ruler, balance, graduated cylinder, clock, stopwatch, thermometer, microscope, and telescope). |

Social Studies

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| 16.C.1a (W) | Identify how people and groups in the past, made economic choices (e.g., crops to plant, products to make, products to trade) to survive and improve their lives. |
| 16.E.1 (US) | Describe how the local environment has changed over time. |
| 17.A.1a | Identify physical characteristics of places, both local and global (e.g., locations, roads, regions, bodies of water). |
| 17.B.1a | Identify components of the Earth’s physical systems.  |
| 17.B.1b | Describe physical components of ecosystems. |
| 17.C.1a | Identify ways people depend on and interact with the physical environment (e.g., farming, fishing, and hydroelectric power). |
| 17.C.1b | Identify opportunities and constraints of the physical environment. |
| 17.C.1c | Explain the difference between renewable and nonrenewable resources. |

Indiana

Science

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| IN.1.1.1. | Use all senses as appropriate to identify the component parts of objects and the materials from which they are made. |
| IN.1.2.1. | Observe and compare properties of sand, clay, silt and organic matter. Look for evidence of sand, clay, silt and organic matter as components of soil samples. |
| IN.1.2.2. | Choose, test and use tools to separate soil samples into component parts. |
| IN.1.2.3. | Observe a variety of soil samples and describe in words and pictures the soil properties in terms of color, particle size and shape, texture, and recognizable living and nonliving items. |
| IN.1.2.4. | Observe over time the effect of organisms like earthworms in the formation of soil from dead plants. Discuss the importance of earthworms in soil. |
| IN.1.3.3. | Observe and explain that plants and animals have basic needs for growth and survival: plants need to take in water and need light, and animals need to take in water and food and have a way to dispose of waste. |
| IN.1.3.4. | Describe how animals’ habitats, including plants, meet their needs for food, water, shelter and an environment in which they can live. |
| IN.1.3.5. | Observe and describe ways in which animals and plants depend on one another for survival. |
| IN.1.4.1. | Use all senses as appropriate to sort objects as being composed of materials that are naturally occurring, human made or a combination of the two. |
| IN.1.PS.A1. | Use a scientific notebook to record predictions, questions and observations about data with pictures, numbers or in words. |
| IN.1.PS.A2. | Conduct investigations that may happen over time as a class, in small groups, or independently. |
| IN.1.PS.A3. | Generate questions and make observations about natural processes. |
| IN.1.PS.A4. | Make predictions based on observations. |
| IN.1.PS.A5. | Discuss observations with peers and be able to support your conclusion with evidence. |
| IN.1.PS.A6. | Make and use simple equipment and tools to gather data and extend the senses. |

Social Studies

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| 1.2.4 | Define what a citizen\* is and describe the characteristics of good citizenship |
| 1.3.2 | Identify and describe continents, oceans, cities and roads on maps and globes. |
| 1.3.4 | Identify and describe physical features\* and human features\* of the local community including home, school and neighborhood. |
| 1.3.9 | Give examples of natural resources found locally and describe how people in the school and community use these resources. |