

Journey School
Integrated Ecoliteracy
Curriculum Guide

*This is a living document which not only serves as a resource for our school,
but will hopefully inspire others to adopt similar models.*





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Journey School K-8 Integrated Ecoliteracy Curriculum Chart

Grades K-4

Areas of Study	Kindergarten	Grade 1 and 2	Grade 3	Grade 4
Study of the natural world	 Observation and exploration of “Outdoor Classroom” and of local surroundings during weekly nature walks	 Nature Stories blocks Weekly Nature Studies class (observation and exploration of local surroundings, nature activities and seasonal crafts)	Geography of our local surroundings Farming and Gardening Shelters Clothing and Fibers 2-3 day organic farm trip	Geography of our state and region Zoology Trip to zoo or animal park
Study of human being’s relationship with the environment	Listen to and reenact fairy tales with ecoliteracy themes 	Listen to and reenact fairy tales with ecoliteracy themes in Grade 1 and animal fables and Native American tales of nature in Grade 2 Life Cycle Intensive Trips to pumpkin farm, ocean, local open spaces, etc. 	Cultural history of dwelling, food, clothing, measurement, and farming methods around the world Weekly gardening and cooking classes Gardening intensive Trips to observe artisans and crafts people	Cultural history of local region and state, biographies of key environmental figures Emphasis on importance of human’s responsibility for animals in Zoology studies Ancestral Skills intensive Local trip to Gold Rush country or to native lands
Promoting healthy living habits	Help teachers w/daily environmentally conscious responsibilities (composting, recycling, care of indoor plants and animals, care of classroom and of campus) Cooking Baking Cleaning Gardening Local walks	Daily environmentally conscious responsibilities Cooking Baking Cleaning Gardening Local walks	Daily environmentally conscious responsibilities Development of self sufficiency through building, textiles, cooking, gardening blocks Local walks	Daily environmentally conscious responsibilities Native garden tending Local walks

Bold “intensives” indicate ecoliteracy specialty classes

Journey School K-8 Integrated Ecoliteracy Curriculum Chart

Grades 5-8

Areas of Study	Grade 5	Grade 6	Grade 7	Grade 8
Study of the natural world	<p>Geography of our continent</p> <p>Botany</p> <p>Study of Insects</p> <p>Trips to Catalina Island and to botanical gardens to study botany</p>	<p>World Geography through Earth Science (Biomes)</p> <p>Geology</p> <p>Physics</p> <p>Astronomy</p> <p>Hiking trip to mountains; astronomy overnight trip</p>	<p>World Geography and History</p> <p>Physics</p> <p>Anatomy and Physiology and Nutrition</p> <p>Inorganic Chemistry</p> <p>Wilderness experience</p>	<p>World Geography: Peoples of the Earth</p> <p>Meteorology</p> <p>Physics</p> <p>Anatomy and Physiology</p> <p>Organic Chemistry</p> <p>River trip</p>
Study of human being's relationship with the environment	<p>Cultural histories and biographies of environmental stewards in relation to regions of the United States</p> <p>Cultural histories/ technological developments of ancient India and Middle East to Age of Greece</p> <p>Rainwater Harvesting intensive</p> <p>Trips to wastewater treatment center, beekeeper, plant nurseries</p>	<p>Cultural histories/ technological developments of Roman History – Middle Ages and in relation to geography of Europe, Asia, Africa and Arabian Peninsula</p> <p>Biographies of environmental stewards</p> <p>Recycling and composting intensive</p> <p>Developing an eco-friendly business in Business Math</p> <p>Trip to landfill facility</p>	<p>Cultural histories/ technological developments of Renaissances and Reformations around the world</p> <p>Study of human being as synthesis through Anatomy and Physics studies</p> <p>Permaculture studies intensive</p> <p>Tall ship sailing experience</p>	<p>Cultural histories/ technological developments of Revolutions-present day;</p> <p>Biographies of environmental stewards; visit environmental HS and/or sustainable community</p> <p>Ecoliteracy leadership intensive and projects</p> <p>Application of scientific principles in industry</p> <p>Trips to factories, museums</p>
Promoting healthy living habits	<p>Daily environmentally conscious responsibilities</p> <p>Gardening</p> <p>Local walks and bike rides</p>	<p>Daily environmentally conscious responsibilities</p> <p>Leadership of school's recycling and composting program</p> <p>Local walks and bike rides</p>	<p>Daily environmentally conscious responsibilities</p> <p>Support recycling and composting program</p> <p>Nutrition and hygiene addressed in Human Anatomy and Physiology and Chemistry</p> <p>Ropes course, local walks and bike rides</p>	<p>Daily environmentally conscious responsibilities</p> <p>Support recycling and composting program</p> <p>Nutrition and hygiene addressed in Anatomy and Physiology and Chemistry</p> <p>Ropes course, local walks and bike rides</p>

Bold "intensives" indicate ecoliteracy specialty classes

Kindergarten

Curriculum Background

Kindergarten children comprehend life through their limbs (which we refer to as “the will”) and through their senses. They are keen to imitate the adults in their lives to learn how to be in the world. Cognition happens through images not reason, thus their love of stories, nursery rhymes, and songs.

In alignment with these abilities, we share environmental principles and concepts through “living pictures that fill (the children’s) souls with wonder and surprise” (Mitchell) instead of abstract concepts, which they cannot understand as of yet.

Rudolf Steiner, founder of Waldorf education, explained that we adults must become “comrades of nature” to share these living pictures well. This means that not only must we develop a living relationship with the natural world such that we show the children that the world is good and beautiful, we must also talk to the children as if plants, trees, all living beings, speak to us just as they seem to speak to the children.

Along with imparting these living images of nature, we give the children plenty of time to explore their local natural surroundings. While they are exploring, we awaken the children’s observation so that they notice the blue heron hiding in the shadows of the creek, the only pine tree among the sycamores, and the little rabbit nibbling on grass in a corner of the play yard -- and feel reverence for the world.

All of the primary senses are engaged in this observation. The teacher allows the children to gather sensory impressions but does not lead them to ready-made conclusions or ideas. We let them come to their conclusions through their experience. With this we lay a healthy foundation for scientific thinking.

One will find, as well, that another key aspect of building the children’s relationship with nature in the Kindergarten is by linking it with the artistic. Engaging the arts is a ‘hook’ for the children to feel a deep connection with what they are experiencing.

*“The emphasis is on joy of discovery, beauty of form,
play of light on color, love of the world and all that therein is”.*

Ecoliteracy in Kindergarten

Our overall focus is to develop the children’s trust in the world. To this end, the teachers engage the children in consistent and authentic **observation and experience of our natural environment** and model **daily environmentally conscious practices**, all the while sharing their view that the world is a good place.

The children imitate their teachers, building their understanding of the interconnectedness of all life and of nature’s life-sustaining systems, and encouraging the beginning steps towards life-long sustainable habits.

Observation and experience of our natural environment in the Kindergarten includes:

- Exploring basic physics principles, such as mass, density, gravity, balance, and the creation of pulleys and levers in their creative play with large stones, hay bales, big wooden blocks, and other large play equipment in our playspace.
- Experiencing the properties of heat and cold, and observing the rain cycle, seasonal changes and other weather phenomena during their 'outdoor classroom' time.
- Exploring water, mud, sand, pebbles, logs, stumps, rocks and stones, wool, cotton, and other natural materials using their five senses.
- Experiencing the cycle of growth by helping the teacher prepare, plant, and grow vegetables and then harvest food in the Kindergarten garden, from seed to harvest to transformation through cooking.
- Taking weekly nature walks, thus becoming aware of the seasons and forming a connection to the local natural environment.

Practical, hands-on environmental experiences and artistic endeavors inside the classroom include:

- Preparing and eating wholesome snacks such as brown rice, millet, and steel cut oats. Cooking and baking provide many opportunities to observe chemical phenomena. The children learn about smells (acrid, sweet, pungent), tastes (salty, sweet, sour), and surfaces (smooth, rough, soft). They experience fermentation through the smell of yeast as they knead bread dough on a weekly basis. They observe the spongy dough rising and see it transform into bread in the hot oven.
- Serving others, giving thanks for one's food, and appreciating healthy foods during the daily snack.
- Having gratitude for the supplies that nature shares by learning how the bees gave the beeswax for our crayons and the trees the paper on which we draw, for examples.
- Exploring warm, cool, and tepid water temperatures while washing dishes, wool, towels, and their cloth napkins.
- Listening to fairy tales with ecoliteracy themes and then reenacting them.
- Reciting fingerplays, poems, and movement verses and singing songs, which describe animals, plants, and the seasons
- Communicating their nature observations orally and through weekly drawings and imaginative play.
- Combining colors in watercolor painting, drawing, carding and felting raw wool, and making dolls from garden grasses.
- Honoring the seasons and their festivals by creating arts and crafts from natural materials with their teacher. They may use wool, sticks, cones, grasses, flowers and other natural materials, using plant dyes to color natural fabrics, smelling bouquets of fresh flowers, gathering yellow leaves in the autumn, admiring a quartz crystal or a found bird's nest.

Helping the teacher with the daily environmental responsibilities is an essential part of Kindergarten work. This includes taking out the compost after snack, recycling cans and glass jars used in cooking, caring for the nature table in the classroom, caring for any class animals, watering plants, doing the dishes, using cloth napkins at snack.

Background Info

Mitchell, D. *Child Development and the Teaching of Science*.

<http://www.waldorflibrary.org/articles/664-child-development-and-the-teaching-of-science>.

Grades 1-2

Curriculum Background

Jean Piaget, renowned French child development theorist, shared that children aged 7-11 years old are at the concrete operational stage of thinking. At this stage of development the children need to have **direct visual and tactile experience with phenomena** and they need to have **feeling and willing ‘hooks’** to understand observable cause-and-effect and simple patterns of nature. Steiner called this kind of thinking ‘imaginative-feeling’ thinking and explained that children from 6-8 years old feel no separation between self and world. Both agree that this thinking transforms into intellectual thought gradually and delicately.

With this understanding we lay a healthy foundation for scientific thinking by following Steiner’s suggestions:

- We adults are “comrades of nature” guiding the children to nature principles and concepts by immersing them in nature and sharing what he called the “Book of Life” with them. This means talking to the children as if plants, trees, all living beings, speak to us and to have a relationship with the natural world such that we show them that the world is good and beautiful.
- We transform science/environmental principles and concepts to be learned into nature stories*.
- We give the children plenty of activities in their local natural surroundings and stimulate their observation so that they notice the leaves on the liquid amber trees changing colors, that the water swirls round that rock in the river the same way each time, that the sunflower’s seed head swirls round as well.
- We immerse the children in creating a deeper relationship with nature through the artistic - let them draw, paint, model, sing, dramatically retell, move, and recite nature poetry.
- We engender gratitude for the supplies that nature shares with us by describing how the bees gave us the beeswax for our crayons and the trees the paper in their main lesson books, for examples.
- We engage them in the celebration of seasonal festivals where the link with nature is inherent.

The key to bringing ecoliteracy to children at this developmental level is to refrain from giving the children fixed judgments or concepts. Emphasize the interconnectedness and wholeness of life. Give the children time observe and contemplate. Answer their questions with imaginative but truthful facts so that you expand their curiosity just the right amount. Make sure that they have enough time outdoors to experiment, contrast and compare without lots of adult direction.

When they are given these things, they build up their own experiences of nature so that in adulthood they develop into creative thinkers who have a respect for the natural world.

**Note about Nature Stories*

Nature stories allow children to widen their relationship with their immediate environment and work on transforming the children's wonder of nature from a will level to a feeling level. Tell them about the everyday happenings in the world of nature imaginatively so that all things, including sun, moon, stars and meteors "are able to converse with one another as characters who act together." Reveal the aspect of nature that is hidden to the children through the conversation or experience the characters have together. In this way you let nature "speak" and awaken the child's wonder and interest in being in nature and more carefully observing it.

You can plan such stories to tell during the Nature Stories block or spontaneously make them up when you see a blue heron along the creek trail with the children or you find a cricket in the yard. You can also tell them for their pedagogical, healing nature.

Try to create stories yourself - the children can tell that they come from your earnest interest in understanding nature.

Grade 1

Ecoliteracy in Grade 1

Ecoliteracy has a strong focus in the *Nature Stories* main lesson block and in the once a week *Nature Study* class in Grade 1.

Practical, hands-on experiences in *Nature Study* class include:

- Reciting fingerplays, poems, and movement verses and singing songs, which describe animals, plants, and the seasons
- Taking nature walks in their local environment, during which the students observe seasonal changes, plant and animal life, and the symbiotic relationships they have
- Preparing, planting, soil building, and growing vegetables, regularly visiting the garden to observe the plants' growth, and harvesting food in their garden bed in the Green Heart Garden
- Engaging in nature games and activities. *Sharing Nature with Children* by Joseph Cornell is an excellent resource (see Resources for more books).
- Honoring the seasons and their festivals by creating arts and crafts from natural materials (see Resources for books). Use wool, sticks, cones, grasses, flowers.
- Cooking which provides many opportunities to observe chemical phenomena.
- Helping animals throughout the year by building bird boxes, bat and owl houses, bird feeders.
- Working with the elements of earth, air, fire and water in their play on the yard.

During the *Nature Stories* block and throughout the year in the *Nature Study* class the students learn through imaginative stories that:

- Materials come in different forms (states), including solids, liquids, and gases and when the substances that are mixed, cooled or heated they change. For example, the teacher introduces the concept of the water cycle through a narration involving the adventures of a water droplet that makes the journey from the sea to the mountaintops, down the slopes to the valleys to return again to the sea.
- Animals and plants meet their needs in different ways, living in different kinds of environments, having features that help them live there, having different needs for water, food and light, and more. Stories of how different animals are born, and how certain animals hibernate are just two examples.
- Animals eat plants or other animals for food and may use plants or even other animals for shelter and nesting.
- A plant's roots, stem, leaves, and other parts have specific roles to play in the plant's development through stories of how seeds burst out of their seed coats, leaves take in the sun, or roots pull in just what they need from the soil.
- The process of photosynthesis is crucial for a plant's life. This is shared through a simple story, for instance of the sun's yellow light going deep into the blue earth and out of that meeting arising as green in the plant, to be expounded upon in later grades.
- Weather can be observed, measured, and described and use simple tools like a wind vane to measure weather conditions and record changes from day to day and across the seasons. The teacher might tell how the rain fairies and sun fairies work together to create the rainbow.
- Weather changes from day to day but that a season has predictable trends in temperature or of rain (or snow).
- The sun warms the land, air, and water and how the wind dries.
- To observe natural phenomena and answer the teacher's meaningful questions during nature walks.
- To develop their own questions and perform investigations.

Engaging in daily environmental responsibilities (including composting, recycling, caring for the nature table in the classroom, caring for any class animals, watering plants, using resources wisely, etc.) is another crucial component of the Grade 1 ecoliteracy curriculum.

Grade 2

Curriculum Background

In second grade, strong feelings of sympathy and antipathy rise up in the children. To meet these emotions and support the children's growth through this phase, we tell daily stories from different cultures that portray these two very different emotions. The stories told by the teacher speak to the children's imaginations allowing them to form their own inner pictures of right and wrong.

Multicultural animal fables, such as those from Aesop and Buddha, and from African and Native American lore, show the human's animal characteristics, also known as his lower emotions, pitted one against another.

In contrast to the animal fables, we also share the stories of great people - saints and heroes/heroines - who have overcome their base, animalistic tendencies to serve others with the greatest of intentions. We give the children a picture of how noble women and men have developed their inner life so as to express the human's highest ideal of selflessly serving and helping others.

Not only do we base the students' academic learning on the stories for a rich, integrated learning experience, we also share environmental principles and concepts when telling the fables and biographies or legends. For example, before a fable is told, the teacher characterizes the animals that will be in the fable and asks the students questions about their observations as well. The teacher describes how the animal walks, what their skin is like, and what kind of teeth for what use. She shares if the animal lives in a group or independently, if it is dependent on others for safety, if it hunts independently or in packs to kill prey, etc. Then the teacher shares the fable without explicitly giving the moral of the story to the children. That is for the children to ponder and talk about the next day.

In such a way the second grade teacher builds up objective and accurate pictures from within the animal kingdom that she will remind the students of in the Grade 4 zoology lessons.

Ecoliteracy in Grade 2

Ecoliteracy has a strong focus throughout Grade 2 due to the story content and is significantly highlighted in **two *Nature Stories* main lesson blocks in Grade 2** and in **the once a week *Nature Study* class**.

The ***Nature Study class*** includes a **10-week *Life Cycle* intensive** with our Earthroots Field School partner teachers, during which the students observe and experience the complex life cycles of 4 living things, the bee, the butterfly, the worm, and the seed. Representatives from the Tree of Life Nursery come to the school to help the students with milk seed planting for the butterflies. The class visits a beekeeper as well during this intensive.

Practical, hands-on experiences in Nature Study class include:

- Reciting fingerplays, poems, and movement verses and singing songs, which describe animals, plants, and the seasons
- Taking nature walks in their local environment, during which the students observe seasonal changes, plant and animal life, and the symbiotic relationships they have
- Preparing, planting, soil building, and growing vegetables, regularly visiting the garden to observe the plants' growth, chart/draw growth, and weed
- Harvesting food in their garden bed in the Green Heart Garden and using harvest for a class snack or lunch
- Engaging in nature games and activities. *Sharing Nature with Children* by Joseph Cornell is an excellent resource (see Resources for more books).
- Honoring the seasons and their festivals by creating arts and crafts from natural materials (see Resources for books). Use wool, sticks, cones, grasses, flowers.
- Cooking which provides many opportunities to observe chemical phenomena.
- Helping animals throughout the year by building bird boxes, bat and owl houses, bird feeders, etc.
- Working with the elements of earth, air, fire and water in their play on the yard.

During the ***Nature Stories*** blocks and throughout the year in the ***Nature Study class*** the students learn about:

- Animal characteristics, environments, habitats, behavior, etc. through the stories of the lives of various animals, including animal offspring resemble parents and one another; sequential life stages differ among animals (butterflies, frogs, mice); characteristics are adaptations to the environment; variations occur among individuals within a population.
- Different kinds of soil, the nature of erosion, basic geographical terminology such as mountains, islands, volcanoes, rivers, streams.
- Cycle of plant life and sequence of changes in plant growth.
- Geometric patterns of flowers and plants.
- Identification and quantification of groups of natural objects.
- Recurring cycles of the seasons, patterns of clouds, plant cycle, rock cycle.
- Contrasts and polarities of animals, plants and other natural phenomena.
- Details in nature through observation and listening to descriptions.

Environmental concepts are also highlighted in the **History/Social Studies** and **Mathematics** blocks of Grade 2:

History/Social Studies: The students learn about enlightened individuals in history, such as Francis of Assisi, Saint Odilia, Saint Christopher, Saint Patrick, and Caesar Chavez, Abraham Lincoln, Helen Keller, and Mother Teresa, who have inspired humanity to greater love, compassion for the natural world, and freedom from oppression; differences in geography, village life, occupations, and family relationships and how these differences affect humans; community debate concerning (brought through); and ways to solve problems in trade, cultural contacts, and concerning the environment through debate and consensus building.

Mathematics: The students learn about: Food production and consumption, the role of farmers, processors, distributors, weather and land and water resources through the running story of a fictional land in which many mathematical work is done. This land has all the requisite members (buyers and sellers of goods and services). The students later reenact the stories, solve mathematical problems concerning these buyers and sellers, and discuss how improvements to their work could be made and limits on resources from these same stories after which the students solve the mathematical problems concerning these limits.

Engaging in daily environmental responsibilities (including composting, recycling, caring for the nature table in the classroom, caring for any class animals, watering plants, using resources wisely, etc.) is another crucial component of the Grade 2 ecoliteracy curriculum.

Resources For Grades 1-2:

Background Info

Mitchell, D. *Child Development and the Teaching of Science*.

<http://www.waldorflibrary.org/articles/664-child-development-and-the-teaching-of-science>.

Nature Games

Bruchac, J. *Keepers of the Earth*. London, U.K.: Fulcrum Publishing, 1997.

<http://www.sharingnature.com>

Cornell, J. *Sharing Nature with Children*. California: Dawn Publications, 1998.

Cornell, J. *Sharing the Joy of Nature*. California: Dawn Publications, 1989.

Rockwell, R. *Hug a Tree*. Lewisville, N.C.: Gryphon House, 1983.

Nature Crafts

Petrash, C. *Earthways*. Lewisville, N.C.: Gryphon House, 1992.

Lovejoy, S. *Sunflower Houses*. New York: Workman Publishing Company, 2001.

Wilkins, M. *The Long Ago Lake*. San Francisco, CA.: Chronicle Books, 1990.

Cooper, S., Daisley, J. & Quillen, V. *The Children's Year*. Gloucestershire, U.K.: Hawthorne Press,

Carey, D. *Festivals, Family and Food*. Edinburgh: Floris Books, 1996.

GRADE 3

Curriculum Background

During Grade 3 children discern a separation between the self and the world, thus experiencing a fundamental change in thinking. They are ready to understand the kingdoms of nature in a more objective way and have the need to develop a new relationship with nature.

To this end the Grade 3 curriculum blends scientific, mathematical, and historical studies of how people meet their basic needs for shelter, food, clothing, etc. These studies answer the students' inner questioning about their place in the world and highlight the universal reliance that humanity has on the natural environment. The students also develop a deeper reverence for all that nature gives us. One example of this intra-curricular approach is in the study of measurement in Grade 3. The students learn how people created standards and units to measure length, time, weight/mass and volume/capacity by first using their own bodies or objects in nature.

Ecoliteracy in Grade 3

Ecoliteracy has a strong focus in three main lesson blocks in Grade 3:

- ***Farming/Gardening***
- ***Shelters***
- ***Clothing and Fibers***

And in two practical periods per week:

- ***Cooking***
- ***Gardening*** (includes a 15-week intensive with our Earthroots Field School partner teachers)

Practical, hands-on experiences are especially highlighted in Grade 3 with the students fully engaged in:

- Preparing, planting, soil building, growing vegetables and grains, and harvesting food in their own garden
- Experimenting and investigating in the garden and recording their observations
- 2-3 day stay at a local community-supported organic farm to work with the farmer in the fields and caring for the animals.
- Possible visits to a beekeeper, sheep ranch, historical farm, etc.
- Preparing nutritious meals during the weekly cooking and baking class
- Building simple structures, such as a sukkah, with natural materials
- Planning, costing materials and building a small structure for the school, such as garden tool sheds, shade structures, garden beds, etc.
- Washing, carding, and spinning wool into yarn, raising silk worms, working with leather
- Taking nature walks, during which the students observe seasonal changes and plant and animal life and learn about the symbiotic relationships in their local environment

By the end of the school year we expect the third graders to feel confident in knowing the basics of how to grow their own vegetables, identify healthy foods, cook and bake

simple recipes, process natural fibers, and build a simple shelter for themselves, in other words, how to be fully engaged with nature.

During the ***Farming/Gardening Block*** and the weekly Gardening class and using the 3rd grade garden as a classroom, the students learn how:

- The first peoples developed farming techniques, practiced animal husbandry, and cooked foods.
- Physical geography influenced crop selection, cultivation, tools, and hunting long ago and still today.
- Energy and matter transform in naturally occurring cycles, including sun/earth/moon cycles, weather, composting, soil creation, fermentation, and baking.
- Vermicomposting supports farming and gardening through the microbiological activity of organisms.
- Sustainable, whole-farm practices support healthy living. Topics include recognizing the importance of planting and harvesting at particular times of the year to get the highest yield, understanding the relationships among plants in relation to crop rotation, identifying how the use of animals supports the health of a farm, and reading weather patterns can help predict the outcome of the planting season are shared.

During the ***Shelters Block*** the students learn how:

- Early human cultures acquired natural resources from their surrounding environment to construct their dwellings.
- Physical environments (e.g., tundra, savannah, plains and grasslands, deserts, forests, wetlands, shorelines, etc.) influence what kinds of dwellings (ice, grass, mud, adobe, wooden, on stilts, etc.) people build.
- People today use sustainable methods of modern construction (straw bale, rammed earth, solar energy use, etc.) to cut energy costs.

During the ***Clothing Block*** the students learn how:

- To process wool, animal skins, flax, and/or silk to make clothing by visiting craftspeople, alpaca farm, etc. and/or hands-on activities.
- Physical geography influences the production and manufacture of clothing (e.g., tanning skins; growing flax, cotton, rayon; raising silk worms; sheep shearing, spinning, dyeing, weaving into cloth).
- Natural resources are processed to produce synthetic clothing.

Environmental concepts are also highlighted in the **two measurement blocks** of Grade 3:

Measurement of time and length: The students learn the history of measurement of time, explore the time cycles by making devices such as a sundial, water clock, or sand timer; learn how the measurement of length developed from one's own body measures and how standard measurements came to be, measure different items with their uncia (thumb), span, cubit, etc.; experiment with measuring lengths through building and mapping activities.

Measurement of weight, volume and money: The students learn how measuring weights and volumes came to be through farming and trading, and how standards of weight came to be; use their bodies to weigh items; experiment with weights and volumes in cooking and baking activities.

Engaging in daily environmental responsibilities (including composting, recycling, caring for the nature table in the classroom, caring for any class animals, watering plants, using resources wisely, etc.) is another crucial component of the Grade 3 ecoliteracy curriculum.

GRADES 4-5

Curriculum Background

As mentioned in the Curriculum Background for Grade 3, 9-10 year olds experience a change in consciousness. They become able to discern in a more objective way and show an increased desire to understand aspects of nature in more detail. They have undergone a gradual transformation from an imaginative experience of the kingdoms of nature to one in which they desire to study natural objects more abstractly.

In Grades 4 and 5 the students' thinking skills mature to such an extent that another shift in the curriculum is made - more exact, detailed natural science studies are brought. In grade 4 comes the study of the animal kingdom and then in Grade 5 the study of plants and their relationship with humans are introduced. The teacher continues to bring facts through a pictorial overview, always "relat(ing) the outer nature - the macrocosm - to the inner and bodily nature of the human being - the microcosm"¹. As stated earlier this presentation method supports the students' development of a deep humanitarian outlook as they advance in scientific knowledge.

Of course, these studies continue through the action-based approach of sharing the world of nature through hands-on experiences and projects, and honing the students' objective observation.

The students also learn in more detail about how cultures have changed their environment and what these changes have brought.

Grade 4

Ecoliteracy in Grade 4

Ecoliteracy has a strong focus in three main lesson blocks in Grade 4:

- ***California Geography and Culture***
- ***Zoology: Human and Animal (2 blocks)***

And in the 10-week ***Ancestral Skills*** intensive with our Earthroots School partner teachers. During this intensive the students learn about Native American culture and ancestral survival skills.

Practical, hands-on ancestral skills experiences that the students engage in during the school year include:

- Identifying and using edible and medicinal plants
- Creating tools such as fire-making tools and bows and arrows
- Creating natural crafts.
- Learning from Native American guest speakers.

During the ***Zoology: Human and Animal*** blocks the students learn about:

- The physiological aspects of the human being's senses, respiration and digestion.

- Comparisons of the human head with the cephalopodan and the human's trunk with the mouse.
- How the human's limbs are unique in the animal kingdom for the fact that they can move and work freely and serve others.
- Various animals' physiology, movement, traits, habitats, needs, relationship to the environment, and adaptations by which they become incredibly adept at particular skills. Of special interest is the study of correspondences between the human being and those animals that best represent the respiratory, the circulatory system, the nervous system and the metabolic systems of the human being.

Activities may include: Clay modeling of animals, watercolor paintings and drawings of animals, each student studies an animal of her choice and shares her findings with the class, field trips where the students explore various animal habitats and the environmental influences of certain animals in the region.

During the ***California Geography and Culture*** block the students learn how geography influences social and economic development and environmental conditions by learning about:

- How the indigenous people in Orange County lived, including their social system, agriculture, celebrations, and stories.
- The geography and history of the Aliso Viejo area.
- State's geographical features and how geography determines which plants and animals live where.
- Mission settlement and mission life, settlers who followed, the Mexican influence in State history, the discovery of gold, the rise to statehood, etc.
- How the Gold Rush transformed the economy of California, including the types of products produced and consumed, changes in towns, and economic conflicts between diverse groups of people.
- Importance of California rivers and the Colorado River for agriculture.
- Development and locations of new industries since the turn of the century, such as the aerospace industry and large-scale commercial agriculture.

Activities may include: Salt dough relief maps of California, Dramatic renderings of Native American stories, students create a moving 3-D map of California as the 'mountains', 'rivers', etc., visits to local and state historic sites, especially the San Juan Capistrano mission, longtime Aliso Viejo residents share memories with students, walking tours of local towns.

Engaging in daily environmental responsibilities (including composting, recycling, caring for the nature table in the classroom, caring for any class animals, watering plants, using resources wisely, etc.) is another crucial component of the Grade 4 ecoliteracy curriculum.

Grade 5

Ecoliteracy in Grade 5

Ecoliteracy has a strong focus in four key main lesson blocks in Grade 5:

- ***Botany*** (2 blocks)
- ***North American Geography*** (2 blocks)

And in the 4-week **Rainwater Harvesting** intensive with our Earthroots School partner teachers. During this intensive the students learn how:

- Most of Earth's water is present as salt water in the oceans.
- Water is in a constant cycle of evaporating, vaporizing, and reappearing as a liquid when cooled or as a solid if cooled below the freezing point of water.
- Water vapor in the air moves from one place to another and can form fog or clouds, and can fall to Earth as rain, hail, sleet, or snow.
- The amount of fresh water located in rivers, lakes, underground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.
- Watersheds provide water to communities.

Practical, hands-on rainwater harvesting experiences that the students engage in during the block and during the school year include:

- Visiting a local wastewater treatment center.
- Applying what they have learned about watersheds and water conservation rainwater harvesting.
- Using grade-level math and science standards to measure and calculate local annual rainfall.
- Developing projects that explore water conservation and efficiency practices on campus.

During the two ***Botany*** blocks the students learn how:

- Plants can be compared with human progress from birth onwards - various categories of plants (fungi, algae, gymnosperms, etc.) achieve more and more of the full nature of plants just like children growing and developing.
- Plants have a relationship with the elements of earth, water, air and fire.
- To explain plant physiology, plant types, cycles of germination, respiration and growth, and the major parts of a plant etc.
- Compare these to human physiology and human cycles.
- Photosynthesis, formation of sugars and carbohydrates, soil formation, erosion, and decomposition enable plants to grow.
- All plants have similar parts and each plant develops more of one nature than another (mushrooms=fruit, ferns=leaf, cactus=leaf, carnation is 'flirt', sunflower is 'old peasant', plants with very big leaves take a long time with everything).
- Insects support the plant world.
- Living organisms and most materials are composed of just a few elements.
- People use plants and trees to yield medicines, foods, building materials, etc.
- To describe the relationship of plants to climate zones and map the world's distribution of plant growth.

Activities may include: gardening classes, create charts describing plants growth, write compositions and poems about plant life, take a field trip to botanical gardens.

Possible Introduction to the Botany block: Ask the students to close their eyes and imagine themselves sitting in a meadow (or some natural place on campus). Tell them to pay attention to the trees nearby, the bushes beneath the trees, the grasses, then the flowers. You might tell them to “picture what it would look like without the trees (pause)....without the bushes (pause)....without the flowers (pause) - you are just sitting on the ground surrounded by grass (pause) ...now imagine what it would be like and feel like if all of the grass were gone and all that was left is barren ground”. Then lead a discussion of how the disappearance of each type of plant would affect the animal life that would dwell in the meadow. A wonderful story to follow up this imagination is *The Man Who Planted Trees* By Jean Giono.

During the ***Study of Geography: North America*** block the students learn how:

- Watersheds of the North American continent and the community of plants in relationship to each watershed and the availability of moisture in varying geographical conditions contribute to the geography and health of each region.
- Major ocean currents influence weather patterns on this continent.
- The geography and climate influenced the way various indigenous nations lived and adjusted to the natural environment of the North American continent, including locations of villages, the distinct structures that they built, and how they obtained food, clothing, etc., their varied customs and folklore traditions, economies and systems of government.
- Regions of the United States and Canada have developed based on climate, terrain (major mountain ranges, rivers), and cultural history.
- Customs and traditions, and regional history and regional poetry, tall tales and songs which contribute to a region’s identity, including the biographies of individuals who seem to exemplify a particular geographical setting, i.e., Lewis and Clark, John Muir, George Washington Carver.
- To name the location of the 50 States and the names of their capitals and have a working knowledge of the geography and political boundaries of the main continental areas of the United States of America as global citizens.

Environmental concepts are also highlighted in the following history blocks:

In every history block the students learn how ancient people paid attention to the natural processes and cycles of their world, how they looked for clues from the environment to use their local resources to survive and prosper, and how their shelters and farming practices were in alignment with environmental needs. Our studies also include presentations on the technological developments of ancient peoples, progressing from stone hammers of Neolithic society to advances in metallurgy, for example.

Ancient Civilizations: India and Persia: The students have a working understanding of the geography and climates of the Indian sub-continent and the Fertile Crescent, how the river system of the Fertile Crescent allowed for farming to develop, how the

ancient cultures of India, Persia, Mesopotamia, Babylonia, Chaldea, and Assyria developed agriculture and animal husbandry.

Ancient Egypt: The students learn about the geography and climate of the Nile River Valley and Delta during ancient times, the dependence on the river by the ancient Egyptians, how ancient Egyptians grew many different kinds of crops and that through its bounty from the Nile became a center of culture and power.

Greek mythology: The students identify the constellations of the Greek myths in the sky by naked eye observations, which becomes the springboard for studying astronomical phenomena in Grade 6; they learn how the ancient Greeks speculated on the four states of matter and of Democritus' theory of atomic structure and molecular bonding.

Engaging in daily environmental responsibilities (including composting, recycling, caring for the nature table in the classroom, caring for any class animals, watering plants, using resources wisely, etc.) is another crucial component of the Grade 5 ecoliteracy curriculum.

GRADE 6-8

Curriculum Background

Between 11-12 years of age, there is a dawning of the children's intellectual consciousness, when the imaginative/feeling perception, so prominent in the earlier years, begins to transform into causal thinking, and the students demonstrate a readiness for more objective **scientific experimentation**.

The curriculum meets these budding thinking abilities with the introduction of the 'pure' sciences through a multi-faceted teaching approach. Geology, astronomy, meteorology, physics, chemistry, and anatomy and physiology are brought in these three years.

There are four key aspects of this approach, which promote the school's ecoliteracy goals of interdependence, reverence, and responsibility:

1. We continue to begin each scientific lesson from the students' perspective so as to place the human being central between the world of matter and nature's laws and mysteries. By doing this, we preserve the students' sense of awe and interest in the scientific laws that govern our world.
2. Another unique feature of this approach is in the presentation method. Instead of stating the hypothesis on day 1, the teacher demonstrates an experiment and calls upon the students to observe carefully and ponder. The following day, during a class discussion led by the teacher, the students are asked to accurately describe what they saw, contemplate their observations and arrive at a conclusion. New concepts are found through the students' own inner thought activity and honed judgment. It is only after this contemplative, creative and collaborative work, will the students write up their scientific observations and conclusions.
3. The Grades 6-8 curriculum is devised so that the students gain a broad comprehension of the basic scientific principles of the machines and technological devices they use in everyday life. Rudolf Steiner shared that when the students are aware of how, for example, an internal combustion engine works, then they have "a degree of inner certainty" about using it and, more importantly, they sense a surety with their own "purposefulness". With this feeling of purpose the students will grow into adults who feel the importance of "bringing forward their own contributions". This is a certainty so needed in our world as we face a multitude of environmental issues.
4. Lastly, environmental problems are shared with the students in the context of their science, mathematics or history studies. The teacher brings an issue in connection with the students' positive emotional connection with the world so that they can come to sound objective judgments through an inner interest and desire for activity. Often the class will embark on some action since the will to act is strong.

Through this student-centered approach, rigorous independent thinking and sound judgment are cultivated to prepare the students to become innovative and inspired environmental leaders.

Ecoliteracy concepts, linked to cultures' impact on the environment and economics, are regularly shared in the Geography and History studies in a multi-disciplinary fashion.

Grade 6

Ecoliteracy has a strong focus in two key main lesson blocks in Grade 6:

- ***Earth Science (or World Geography)***
- ***Mineralogy and Geology***

And in the 7-week ***Composting, waste management and waste reduction*** intensive with our Earthroots School partner teachers, which prepares the students for leading the campus-wide **Composting and Zero Waste Program**.

Practical, hands-on composting and recycling experiences that the students engage in during the block and during the school year include:

- Creating and performing skits and presentations at school assemblies and classroom visits
- Modeling composting and recycling behaviors for younger students
- Overseeing the other classes' composting and recycling tasks, school-wide cleanliness, and compost bins and communicate needs to other classes
- Taking a field trip to the local waste management facility
- Conducting school-wide energy audits and sharing recommendations to school administration on ways to reduce energy

During the ***Earth Science*** block the students learn how:

- Each biome of the world (e.g., tundra, grasslands, deserts) is a “community” of specific geographical features, vegetation and animal life, influenced by climate patterns.
- Rich varieties of complex organisms have developed in each biome in response to a continually changing environment.
- Food webs and the food chains within these webs are key features of healthy ecosystems within biomes.
- Human interaction causes positive and negative changes in a biome depending on how its resources are used, thus the importance of composting and managing waste is essential.

Activities may include: Biographies (such as John Muir) of or visits from local environmental stewards in land management, visits to two very different biomes in the region (desert vs. grasslands) and compare, performance of food web skits at a school assembly.

During the ***Mineralogy and Geology*** block the students learn to:

- Compare igneous rocks to sedimentary rocks and explain how igneous, sedimentary and metamorphic rocks are in relationship with certain topographical landscapes.
- Describe the rock cycle, how soil is formed, and how weathering and transportation and deposition of sediment reshape topography.
- Investigate the earth's lithospheric plates and how earthquakes happen, realizing that the earth is ever changing.

- Explore the geology of the Orange County area, deciphering its origins through observation and deduction of plate tectonics, discovering different reactions to acid rain, smog, etc.
- Understand the practical applications of the minerals by learning about the manufacture of glass, semiconductors and cement.
- Investigate the process of extracting minerals and how it affects habitats and biological diversity.
- Examine the origins, industrial manufacture, and consequences of the fossil fuels, coal and petroleum and distinguish whether they are renewable or nonrenewable.
- Investigate the role of precious metals in human civilization.

Activities may include: Visits to a limestone landscape such as the Limestone Canyon Wilderness area in Irvine and a granite landscape such as the nearby Santa Ana Mountains to compare; guest speakers from the petroleum, biodiesel, concrete industries; visit to a local gemstone mine.

Environmental concepts are also highlighted in the following science, history and mathematics blocks:

Introduction to Physics: Heat, Light, and Sound: The students learn about the qualities of different sounds and discuss the effects of noise pollution during their acoustics study; in optics the teacher shares demonstrations that show the effects of particles in the atmosphere and the students discuss the issues of air quality in the Los Angeles basin; and during their studies of heat and warmth there are discussions about the burning of fuels, the effect of heat on various substances and states of matter, and the teacher shares an introductory presentation of climate change.

Introduction to Astronomy: The students learn about how the movement of the sun, moon, and other planets and their relationships affects the earth's systems; develop a knowledge of and appreciation of the constellations visible in the night skies; and debate the concerns of light pollution at night. An overnight field trip is essential during this block.

Culture, History, and Life of Ancient Rome: The students learn how the development of Roman republic and its system of roads increased economic development and the exchange of natural goods; discuss how the excesses of Roman life affected the use of natural goods, services and systems and led to the downfall of the culture.

European Medieval Ages and the Rise of Islamic Culture: The students learn how trade routes and changes in farming further influenced economic development and changes to ecosystems, identify how the natural features and biomes of Europe, Asia, Arabian Peninsula and Africa affected how each ecosystem provides goods and services; describe how the development of feudalism, markets, and merchants influenced the transportation of goods, land rights, use of resources, spread of disease, etc.

Business Math: The students may create a small business based on recycling, community-supported agriculture or a farm to table pop up restaurant to learn the business math concepts. During this hands on experience they learn more about sustainable agricultural practices, recycling practices, and energy consumption; devise energy consumption charts; and find ways to decrease their business' carbon footprint.

Engaging in daily environmental responsibilities (including composting, recycling, caring for the nature table in the classroom, caring for any class animals, watering plants, using resources wisely, etc.) is another crucial component of the Grade 6 ecoliteracy curriculum.

Grade 7

Ecoliteracy has a strong focus in three key main lesson blocks in Grade 7:

- ***World Geography and History (1250-1500)***
- ***World Geography and History through the Explorers (1500-1600)***
- ***Anatomy and Physiology and Nutrition***

And in the 7-week ***Permaculture Studies*** intensive with our Earthroots School partner teachers during which they learn about sustainable living and apply the tenets of permaculture to the Journey School campus.

Practical, hands-on permaculture experiences that the students engage in include:

- Visit to Pine Manor to learn how to cob build or Quail Springs Permaculture Farm in Ojai for 3 nights
- Designing how their own learning environment would look, feel, and work if all of nature's elements and resources were efficiently integrated and responsibly consumed.
- Sharing their projects with key campus stakeholders
- Possibly creating one of the proposed learning environments on campus

During the ***World Geography and History (1250-1500)*** and the ***World Geography and History through the Explorers (1500-1600)*** blocks the students learn how:

- A new dawning of political, religious and scientific development encouraged exploration beyond earthly and heavenly borders.
- The origins of empirical science were found in curiosity and fascination with the natural world.
- The social significance and consequences of applied science along with the scientific advances that occurred during this era.
- The beginnings of empirical science were found in curiosity and fascination with the natural world.
- World cultures, trade routes, and economic and political ties between Africa, the Americas and Europe have changed
- Landscapes, weather, resources and cultural norms, customs, and lifestyles of the world regions affect farming and industry, population and economic growth, and environmental issues.
- The exchanges of plants, animals, technology, culture, and ideas and the Triangular Trade system among Europe, Africa, Asia, and the Americas in the fifteenth and sixteenth centuries changed international trading and marketing patterns and caused major economic and social effects on each continent.
- To identify all continents and key geographical locations on a world map to demonstrate global citizenship.

Activities may include: Guest speakers from different cultures, individual student presentations on an explorer and/or present-day indigenous culture.

During the ***Anatomy and Physiology and Nutrition*** block the teacher begins from the point of personal care so that the students learn about:

- How the respiratory, circulatory, digestive, glandular and reproductive systems function because of the contributions of individual organs, tissues, and cells

and how these systems are reflected in the plant kingdom. The failure of any part can affect the entire system.

- The five food groups and comparing the nutritive value of different kinds of food.
- The consequences of how one approaches nutrition, exercise, substance abuse, and alcohol consumption.
- The ramifications of buying local produce, of engaging in the slow food movement, of sitting down for meals, of offering thanks before meals, etc. in context of what modern research has found as benefits of such practices.

Activities may include: Guest speakers who have recovered from drug, tobacco or alcohol addiction and eating disorders, dieticians, and/or doctors; interviewing local farmers.

Environmental concepts are also highlighted in the following science and history blocks:

Physics: Acoustics, Electromagnetism, Optics, Mechanics and Simple Machines:

The students continue their investigation of qualitative differences of sound, how sound creates patterns through chladni plate demonstrations; of color phenomena in nature, how the eye perceives light; build a simple motor to learn how it works; and study and use the basic machines, lever, gear, pulley, inclined plane, wedge and screw, contemplating how they have helped humans advance.

Chemistry: The students learn about the extraordinary transformations when acids and bases combine (i.e., combining of hydrochloric acid and sodium lye, that rots whatever it touches, transforms into a new substance, common salt); discuss how these transformations are reflected in our inner life; discuss the dangers of acid pollution after studying the properties of oxygen and carbon dioxide and the special characteristics of the combustion of phosphorous, sulphur and carbon; identify how quick-lime and lime are used in industry, as well as the uses of acids, bases and salts; work with quick-lime in creating garden walls, oven, etc. for the school.

Geography and Medieval History of the Far and Near East and Africa: The students investigate key scientific, cultural and political events of the Near East, sub-Saharan, Chinese and Japanese civilizations, which shaped the regions and contributed to later civilizations.

Renaissance, Reformation and Elizabethan England: The students learn about the rise of humanism and the ideal of the “Renaissance Man (or Woman)” as master of many disciplines; learn how the origins of empirical science were found in curiosity and fascination with the natural world; and, investigate the social significance of applied science along with the scientific advance itself.

Engaging in daily environmental responsibilities (including composting, recycling, caring for the nature table in the classroom, caring for any class animals, watering

plants, using resources wisely, etc.) is another crucial component of the Grade 7 ecoliteracy curriculum.

Grade 8

Ecoliteracy has a strong focus in three key main lesson blocks in Grade 8:

- ***Chemistry of Nutrition***
- ***Anatomy and Physiology***
- ***American History and U.S. Government***

And in the 4-week ***Eco-leadership*** intensive with our Earthroots School partner teachers. During this intensive the students learn about environmental projects by modern adult and youth eco-leaders and initiated around world and in our local area. As students near the end of their Journey School education, their Ecoliteracy Students may.

Practical, hands-on *Eco-leadership* experiences that the students engage in may include:

- Learning from and with eco-leaders in our local area, such as Buster ? of Biodesiel
- Visiting Los Angeles Environmental Charter High School and/or other model environmental action institutions or initiatives
- Implementing their own environmental projects that benefit the Journey School campus and the local community. For example, in 2012, an 8th grader worked with watershed management professionals and managed a team of volunteers to design and install a rainwater catchment system for Journey's campus.

During the ***Chemistry of Nutrition*** block the students learn about:

- The chemistry of carbohydrates (sugars, starches, cellulose), proteins, fats, including how cooking alters the chemical makeup of these plant and animal tissues, solubility of elements, molecules and compounds, and the testing for starch, sugars, proteins and fats.
- Calcium, carbon, and nitrogen cycles.
- History of sugar and industrial processes such as making of soap, perfume, margarine, sugar, starch flour, paper, candles, matches, smelting, the extraction of salt.

Activities include: Make jam, perfume, paper, and candles; visit food processing plants and bakeries.

During the ***Human Anatomy and Physiology***, which coincides with the students' own maturation process, the students learn about:

- The mathematical beauty and threefold nature (the rounded form of the skull standing in opposition to the radial form of the limbs, and met halfway by the in-between stage of the thorax with its ribs) of the architecture of our skeletal system.
- The physics of the muscular system and its relationship with the skeleton and tendons.

- The intricacies of our sensory systems of sight and hearing in relation to the students' optics and acoustics studies.
- Nutrition and exercise are essential for the healthy functioning of these systems.

During the ***American History and U.S. Government*** block the students learn how:

- Industrialization and policies and attitudes concerning slavery contributed to divergent cultures of North and South and patterns of agricultural and industrial development are related to climate, use of natural resources, markets and trade.
- The westward expansion and land grant system created economic incentives and challenges for the new nation.
- The great river system of the United States allowed for effective transportation of goods and people but also led to struggles over water rights.
- The Civil War and Reconstruction affected the physical environment and social structures of different regions.
- The effects of urbanization, immigration, industrialization, child labor, working conditions, government policies, labor movement have affected the environment
- Inventors and their inventions changed our quality of life (for examples, Edison, Graham Bell, Wrights).

Environmental concepts are also highlighted in the following science and history blocks:

Meteorology: The students learn about atmospheric layers, winds, highs and lows, cloud types, fronts, hurricanes and tornadoes, air currents, climate change, and how to read a weather map and use a barometer.

World Geography: People of the Earth: The students examine how the history and geography of regions have affected their economic development and environmental health; learn about the economic and environmental impact of globalization on different regions of the world, discuss how sustainability and green practices can improve quality of life in all regions.

Engaging in daily environmental responsibilities (including composting, recycling, caring for the nature table in the classroom, caring for any class animals, watering plants, using resources wisely, etc.) is another crucial component of the Grade 8 ecoliteracy curriculum.

APPENDIX: Journey School's Ecoliteracy Intensives

Journey School's ecoliteracy intensives began as a campus-wide environmental sustainability curriculum for grades Kindergarten through 8, and were implemented as a pilot program in the 2010-11 academic year. The intensives are a natural extension of Journey School's Waldorf-based curriculum, providing experiential learning opportunities that cultivate environmental stewardship and global awareness in students. Using nature as a classroom, the intensives integrate science, math, language arts, and the creative arts, enabling students to make complex connections between different skill sets and areas of knowledge. The overarching goals of these specialty classes are to instill in students the interconnectedness of all life and to encourage them to consider the health of the earth in their day-to-day and future decision-making.

In alignment with Journey School's Waldorf roots, the ecoliteracy intensives are designed according to students' natural intellectual and emotional development. Curricular themes for each grade level are summarized as follows:

- **Kindergarten and 1st Grade:** In the early years, children are encouraged to develop a kinship with nature and appreciate the interconnectedness of all living things by going on exploratory hikes, playing in natural playscapes, and creating art that celebrate nature.
- **2nd Grade:** Students observe and experience the complex life cycles of 4 living things: the bee, the butterfly, the worm, and the seed. Learning standards in life science are explored through music, art, and hands-on work in Journey School's Green Heart Garden.
- **3rd Grade:** Using the garden as a classroom, students learn about the way people farm and eat, in addition to building using natural materials. Activities include soil building, growing and harvesting food, preparing nutritious meals, vermicomposting, and recycling.
- **4th Grade:** Students learn about Native American culture and ancestral survival skills. Activities include identifying and using edible and medicinal plants, creating tools such as fire-making tools and bows and arrows, and natural crafts.

As the Waldorf pedagogical focus shifts from observation to hands-on learning, the intensives follow suit by emphasizing the scientific method, inductive and deductive thought processes, and multidisciplinary modes of expression. Themes for the upper grades are summarized as follows:

- **5th Grade:** Students learn about watersheds, water conservation and applications in rainwater harvesting. Students use grade-level math and science standards to measure and calculate local annual rainfall, and develop projects that explore water conservation and efficiency practices on campus.
- **6th Grade:** Students manage the campus-wide composting program and educate other grades about recycling. They conduct school-wide energy audits and give recommendations to school administration on ways to reduce energy.
- **7th Grade:** Students learn about sustainable living and apply the tenets of permaculture to the Journey School campus, designing how their own learning environment would look, feel, and work if all of nature's elements and resources were efficiently integrated and responsibly consumed.
- **8th Grade:** As students near the end of their Journey School education, their Eco-Literacy knowledge culminates in eco-leadership, innovation, and critical thinking. Students implement a variety of environmental projects that benefit the Journey School campus and the local community. Last school year, for example, an 8th grader worked with watershed management professionals and managed a team of volunteers to design and install a rainwater catchment system for Journey's campus. Her work was widely lauded and featured by local newspapers, TV stations, and radio stations.