



Raintree School, St. Louis Missouri

School Contact Information

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School Eligibility and Compliance
School Characteristics

Summary Statement

Raintree School is a private Reggio-inspired Forest School serving two to six year olds in St. Louis. The Reggio approach holds that children are driven by their interest to understand and know more, and able to learn their place in the world through their interactions with others and with an environment filled with natural light, order and beauty. As a Forest School, Raintree's goal is that students develop civic character, sense of place, and depth of knowledge through inquiry-based thinking and student driven projects within the context of nature. It is a school founded on the premise that civically-minded outdoor, experiential education is a vehicle for change.

For Raintree School, it begins with the environmental landscape. On our nearly 11 acre, wooded campus, creating and protecting the threatened habitats for insects, birds, mammals and other wildlife within the residential corridor of Town & Country has been of utmost importance to our campus and neighboring residents. Having eliminated the threat of the woodland being leveled for a housing development, Raintree now works to remove invasives from the woodland while adding pollinator gardens and tall grasses in all landscaped zones and student-use spaces, so that school grounds are a haven for wildlife. The diverse landscape, created in collaboration with DJM Ecological Services, has maximized our campus's ecological benefit and added immeasurable value to our educational program as well as the neighboring community.

While the main focus is the grounds, we have also made significant progress on sustainability in our buildings. We added 170 solar panels, which reduced GHG emissions by 34%. And one of the benefits of establishing native plant communities instead of lawn is a 55% reduction in water use.

Healthy minds need healthy bodies to grow. Instructing, practicing, and modeling body-healthy ways of being is of utmost importance in Raintree's approach to support learners and the community. To accomplish this goal, we look to Sustainable Food Culture, a healthy school building, and prevention and reduction efforts.

At the center of the campus, the kitchen and dining room at Raintree School serve to create a model school food program. Children, families, and local farmers are intimately connected to food in three ways. 1. *Seasonally Responsive Cuisine* – School produce is purchased from local farms at in-season growing times and frozen for use in winter and early spring to reduce/eliminate reliance on purchasing food out-of-season. 2. *Local Food* – The only school in Missouri to partner with Eat Here STL, food from local farms is delivered weekly and school

menus (breakfast, lunch, and snack) are developed based on farm availability. Additionally, dairy and bread, tofu and honeys are purchased from local suppliers who use only local products. Ninety percent of all food on campus is locally sourced. 3. *100% on Site* - To ensure all food adheres to green kitchen standards, all students are required to eat from the school kitchen. Students are not permitted to “pack a lunch”, thereby reducing disposable bags and packaging, and ensuring all food on campus is in line with the above standards.

The entire curriculum has been built upon Raintree’s forest landscape. Every semester, every student on campus is engaged in action projects that focus on the woodland or the neighborhood surrounding the forest. From campaigns to protect waterways for toad populations to a public service announcement touting the effectiveness of a new, non-lethal technology to reduce-deer-car collisions in town, Raintree students’ learning is situated the needs of nature and the community. Raintree School’s dedication to citizenship-based models for teaching and learning helps bring our community’s environmental goals to life. 2018 will mark the adoption of a student researched and designed plan for reducing deer-vehicle collisions within Town & Country, MO, one that was presented to and approved by local aldermen.

When not engaged in community action projects, students spend one day each week in Forest School sessions within the wild ecosystem of the woodland. All inquiry, art, science, math and literacy instruction takes place outside in local habitats. Surrounded by homes, the woodland is the impetus for provocations of human environmental impact which are documented and presented as part of formal project outcomes. To ensure a coherent and scaffolded environmental and sustainable experience, all summer camps are also focused on Forest School pillars.

The first Forest School established in Missouri, and consultant to new Forest Schools in the region, Raintree is a model school in child-initiated, long-term community project work. To share the lessons we’ve learned and keep the momentum going throughout the region, every member of Raintree School faculty connects with other efforts in the region in a variety of ways – providing a popup outdoor school in local parks called Wildkin, the Gateway Children’s Nature Connection, Missouri Environmental Literacy Advisory Board, and the Development Committee of Experiential Education Exchange. Raintree also founded the Forest School Congress of the Midwest, Vaskebjorn, which will hold its 2nd conference this fall. Finally, Raintree produced a documentary, Forest Hymn for Little Girls, a film that challenges adults to make space for little girls to take risks, roll in the mud, hunt mysteries and nurture their inner scientist.

Cross Cutting Questions

1. Team

From the outset, Raintree School had a campus team to set effective and sustainable environmental, green practice goals while measuring the quality of our practice. Over time, Raintree School has integrated a variety of professional players to advise our efforts.

Ilya Eydelman, school president – Ilya identifies community resources, maintains professional relationships, and coordinates payment and schedule of services. Ilya was integral in beginning a partnership with DJM to build and maintain prairies and pollinator gardens on campus.

Brandi Cartwright, head of school – Brandi ensures green policy implementation in classrooms and adherence by faculty. Brandi hosts monthly faculty meetings to review green campus standards, provides updates for campus practice, and answers questions regarding implementation and student involvement. Brandi also includes information for parents in weekly newsletters and conducts conference workshops on the theory and practice of educational approaches that create and sustain long-term behavior change toward the environment.

Meghan Halsey, early childhood teacher – As a certified elementary teacher and faculty advisor on campus, Meghan consolidates and collects measurement data for use when setting baseline metrics and setting future green goals. Meghan oversees compliance with environmental grants on campus. Meghan leads Forest School initiatives and is a mentor for faculty on Forest School practice.

Katie Brown, chef, dietitian and nutritionist - As a professional chef, Katie sets and implements green kitchen and garden benchmarks on campus, seeks community farmers to support Raintree School's local food culture, and maintains partnerships with local food producers. Additionally, Katie and her kitchen team hosts free, green cooking workshops for the community, provides monthly reviews and updates on practices for faculty, and teaches at conferences on green kitchen practices. Importantly, Katie works to create a sustainable, community-supportive approach to feeding children and faculty and trains faculty and parents to be part of the healthy food, healthy planet kitchen culture.

Andrea Hediger, sous chef – With degrees in natural health, dietetics and nutrition, Andrea oversees kitchen operations and ensures all sustainable efforts within campus food culture align with health and nutrition standards. She also measures campus food composting goals, gathers data on freezing and storing in-season produce, conducts parent classes on local, seasonal cooking and oversees student use of campus food gardens. Andrea, essentially, provides metrics and assessment in all food-based procedures on campus, ensuring the wholesome food culture at Raintree School is equally supported by a comprehensive and specific sustainable practice.

Alex Bobenko, facilities manager – Alex oversees implementation of the use of cleaning methods and products with environmentally friendly ingredients and procedures. Additionally, he provides a fail-safe for full compliance with our recycling policies on campus. As a licensed construction worker, Alex monitors the schoolhouse and landscape and repairs, replaces, and upgrades campus equipment and structures.

DJM Ecological Services, a landscape architecture firm – DJM supervises all landscaping on campus, advises on native, water-wise planting, and conducts regular checks to ensure green practices are continued and the right plants are in place. They give consultation on techniques for reducing soil erosion, appropriate watering plans and WERAL plants.

Brian Feld, a registered architect at HKW architects – Brian advises on ways to increase efficiency and maximize green features within the school house, including upgrades, repairs, and features that may be considered for future integration to move our goals forward. He provides recommendations for services and companies for our use that fit within our standards of practice.

2. Benchmarking

We initially established baseline metrics and measured campus-wide progress through data collection in-house using utility bills for waste, energy and water consumption. In 2008, Raintree School's participation in EarthWays Centers' Leadership in Environmental Action Projects (LEAP) (and subsequent receipt of several LEAP grants) provided tools for students to work collaboratively with faculty to measure and set benchmarks for waste reuse, reduction, and recycling. December 2017 marked our use of EPA ENERGY STAR Portfolio Manager.

3. Awards

In the years prior 2014, Raintree School enjoyed yearly garden-support and composting grants from EarthWays Center and Inspired by Bulbs. Beginning 2014, grants provided raised beds to the student food garden, adding to the four beds created by the student body.

Leadership in Environmental Action Project (LEAP) Grant, 2014 – For four electric composters were provided to increase kitchen capacity to compost food scraps.

Gateway Greening, 2014 – For delivery and installation of 4, 4x10 ft. raised garden beds and planting soil. Volunteer gardeners, provided by the grant, also joined parents and students during installation to fill each bed with soil and begin planting seedlings that were started in every classroom.

Gateway Greening, 2015 – For delivery and installation of 6, 4x12 ft. raised garden beds and soil. The additional plots increased the kitchen's use of campus-grown produce to support after school snacks. With 1-2 plots per class now on campus, curriculum changed by assigning 1 garden plot to every 8 students for experiments, planting and growing, and personal snacks.

Gateway Greening, 2016 – For delivery and installation of a three-part outdoor composting system which brought our campus to a 50% zero-food waste campus. The addition of the system allowed for a more diverse range of food and larger amounts of organic compost for garden use. (Already in place was a Mantis Compost-Twin with a 20 bushel capacity.)

Gateway Greening, 2017 – For a garden arbor and tools for adult and child use increased the capacity of student garden work and parent involvement during weekly Garden Muck Days. Tools included wheel barrows, shovels, and trowels.

Subaru of America, 2017 – awarded native plants, tools, and seeds for the expansion of a native garden plot beside a classroom, called Creature Garden by students. With additional plants delivered, a new group of students were able to join the effort and get motivated to increase the footprint of the space.

World Forum Foundation Connecting Children and Nature Working Group, 2011 - Nomination to be part of the four-person team representing MO. 77 countries were granted attendance. The MO team, including Brandi Cartwright of Raintree School, was the only team represented from the Midwest

World Forum Foundation 2016: Chef Katie and Genevieve Ploch, early childhood educator, were invited to conduct a workshop for participants at the forum (representing more than 80 counties) on food cultures at schools that support sustainable communities.

4. Goals

1. Complete installation of electric car charging station to promote carbon-reduced transportation to and from campus.
2. Reduce water use on campus with additional rain barrels, rain garden installations, and upgraded faucet features at all sinks.
3. Increase native landscape on campus with focus on wildlife habitat.

Pillar I: Reduced Environmental Impact and Costs

ENERGY

1. Energy STAR

We enrolled winter 2017

2. Energy

Baseline Year: 2016	Energy (kBtu / student): 5958
Ending Year: 2017	Energy (kBtu / student): 4837
	Reduced kBtu: 1121 kBtu / student
	% Reduction: 18.8 % kBtu / student
	% Reduction per Year: 18.8 % kBtu / student / year

Reductions are documented through regular data collection and assessment of utility bills

3. Greenhouse Gases

Baseline Year: 2016	GHG Emissions (MT CO ₂ e / student): 0.32
Ending Year: 2017	GHG Emissions (MT CO ₂ e / student): 0.21
	Reduced GHG: 0.11 MT CO ₂ e / student
	% Reduction: 34 % MT CO ₂ e / student
	% Reduction per Year: 34 % MT CO ₂ e / student / year

Utilizing the EPA calculator at <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>, GHG Emissions were estimated for the baseline and ending year at Raintree School. Oct. 15th marked the final installation of 170 solar panels covering nearly 75% of the school's rooftop. From Oct. 15th-Dec. 22nd, 2017, 7,318 lbs. of CO₂ emissions were saved by use of the solar array. Also, By adding native trees to all sides of the site, protecting the existing forest on campus from conversion into housing and turfed backyards, Raintree kept GHG's from being emitted.

4. Renewable Energy – Does your school use a renewable fuel source?

On-site renewable energy generation: 53 % Type: solar
Purchased renewable energy: 0%

Oct. 15th – Nov. 30th. Solar panels were installed Oct. 2017. We do not have a full year's data gathered, however the projected estimate is approximately 80% for total annual cycle.)

5. Building - Has your school constructed or renovated building space in the past ten years?

New Construction (duplicate if necessary)

New Construction Year: 2017	Total Area of new construction: 5800 sq. ft.
Certification Year: NA	% Area that meets a green building standard: NA
Certification Standard: NA	

WATER AND GROUNDS

6. Water Use

Baseline Year: 2016
Ending Year: 2017

Water Use (gal / student / year): 10778
Water Use (gal / student / year): 4843
Reduced Water Use: 5935 gal / student / year
% Reduction: 55 % gal / student / year
% Reduction per Year: 55 % gal / student / year
% Reduction Domestic Water Use: N/A

Reductions of water use were documented through a thorough review of utility bills. Raintree School has experienced a significant reduction in total school water consumption despite a nearly 10% increase in our student body and 5800 sq. ft. building addition in 2017. Among many changes on campus this year regarding water use, native plantings and new trees have become established and now require less watering.

7. Water Efficient and Regionally Appropriate Landscaping (WERAL)

Total Area: nearly 11 acres WERAL Area: 9.97 acres % WERAL: 90%

Water Efficient Plants: Blue Star, Big Blue Stem, several varieties of Milkweed, Butterfly Weed, Prairie Sedge, Coreopsis, Tickseed, several varieties of Coneflower, several varieties of Blanket Flower, Clover, Spicebush, several varieties of Mint, Beebalm, several varieties of Fern, Oak trees, Sassafras, Goldenrod

Regionally Appropriate Plants: Cattails, Ground Cherry, Lamb's Ear, Glade Coneflower, Nettles, several varieties of Milkweed, Wild Strawberry, Tickseed Coreopsis, Wild Bergamot, Echinacea, Oak trees, Dogwood Red Bud, Junipers, Butterfly Weed, several varieties of Coneflowers, Water Canna, Big Blue Stem, Sideoats, Indian Grass, Switch Grass, several varieties of Aster, Garlic Mustard, Knapweed, Ragwort
Essential components of the plantings include tall grass prairie in two locations, integration of native gardens throughout playscapes, turf reduction, wildlife gardens around the school building. Additionally, mulching, a planted BMP, and strategic shade planting adds to campus WERAL features.

8. Alternate Water Sources

A rain garden was the first step taken to utilize rain water efficiently. We are currently planning the installation on an in-ground water tank for run-off collection to be used for irrigation.

9. Runoff

One hundred percent of impervious surfaces, including paved surfaces and roof, drain to an engineered water retention basin (BMP) with a native raingarden. The BMP filters all storm-water runoff through the use of native plantings and engineered soil. Two other highly impactful features on campus are a 1+ acre prairie for overflow parking in lieu of impervious parking surface, and planting every slope. Reports from campus neighbors cite reduced flooding in low-lying backyards and visibly cleaner water within Grand Glaize West Creek.

10. Ecological Beneficial Uses

Total Area: 11 acres

EB Area: 9.97 acres

90% EB Area

We have a tall grass prairie plot providing insect, bird and small mammal habitat; a boulder mound that provides nest space for four pairs of Turkey vultures; butterfly gardens in several plots along the west side of the schoolhouse, a pollinator garden along the entire north side of the playscape; a tall grass garden at the north side of the school house; tall grasses cover the slope of the west side of the school building; a planted stormwater BMP with toad habitat; and 8.5 acres of woodland along Grand Glaize Creek.

WASTE

11. Solid Waste

cu yds waste diverted: 65 %

mos. / yrs. covered : 12 months

avg monthly cu yd. waste / student: No data are available

mos. / yrs. covered: N/A

Our solid waste disposal provider does not collect data on how much they pick up. A rough estimate was determined by tallying the number of days the on-site garbage bin was reported empty by the provider against the number of days on-site recycle bin was reported emptied by provider, compared to the approximate number of trash/recycle bags collected by facilities manager. According to trash service records, full trash bin pick-up matched full recycle bin pickup days.

Our largest reduction efforts include: 53% of food waste composted for use in gardens. All paper, plastic, and glass are recycled or reused on campus. Over 50% school supplies are repurposed material from recycled goods warehouses. Additionally, our kitchen follows practices including: no plastics, use of leftovers, and zero use of disposables.

12. Hazardous Waste

How many gallons or lbs. does your school currently have of each of these classes of hazardous materials?

Flammable liquids: 0 Corrosive liquids: 0 Toxics: 0 Mercury: 0 Other: 0

Raintree School has a dual-point purchase system. As a small school, our control of hazardous waste benefits from having only two purchasing members of the staff: #1 for food and #2 for all else. As the single staff member purchasing non-food items, Ilya Eydelman ensures hazardous materials remain off campus. Raintree School does not use or store hazardous waste. The campus is a pesticide-free property. Only green certified cleaning products are used. Raintree School does not use laboratory chemicals, or solvents. A license variance allows us to use a non-toxic, biodegradable, green certified peroxide-based sanitizer in lieu of bleach/ammonia (normally required by licensing regulations for facilities of our type).

13. Green Cleaning

Which green cleaning custodial standard is used? CIMS-GB criteria

What % of your products are certified? 100%

What specific 3rd party certified green cleaning product standard is used? Green Seal, UL ECOLOGO, EPA's Safer Choice

14. Electronic Waste

Repair takes priority and is completed by a staffer able to work with electronic components. Raintree has minimal classroom electronics, including computers, greatly reducing probability of waste. In case of need for electronics disposal (including cords, batteries), local electronics recycling is utilized if donation is not an option.

TRANSPORTATION

15. Alternative Transportation

Incentives are offered to promote alternative transportation use along with choices that reduce environmental impact. A carpool system connects families and coordinates carpools to/from campus. We have begun installation of two electric car chargers, including a level 3 DC fast charger and level 2 high-amperage charger. Rough-in wiring and concrete pad for units have been completed. Final installation will be completed January 2018. Once installed, the chargers will be free to use and accessible to the public.

16. Accommodations for alternative travelers

An online carpool database on our school website's Parent Portal includes parent drive schedules and addresses to aide parents/administrators in coordinating carpool relationships. However, Raintree School's location prevents certain alternative transportation options. Sidewalks and crosswalks are not a part of the neighborhood surrounding the school campus. Additionally, 5% of parking stalls are reserved for electric vehicles only.

PURCHASING

17. Paper

% post-consumer recycled content paper: 99%
% paper from FSC certified forests: 99%
% chlorine-free paper: 99%

One third of paper on campus is once-used paper supplied from area businesses and schools. All purchased paper is 100% post-consumer recycled content. Raintree's recordkeeping and administrative operations are paperless. In February 2014, the campus ended use of paper towels in bathrooms, replaced by electric hand-dryers powered by solar panels.

18. Food

Established as a fully green kitchen, Raintree School partnered with EarthWays Center in Missouri upon the founding of the school. Raintree School operates a locally sourced meal program, serving breakfast, lunch, and snack to 100% of its students. The program follows a strict seasonally responsive menu that is 90% sourced from a 1-acre campus production food garden and local farms within 50 miles of the school. Approximately 60% of all food served is organic. Eggs are free range and milk is low-pasteurized. Meat is only served two days per week in an effort to increase sustainability and reduce carbon footprint.

OVERALL ENVIRONMENTAL IMPACT

19. Environmental Impact Summary

Raintree School has utilized diverse green practices holistically in operations and policy. The campus recycles 100% of paper, plastic, glass, metal, and electronics. 99% of paper products are 100% post-consumer recycled content.

This year, Raintree School installed a 51 kW solar array with 170 solar panels, covering 75% of rooftop and projected to provide 80% of the school's electricity in 2018. Motion-activated lighting is installed throughout the building. The 2017 campus addition has 100% LED lighting. The campus is served by ultra-efficient water-heaters with exhaust recovery features.

A former housing development site, the location of the schoolhouse and parking offered large swatches in need of ecological consideration. WERAL plantings fill every space not designated primary parking or school building providing habitat for wildlife. The largest prairie on campus replaced a site cleared for model homes. Additionally, matured native plantings no longer demanded frequent watering, realizing the full advantage of WERAL landscape plans.

Pillar 2: Improve the health and wellness of students and staff

ENVIRONMENTAL HEALTH

1. Water Sources

A municipal water treatment plant supplies all water on campus. Our team monitors any news or reports of the treatment plant to ensure swift action is taken should a problem occur within the plant. The water treatment plants follows the guidelines set forth by the state and is in good standing.

2. Drinking Water

Raintree School hires an independent lab to annually test the water on campus. We selected a lab qualified to check for lead and other heavy metals and chromium-6. A plan has been formulated with a registered engineer to implement a reverse osmosis filtration system should any contaminant quantities rise above acceptable limits. Raintree does not have drinking fountains on campus. Students use personal water bottles. Parents are permitted to bring filtered/reverse osmosis treated water for their child's water bottle use.

3. Moisture

Built under the advisement of LEED certified architects, Raintree's schoolhouse enjoys the benefits of many moisture controls: a perimeter insulation around foundation walls; all spaces below grade are waterproofed; cold air returns and cold water plumbing pipes are insulated; the HVAC system is designed to eliminate condensation from indoor air channels, in part, by 10 degree temperature differential between occupied and non-occupied building times; and dehumidifiers are built into HVAC system

Additionally, faculty work with students to establish/execute mold-prevention practices: gear dries outdoors on designated pegs, cubbies are cleaned weekly. Monthly visual inspections for mold, leaks, moisture build-up are conducted by the facilities manager.

4. Ventilation

Building features create and maintain optimal ventilation for occupants, while faculty practices support healthy indoor air quality. Raintree's schoolhouse meets ASHRAE outdoor air requirements. For maximum efficiency, air filters are changed monthly, and Raintree has contracted with a local HVAC service provider for annual system maintenance. Establishing healthy routines with students, faculty regularly open large windows in every classroom and dining room on days when HVAC is not in use.

5. Airborne Contaminants

Air quality precautions on Raintree's campus are heavily founded in four areas:

- 1) building materials and furnishings - The majority of floors are non-carpeted. The few throw rugs on campus are cleaned seasonally and made from natural fiber. Additionally, daily cleaning, dusting and vacuuming of campus reduces buildup of dust.
- 2) cleaning products - All cleaning products meet high green certified standards and pesticides are not used.
- 3) exclusion of toxic chemicals - All paint and wood finishes in building are zero or low VOC.
- 4) protection from traffic/industry air pollution - Vehicles park 166 ft. away from building. Additionally, we have a policy of no idling, campus does not own a school bus, and all windows and doors are new (installed 2014 or 2017) with regular inspection by facilities manager. Air filters are changed frequently.

6. Integrated Pest Management

In careful coordination with Raintree School's facilities manager, DJM, HKW architects, and Missouri Department of Conservation (MDC), IPM efforts have been strategic and school-wide. Despite the newness of the campus, a system of prevention is in place including long-term prevention by ecosystem management, pest identification, regular monitoring, and assessment of effectiveness.

Raintree School begins with cultural controls to regulate plant disease and weed growth. Students and faculty maintain strict hygienic practices to prevent food/food residue left exposed on campus. Biological controls include working with MDC to determine clues to animal well-being.

7. Chemical Management

Purchasing choices are the primary source of prevention of hazardous chemicals on campus. Protection focuses on policy and monitoring.

Prevention –Furniture is wooden, there is no plastic equipment indoors or out, rugs are natural fiber. Pesticides and hazardous cleaning materials are not used. To prevent mold growth, teachers dry ALL of all wet student gear outdoors in open air.

Detection - The facilities manager conducts regular inspections to identify and repair sources of mold. Carbon monoxide detectors are present throughout schoolhouse. Radon testing is performed bi-annually.

Policy – Policies prohibit smoking and idling vehicles.

NUTRITION AND FITNESS

8. Healthier US Schools

Although Raintree School does not participate in food programs, Chef Katie consults with schools statewide on creating healthier food options and is invited annually to conduct workshops on greening school kitchens and maximizing nutritional output of delicious food at local and international conferences. We serve “adult” food, avoid cookies and treats, prohibit juice on campus, and reduce liquid milk with meals. Katie has taught educators and food service staff in St. Louis, Vancouver and Costa Rica.

Two full-time chefs are dedicated to the preparation of nutritionally balanced, locally sourced meals on campus. Both chefs hold degrees in dietetics and nutrition and oversee all aspects of Raintree School’s food culture.

9. Healthy Foods

Raintree works with Eat Here STL, a company delivering fresh ingredients from local farms to area restaurants, and 90% of the school’s food is locally sourced (within 50 miles of the school). Menus are seasonal and made week-by-week based on farm availability. There is a 1 acre student run food production garden featuring heirloom varieties and students are involved in daily school-wide food preparation. Regular cooking and wellness classes for parents are facilitated by the school chef.

10. Fitness

minutes P.E.: 0% see below

outdoor P.E.: 99% of gross motor activities are outdoors

Students have a minimum of 18 hours a week of supervised, sustained gross motor activity. However, traditional P.E. classes have been omitted from Raintree School curriculum due to results of recent research citing increased student gross motor activity in open-play outdoor time above and beyond that found in organized P.E. classes. Similarly, data on Forest Schools asserts the additional benefits in balance, coordination, and strength in children spending time in wild outdoor spaces. Wanting to maximize the physical activity of students during gross motor opportunities, as a Forest School, Raintree has made play in wild outdoor spaces a regular, consistent part of the school week, year-round, rain or shine. Student outdoor gear policies ensure all students readily participate despite weather conditions.

11. Outdoor Safety

Sun Exposure – Students are required to have a wide-brimmed hat and sunblock on campus, year round. Application is supervised by faculty for all ages of students and is required to be applied prior to spending more than 20 minutes outdoors. Sunglasses are encouraged.

Air Pollutants – Air quality is checked at airquality.gov and time guidelines for outdoor play is adjusted accordingly.

12. Outdoor Activity

Raintree School students spend 1 full school day per week hiking and playing in the woodland on campus. During the four non-Forest School days each week, the school day begins with a one-hour recess and ends with a one-hour recess. A lunchtime recess of 45 minutes is part of each school day. With a playscape that is designed to increase gross motor activity, changes in elevation due to intentionally hilled grading, boulders and the exclusion of toys and seats/benches outdoors, action research conducted by faculty indicate full student participation in gross motor activity for the majority of each designated recess.

COORDINATED SCHOOL HEALTH PROGRAM

13. Health Education

At the heart of all interactions on campus is a language of health, well-being, and caretaking that all faculty are trained to use. From that platform, classroom encounters, lessons, and assessments grow.

Students are taught risk-assessment for outdoor encounters. Gross motor challenges comprise a significant portion of Forest School encounters, including: tree climbing, bouldering, swimming, and hiking.

Healthy eating habits are monitored and assessed for every student. Faculty spend mealtimes tracking data on the types of foods students eat. Semester progress reports include scores for: “student tries a variety of foods” and “student eats a well-balanced diet”. Chef Katie works with parents on healthy-food homes.

14. Health Services

One hundred percent of faculty and administrators are certified in CPR and first aid, and complete Wilderness First Aid training every two years. Campus administrators have been trained to dispense medication on campus and manage chronic health conditions, such as asthma, in students. Campus policies delineated in the Parent Handbook and discussed during annual Parent Orientation each August detail wellness policies on campus including mandatory absences due to illness.

15. Mental Health

The Peace Program, developed by Raintree School in 2007, uses research-based practices in a comprehensive campus-wide approach to support student social-emotional development including conflict resolution, identification of emotions, tools for building relationships of mutual respect, use of feelings words, peer mediation, personalized behavior support plans, and tools to cope with frustration, anger, disappointment, and death. Faculty assess student success within the program, report student progress on report cards, and detail on Character Report Card. Founded on the principals of the Center on the Social and Emotional Foundations for Early Learning, our Peace Program helps students increase their interpersonal and intrapersonal skills in every stage of development.

16. Employee Wellness

Raintree takes these steps to ensure faculty lifestyles and health are maintained and secured. A free faculty and parent exercise group meets three times a week and the weekly Forest School sessions with students are a time of sustained gross motor/aerobic exercise. There are daily, scheduled student-free periods for faculty to regroup and refresh. The faculty meal program includes complimentary meals on campus; leftovers taken home support healthy dinners. Faculty mentors promote open communication and support for teachers.

17. Community

Raintree has well-established and varied partnerships that connect the school to city. Students have coordinated civic and ecological initiatives with the Town and Country board of aldermen. The Humane Society of Missouri hosts an annual student community service trip, and offers classroom resources for all animal welcome class projects. The Litzsinger Road Ecology Center coordinates with faculty to support student Creature Garden plans. Eat Here St. Louis connects local farmers to Raintree, and delivers farm-fresh produce to campus. Move, Live, Learn offers free weekend clinics on physical health on campus for families that include biking and running.

18. Family

Faculty have developed an annual rhythm that supports a healthy home culture by modeling good practices, showcasing what works with students, teaching new skills to parents, and offering diverse events/learning encounters to attract parents of varied interests/needs. These include seasonal cooking workshops, documentary film screenings on food issues, social-emotional development and civic engagement, Forest School parent days, invitations to all outdoor events – Father’s Day Hike, Mother’s Day Hike, Grandparent’s Planting Day-, family lunch dates with free lunches for family members, Wildkin – Forest School mornings in local parks-, and school participation in locally organized mud runs

OVERALL HEALTH IMPACT

19. Health Summary

Raintree School was founded to be a model of healthy schools; to showcase projects and procedures that efficiently and cost-effectively contribute to environmental health, nutrition and physical health; and to establish a clearinghouse of local resources and how-to’s for parents and the community.

Our most notable accomplishment was replacing traditional PE classes with open play outdoor time. Recent research found increased student gross motor activity in open-play outdoor time above and beyond that found in organized P.E. classes. Similarly, data on Forest Schools finds additional benefits in balance, coordination, and strength in children spending time in wild outdoor spaces. Wanting to maximize the physical activity of students during gross motor opportunities, Raintree has made play in wild outdoor spaces a regular, consistent part of the school week, year-round, rain or shine with one whole day a week devoted to being outdoors. Student outdoor gear policies ensure all students readily participate despite weather conditions.

In the fall of 2017, Raintree faculty launched Wildkin – an initiative to bring St. Louis kids to the wild spaces of local parks once each season. Lead by Forest School practitioners, infants to twelve-year-olds are welcome to the free day.

In a push to go greener in the kitchen, parents supported Chef Katie’s decision to reduce the fresh fruit assortment in off-season months. In-season, parents volunteer in the kitchen to freeze large quantities of organic, heirloom variety fruit from local farms. The bulk of winter and early spring fruits served on campus is thawed from these batches to uphold Raintree’s seasonally responsive cuisine.

Pillar 3: Effective Environmental and Sustainability Education

CURRICULUM AND ASSESSMENT

1. Literacy Requirement - Does your school have an environmental or sustainability literacy requirement?

Project design is student-initiated, spurred by issues within the community. Every academic benchmark is embedded in the locally-based work within each classroom. Assessments are conducted within this constructivist model.

Additionally, weekly Forest School sessions place learning within the wild ecosystem of the woodland. It situates all inquiry, art, science, math and literacy in local habitats. Surrounded by homes, the woodland is the impetus for provocations of human environmental impact which are documented and presented as part of formal project outcomes.

To ensure a coherent and scaffolded environmental and sustainable experience, all summer camps are also focused on Forest School pillars.

2. Lessons

Grade	Curriculum or Lesson	Subjects
Nursery	How to Make a Garden Grow: from seed to plant, an exploration of what food needs to grow in a garden. Focus on counting seeds, 1-to-1 correspondence when adding seeds to holes, and counting total planted.	Math: counting – uses number to show quantity, uses language to represent number of objects, solves problems using number
Preschool	Who Lives Here?: tracks, scat, and feathers, using field guides and clues to determine the animal population in the woodland. Focus on ‘reading’ field guide and using shape, color, and size to identify biological markers.	Physical science – explores physical properties of objects and materials, investigates properties, solves problems involving physical properties of objects Life Science – investigates characteristics of living things, solves problems related to living things, represents observations about living things in a variety of ways
Pre-K	The Story of the Turkey Vulture: after setting up motion-activated video cameras, students write short non-fictions on the activities of turkey vultures on campus.	Creative Writing: Integrates good writing techniques into personal pieces, including plot, setting, and descriptive words.
Kindergarten	Sizing Up Queeny Park: using modern and art-based mapping techniques to create a usable map of a favorite section of Queeny Park. Focus on scale, location of points of interest, and symbolic representation.	Math: geometry
1 st -3 rd	Government and Deer Car-Collisions: researching the problem of deer-vehicle collisions in town, working with city alderman to reduce deer-vehicle collisions through public PowerPoint presentations, creating short film PSA, and participating in planning meetings within City Hall.	Social Studies: Principals of republic in the United States – Explain how laws and rules are made and changed to promote the common good.

3. Assessments

Grade	Curriculum or Lesson Assessed	Assessment Tool
Nursery	How to Make a Garden Grow: from seed to plant, an exploration of what food needs to grow in a garden. Focus on counting seeds, 1-to-1 correspondence when adding seeds to holes, and counting total planted.	Summative Assessment in the field – faculty met at the end of each daily lesson with student to measure number knowledge and counting skill.
Preschool	Who Lives Here?: tracks, scat, and feathers, using field guides and clues to determine the animal population in the woodland. Focus on ‘reading’ field guide and using shape, color, and size to identify biological markers.	Criterion Assessment in the field – was the animal population located?
Pre-K	The Story of the Turkey Vulture: after setting up motion-activated video cameras, students write short non-fictions on the activities of turkey vultures on campus.	Diagnostic Assessment – comparison of growth from prior knowledge in previous story and end result of turkey vulture story
Kindergarten	Sizing Up Queeny Park: using modern and art-based mapping techniques to create a usable map of a favorite section of Queeny Park. Focus on scale, location of points of interest, and symbolic representation.	Interim Assessment – tracking benchmarks throughout project. Criterion Assessment – judged on performance rubric as criteria for entry into community book.
1 st -3 rd	Government and Deer Car-Collisions: researching the problem of deer-vehicle collisions in town, working with city alderman to reduce deer-vehicle collisions through public PowerPoint presentations, creating short film PSA, and participating in planning meetings within City Hall.	Criterion Assessment – student-made rubric for presentation and research completed at each benchmark within project work.

4. STEM

Grade	Curriculum or Lesson	STEM Standard
Nursery	How to Make a Garden Grow: from seed to plant, an exploration of what food needs to grow in a garden. Focus on counting seeds, 1-to-1 correspondence when adding seeds to holes, and counting total planted.	Apply Knowledge and Skills
Preschool	Who Lives Here?: tracks, scat, and feathers, using field guides and clues to determine the animal population in the woodland. Focus on ‘reading’ field guide and using shape, color, and size to identify biological markers.	Critical Thinking
Pre-K	The Story of the Turkey Vulture: after setting up motion-activated video cameras, students write short non-fictions on the activities of turkey vultures on campus.	Effective Communication
Kindergarten	Sizing Up Queeny Park: using modern and art-	Analyze Information

	based mapping techniques to create a usable map of a favorite section of Queeny Park. Focus on scale, location of points of interest, and symbolic representation.	
1 st -3 rd	Government and Deer Car-Collisions: researching the problem of deer-vehicle collisions in town, working with city alderman to reduce deer-vehicle collisions through public PowerPoint presentations, creating short film PSA, and participating in planning meetings within City Hall.	Act as Responsible Members of Society

5. Green Tech/Careers - To what extent are the environment and sustainability used as a context for learning green technologies and career pathways?

Grade	Curriculum or Lesson	Green Technology/Career Pathway
Nursery	How to Make a Garden Grow: Eat Here St. Louis farmers met with students and hosted students at farms.	Gardening/Farming
Preschool	Who Lives Here?: Stream Team educator explored Grand Glaize Creek and wildlife indicators.	Water Quality Protection
Pre-K	The Story of the Turkey Vulture: Wildlife Rescue Center educators discussed their role in the protection of wild birds. Arborist explored ways forest habitats support wild bird populations.	Forestry
Kindergarten	Sizing Up Queeny Park: park officials shared data on Queeny Park and discussed their role in maintaining Queeny Park.	Public Land Management
1 st -3 rd	Government and Deer Car-Collisions: Town and Country alderman, City Official, and mayor shared city policy, invited students to planning meetings, and town hall meetings on deer population controls..	Wildlife Management

6. A.P. Environmental Science - For schools serving grades 9-12, do you provide an A.P. Environmental Science course? **NA**

PROFESSIONAL DEVELOPMENT

7. Certification - For each certification listed below, provide the number of teachers in each grade who are certified and the year certified. If needed, add additional rows as needed.

Certification	Grade (# Teachers) Year; Grade (# Teachers) Year:...
Missouri Project WET	2 early childhood teachers 2008
Project Learning Tree	1 early childhood teacher 2008
Stream Team LEVEL?	1 early childhood teacher 2007
Prescribed Burn certification	1 early childhood teacher 2007
Project WILD	2 early childhood teachers 2008

NOLS Wilderness First Aid	11/11 early childhood teachers 2017 (renewed every two yrs) https://www.nols.edu/en/coursefinder/courses/wilderness-first-aid-WFA/
Forest Kindergarten Certification from Academy of Forest Kindergartens	2 early childhood teachers 2015 http://www.forestkindergartenacademy.org/teacher-training.html
Discover Nature Schools, MDC	3 teachers, 2016, 2017 https://nature.mdc.mo.gov/discover-nature/teacher-portal/discover-nature-schools
Missouri Master Naturalist	1 early childhood teacher
Archimedes Earth Level 1 Practitioner	1 early childhood teacher 2017 http://archimedes-earth.com/level-1-3-practitioner/
Voyagers of Learning Teachers Academy	1 early childhood teacher https://www.forestparkforever.org/volta/
Litzsinger Road Ecology Center	3 early childhood teachers 2015, 2017

8. Workshops Attended

Workshops (Category 1, 2, or 3)	Grade (# Teachers) Year; Grade (# Teachers) Year:...
3 Forest School Congress of the Midwest	11/11 early childhood teachers (nursery – 3 rd) 2016, 2017
3 Natural Start Alliance International Conference	2 early childhood teachers 2016
1 Children & Nature Network webinar: Cities Connecting Children to Nature	5 early childhood teachers 2017
3 MOBOT weeklong training	2016, 2017
1, 3 World Forum Foundation: Children and Nature working group	1 early childhood teacher, 1 chef 2016
3 Natural Start Alliance International Conference	2 early childhood teachers 2017
3 Children & Nature Network International Conference	2 early childhood teachers 2017
1 Management of Invasive Species in Forests	1 early childhood teacher 2017
3 MEEA Conference	2 early childhood teachers
3 Great Lakes Place-Based Education Conference	1 early childhood teacher 2016, 2017
1 Making Gardens Accessible in Schools	1 chef 2014
1 Smarter Lunchrooms	1 chef 2014
1 Increasing School Garden Productivity	1 chef 2014
2 Conservation Seeds with Missouri Department of Conservation	7 early childhood teachers in total – 2015, 2016, 2017
1 Effective Outdoor Learning, Litzsinger Road Ecology Center	3 early childhood teachers, 2012, 2017
1 Gateway Greening Garden Summit	6 early childhood teachers 2016
3 Early Childhood Nature Summit, MOBOT	5 early childhood teachers 2014, 2017

9. Workshops and Lessons Provided

Workshops or Lessons	# Attendees
Sustainable Lunch Programs for Schools, OneSTL Sustainability Summit in St. Louis 2017	50
Critical Questions in Outdoor Education, Forest School Congress of the Midwest in St. Louis 2017	20
Outdoor Games, Forest School Congress of the Midwest in St. Louis 2017	15
Sticks and Rocks 101, Forest School Congress of the Midwest in St. Louis 2017	30
Tool Use in Forest School, Forest School Congress of the Midwest in St. Louis 2016	120
Role of the Outdoor Educator, Forest School Congress of the Midwest in St. Louis 2016	120
Developing Soft Skills in the Forest, Buzzwords Conference in St. Louis 2016	20
The Forest Classroom, Early Learners Workshop at St. Louis Science Center staff training 2016	20
A Case for the Forest, Nature Preschool Conference at Irvine Nature Center in Maryland 2016	30
Fire Building, Forest School Congress of the Midwest in St. Louis 2017	50
Connecting to Local Parks with Mapping, 2016 year-long training and consulting with Stix Early Childhood	8
Deer Pod at Experiential Education Exchange conference 2017	30
Civic Engagement and Social Action for the Environment, Great Lakes Place-Based Education Conference in Detroit 2017	50
Forest School in the Early Years, Great Lakes Place-Based Education Conference in Grand Rapids 2016	30
Sustainable Food in Schools, World Forum Foundation 2016	20
Forest encounters for babies, Children & Nature Network International Conference in Vancouver BC 2016	30
Connecting Children to Wild Spaces, Crucial Early Years Conference in St. Charles, MO 2014	40
Child-Directed Learning to Enhance Engagement, Global Botanical Gardens Congress 2015	50

OUTDOOR LEARNING EXPERIENCES

10. Outdoor Learning

Grade	Outdoor Experience (Subject Standard)
nursery	The Care of Worms and Other Little Things – locating and observing small creatures, including worms, and maintaining safe spaces for them. LIFE SCIENCE - Observes/Investigates characteristics of living things
preschool	Bridge Building Over Waterways – creating passage over water in winter to keep bodies dry by exploring a variety of natural bridge building techniques. PHYSICAL SCIENCE- Solves problems involving physical properties of objects and materials
preK	Free Shooley! – exploring Shaw Nature Reserve to identify areas that can benefit from student action and record data from observations. After determining to help rehabilitate a Cooper’s Hawk, conducting a variety of fundraisers to reach the projected money need. NUMBER & OPERATIONS -Uses number to show quantity
kindergarten	Wildlife Field Guide – semester-long survey of wildlife within the campus woodland, research one animal of choice, field guide creation and end-of-semester presentation on the forest features that support each researched animal. ELA: PRE-WRITING - Appropriate to genre type, develop a draft from prewriting

1 st -3 rd	<p>Wilderness Survival Skills – with the goal of spending one full day in the woodland without adult support, students spent two months of summer researching and testing and mastering survival skills used historically and presently in MO (ex: rope-making, net-making, fire-starting without matches, survival shelters, wild edibles, navigation with maps and nature clues).</p> <p>SOCIAL STUDIES- 3a. A. Compare culture and people in our community across multiple time periods.</p>
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11. Context & Community

Every academic benchmark at Raintree is embedded in the locally-based work of each class cohort. Within the “Free Shooney! project”, students initiated advocacy considered the habitat and wildlife of Shaw Nature Reserve, integrated every learning domain (from creating watercolor paintings of the prairie to graphing bird sightings), enhanced soft skills, and prompted presentations to students campus-wide and the partner organizations within the project.

Studying the primitive vs. modern techniques for modern survival, students noticed how urban sprawl and pesticide use reduced the availability of wild edibles. In response, students took three actions toward measurable change on campus and at home: 1) created a campus wild edibles field guide for student use, 2) planted underrepresented varieties on campus, 3) presentation to parents the role of wild edibles in culture and risk posed by pesticides.

COMMUNITY ENGAGEMENT

12. Community Engagement

The foundation of Raintree’s approach includes: civic character, student-driven projects, place-based learning, depth of knowledge, and inquiry based thinking. To this end, every student, of every grade, is engaged in long-term, collaborative project work through the school year. All curricular components fit tightly to this model. Three community projects:

- Stray Cat Roundup – students work to find homes for cats found in forest to help songbird population.
- Creek Stomp – annual summer event. Student-made posters are distributed to invite community members to clean Grand Glaize West Creek.
- Map the Park Initiative – multi-year project to map favorite wild spots of Queeny Park, for distribution to area kids

13. Partnerships

This year, two school districts received faculty training, lesson plan review, and program implementation advisement on outdoor, experiential learning that is place-based and child-directed. Both districts serve 1000+ preK-3rd grades. One district is composed of Title I schools.

As founder and host of the Forest School Congress of the Midwest, we hosted 200 educators (preschool-12th grade) from eight states in 2016 and 2017. Since first conference in 2016, five Forest School initiatives have begun under Raintree School advisement in Missouri and others have begun in neighboring states using conference resources and connections.

Producer of Children and Nature Documentary – to be released 2019 and available for training use for schools, it highlights the important role of time in wild, outdoor spaces for young girls.

OVERALL EDUCATION IMPACT

14. Education Summary

A fully place-based approach to learning and living, the school represents the commitment and possibilities of an intentionally citizenship focused education at the edge of a forest.

Engaging an entire region, Raintree School, the first Forest School in Missouri, created the first Forest School Congress of the Midwest. With more than 120 educators from 8 states in attendance the first year, the reach of our message was far. Determined to promote the need for citizen action projects based on outdoor, wild experiences for students of every age, we created trainings to move Midwest educators through locally specific skills and knowledge while reviewing research and theory within Forest School approaches. The remarkable end of the 2nd Annual Forest School Congress of the Midwest saw collaboration between prek-12th grade educators and college professors forming a non-profit for the training of Midwest Forest School practitioners and enthusiasts – an initiative Raintree School is leading.

To bolster efforts of non-Forest School educators, we have produced a documentary on young girls in wild spaces (featuring Raintree's forest, Queeny Park and Forest Park). The aim – inspire further development and implementation of outdoor learning in wild spaces for girls. It is slated for public release in 2019.

MEDIA

14. Media