



St. Louis University High School, St. Louis

School Contact Information

School Name: Saint Louis University High School	Street Address: 4970 Oakland	
City: Saint Louis	State: MO	Zip: 63110
Website: www.sluh.org	Facebook:	
Principal: Fr. Ian Gibbons	District	
Principal Email: igibbons@sluh.org	Principal Phone: 314-531-0330	
Lead Applicant and Position (if different): Anne Marie Lodholz, Sustainability Co-Committee Chair		
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School Characteristics

Level <input type="checkbox"/> Early Learning Center <input type="checkbox"/> Elementary (PK - 5 or 6) <input type="checkbox"/> K - 8 <input type="checkbox"/> Middle (6 - 8 or 9) <input checked="" type="checkbox"/> High (9 or 10 - 12)	School Type <input type="checkbox"/> Public <input checked="" type="checkbox"/> Private/Independent <input type="checkbox"/> Charter <input type="checkbox"/> Magnet	How would you describe your school? <input checked="" type="checkbox"/> Urban <input type="checkbox"/> Suburban <input type="checkbox"/> Rural	Total Enrolled: 999 Graduation rate: 99% Attendance rate:
Does your school serve 40% or more students from disadvantaged households? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
% receiving FRPL:	% limited English proficient:	Other measures: 4 in 10 students receive a partial or full scholarship	

Summary Statement

On the occasion of our 200th Anniversary, St. Louis University High School is a vibrant and successful institution because it is rooted in a mission that names and holds us accountable to universal human values. Sustainability, in both its broader human and cultural sense, as well as its more specifically environmental meaning, is a fundamental part of that mission. In our formal Mission Statement we consider our location in the City of St. Louis, and our commitment to global and local justice—including providing economically disadvantaged students a program of study that connects academic knowledge to moral responsibility and our desire to form compassionate young men – as a commitment to sustainability.

In his encyclical *'Laudato Si'* – Our Common Home, Pope Francis says: “Let us be protectors of creation, protectors of God’s plan inscribed in nature, protectors of one another and of the environment.” This document guides and informs all of our efforts in the Three Pillars. Our progress has been led by a newly formed, vertically integrated Sustainability Board consisting of members of the School Administration, Corporate Leadership Team, Finance Office, Maintenance and Faculties leadership, Science Faculty, Student Sustainability Club and Garden Director.

In terms of Environmental Impact, we are in the final stages of bringing the Energy Star monitoring system online. We have almost entirely transitioned to LED lighting in our facilities. We have added occupancy sensors and faucet aerators to save electricity and water and have done extensive replacement of reflective roofing and added insulation to increase efficiency and reduce energy use for cooling. Students documented a 7% energy savings due to these efforts. And, as a result of reducing waste, our contractor offered us a significantly reduced monthly service rate.

In the area surrounding the school, over 40 houses were dismantled and recycled and existing streets and alleys were developed into a large green space available to the entire neighborhood. Storm-water run-off now percolates into the soil on the western side of the field-house. We have also nearly doubled the amount of landscaped area featuring native, drought resistant and low maintenance plantings.

In terms of Health and Wellness, our application documents the progress we have made in protecting students and faculty from airborne chemicals in our labs and storage facilities. We also catalog a number of innovative curricular, co-curricular and faculty/staff programs we offer in order to teach health and wellness content to students through Physical Education classes such as Yoga and to support and encourage personal health and wellness habits among faculty and students through all-school assemblies and free health screenings and enrichment activities.

Finally, we document our commitment to Education through the important work we have done in institutional and departmental curriculum review and formal recognition of sustainable goals. Last summer we ran a Curriculum Institute in Sustainability for faculty to held design and launch new cross-curricular initiatives. One result was a new required Human Geography course in Social Studies centered on sustainability themes and deepening cross-curricular coordination with Freshman Biology.

Our ongoing educational efforts include offering AP Environmental Science for over 10 years, with 12% of graduating students participating and all scoring 3 or above. In addition many of our subject assignments explicitly incorporate environmental and sustainability themes like mountain top removal, invasive species, coral bleaching, and alternative energy development.

Above all, we believe our conscious and value-driven decision to remain in our urban location, during years in which many economic and social forces were pushing us to move west, best demonstrates our commitment to sustainability. Many schools like ours across the country chose to relocate as population centers shifted. We remained in our location adjacent to Forest Park with its many biological and cultural resources and to an economic and cultural corridor that now includes the Science Center, a vibrant middle school, a new industrial and residential development east of us on Oakland, Barnes Jewish and Children’s Hospitals, and the Grove Entertainment District. We benefit from the partnerships and opportunities provided by this inner city location and we take some share of the credit for the vibrant renewal now evident in this corner of the City of St. Louis.

Cross Cutting Questions

1. Team

Sustainability Board:-A vertically integrated institutional committee includes the President of the School, Dave Laughlin, Director of Advancement-Sean Agniel, Chief Financial Officer-Joe Komos, Director of Facilities-Joe Rankin, Garden Director-Bill Anderson, School Principal- Fr. Ian Gibbons, Assistant Principal of Mission-Jim Linhares, Sustainability Co-Committee Chairs-Tom Zinselmeyer and Anne Marie Lodholz

Sustainability Committee: A horizontally organized institutional committee that seeks to integrate sustainability more holistically within the curricular and co-curricular life of the school experience for students and the life of the SLUH community: Co-Committee Chairs Tom Zinselmeyer, Anne Marie Lodholz, Science-Mary Russo, Meghan Menne, Garden Director-Bill Anderson, Director of Financial Aid-Craig Hannick, Assistant Principal of Mission-Jim Linhares, Math-Dan Schuler, Julie Moser, English-John Kavanaugh, Kaitlyn Southerly, Theology-Rob Garvaglia, Social Studies, Sarah Becvar, Fine-Arts, Sean Powers, Simonie Bieber (Campus Ministry)

Waste Reduction Team: Waste Management Student Director, Emeric Finn, Students: Ron Stevens, Dominic Fiordelisi

Garden Work Study: Patrick Hayden, Malik Howard

Energy Efficiency Team: Director of Facilities-Joe Rankin, Director of Maintenance- Rick Figge, Ross Watson-volunteer Jacobs Engineering, Jeff Pitts-parent volunteer, Dan See-Technology, Students: Will McCann, Malik Howard,

Food Survey: Albert Harrold, Ali Hamed, Andrew Storer, Augie Lodholz, Ben Stringer, Brendan Carr, Bryce Van Bree, Carlo Pitti, Chris Tyrell, Darion Mullens, Darwin Lavine, Gabe Lepak, James Galli, Jeff Young, John Murphy, John Rodebaugh, Jonathan Gillooly, Matthew Stauder, Mikes Trittler, Noor Alyasiry, Paul Gillam, Robert Garner, Sean McLaughlin, Sean O'Brien, Theodore Stevens

2. Benchmarking

Energy Star: We are enrolled in Energy Star and have improved our score from an 84 to a 90 in the 3 years that we have participated, a 7.1% improvement. We hope to achieve Energy Star certification in 2018 with the help of Mr. Ross Watson, a volunteer who worked with us in 2014 on the Green Schools Quest.

3. Awards

- 1st place in our 11/12 division **TEAMS competition** (Tests of Engineering Aptitude, Math, and Science) we assessed the ecological impact of Lambert International Airport and suggested improvements. Areas were energy efficiency, wildlife strikes and other changes to the ecosystem that occur due to the airport.
- **MO Supermileage Contest**, 2017 1st Place, SLUH worked with Ranken Technical College to create a team of 13 area high school students representing Clyde C. Miller Career Academy, Cor Jesu Academy and SLUH. Students designed, tested, built, and raced a car that went 234 miles per gallon!
- **2017 St. Louis Post-Dispatch Top Workplace**, 2nd place midsize company
- **Toshiba America Foundation Grant**, August 2016
- **USGBC Green Schools Contest** - In 2014 we won 2nd place for a project on Energy auditing and insulating pipes. In 2016 we won 3rd place for our work creating a student orientation on recycling, composting, and trash

4. Goals - List one to three goals your school is planning on attempting over the next year.

1. We hope to use the [Our Common Home](#) White Paper (produced in the summer of 2017) and the new team of Freshman biology and Human Geography teachers to work towards becoming a EcoSchool in the upcoming year.
2. Under the direction of SLUH's new President we plan to broaden participation on the Sustainability board by inviting parents, alumni, and community stakeholders to participate in quarterly or semi-annual meetings.
3. To use the Green Schools nomination form as part of the standard curriculum and as a self-audit, and to encourage other schools to do the same through the Independent Schools Sustainability Consortium that we help facilitate.

Pillar 1: Reduced Environmental Impact and Costs

ENERGY

1. Energy STAR

If yes, what is your score? 90

If score is above a 75, have you applied for and received ENERGY STAR certification? No

Year: We are applying for certification in 2018

2. Energy

Baseline Year: 2015

Ending Year: 2017

Energy (kBtu / student): 12,778

Energy (kBtu / student): 12,389

Reduced kBtu: 389 kBtu / student

Reduction: 3 % kBtu / student

Reduction per Year: -.0077 % kBtu / student / year

SLUH monitors its energy consumption through ENERGY STAR. It has reduced energy consumption by installing motion detecting lights in the Field House, by installing light vacancy sensors in many classrooms and restrooms, and by retrofitting all T-12 lights with LEDs. For buildings, energy use was reduced by adding new low-emissivity storm windows, by caulking windows, by installing Thermoplastic polyolefin single-ply roofing membranes that are heat-reflective and by adding R9 insulation where there was none previously. Energy saving settings are enabled on computers. In 2014, a student led USGBC Green Schools Quest led to insulation of a portion of boiler-heating hot water lines.

3. Greenhouse Gases

Baseline Year: 2015

Ending Year: 2017

GHG Emissions: 2.245 MT CO₂e / student

GHG Emissions: 2.083 MT CO₂e / students

Reduced GHG: 0.162 MT CO₂e / student

Reduction: 7.2 % MT CO₂e / student

Reduction per Year: 2.4 % MT CO₂e / student / year

All values come from Energy Star metrics summary. Energy Star kgCO₂e/ft² converted to MTCO₂e/student. 270,505 ft² and 1000 students. No offsets were used

4. Renewable Energy

On-site renewable energy generation: .03 %

Type: solar, we have two 25 Kw solar panels

Purchased renewable energy: 0

% Type:

5. Building

Year school was originally constructed: 1924

Total Building Area 270,505 sq. ft.

Renovation Year: 2017

Total Area of Renovation: 14,595 ft. sq.

Certification Year: NA

% Area that meets a green building standard: 0

A 20 year warranty reflective roof was put on the science and library wing with an 1.5" polyiso board creating an R9 value where before this space had no insulation.

Renovation Year: 2016
Certification Year: NA

Total Area of Renovation: 7600 sq. feet
% Area that meets a green building standard: 0

We replaced the roof of J Wing, a concrete decking, which had no insulation, with TP r-9 insulation

Renovation Year: 2012
Certification Year: NA

Total Area of renovation: 23,868 ft. sq.
% Area that meets a green building standard: 0

In the Commons we changed out all lights from metal halide bulbs to 2-3 pin CFL, replaced tile flooring, took out a brick wall and inefficient South facing glass windows and replaced the windows with high efficiency glass to control heat loss while maximizing natural light

New Construction Year: 2009
Certification Year: NA

Total Area of new construction: 47,551 ft. sq
% Area that meets a green building standard: 0

In the gym, We used T-5 lighting with occupancy sensors, automatic on blow dryers and high efficiency water sensors on all hand washing sinks, auto, low-usage flush toilets, tile flooring, maple floor, and low VOC paints.

WATER AND GROUNDS

6. Water Use

St. Louis city does not measure or bill by the amount of water used but by the number of toilets, rooms, and frontages etc. Because of this we don't have the figures to demonstrate the reduction in water consumption. However over the last five years we have updated irrigation control panels for better control and installed a rain sensor which automatically shuts down the system when watering needs are met. We have installed a dozen aerators in older bathroom sinks. All new construction and renovations use low flow toilets and faucets.

7. Water Efficient or Regionally Appropriate Landscaping (WERAL)?

Total Area: 29 acres

WERAL Area: 3 acres

% WERAL: 10%

Water Efficient Plants: Bermuda and many fountain grasses

Regionally Appropriate Plants: purple and yellow coneflowers, milkweed, Indian paintbrush, sunflower

We have doubled the size of the native plantings along the community garden to approximately 1100 square feet, added signage to identify natives, their benefits and a QR link to the plants' page on the Missouri Botanical Garden website. Perennials and grasses are divided and replanted on campus and in our living wall.

8. Alternate Water Sources

We designed and installed a rain garden on our Jesuit Residence building in 2015 to use storm water runoff.

9. Runoff

Over the last several decades we have purchased over 40 homes in the neighboring area to build new facilities and to expand green space. Run-off flows are now directed to the western side of the Field House and allowed to percolate into the soil. We also have a large underground storm-water detention system that was designed with MSD during our 2009 Danis Fieldhouse building project.

10. Ecologically Beneficial Uses

Total Area: 29 acres

EB Area: 3 acres

% EB Area: 10%

We designed and installed a SLUH community garden in partnership with the immediate neighborhood. It has been in operation for 5 years and now includes a beehive and native gardens. Our community garden is registered with the Milkweeds for Monarchs, the St. Louis Butterfly Project, and we are an official Monarch Waystation.

WASTE

11. Solid Waste

Monthly garbage service in cubic yards: 190 cu. yd. per month

Monthly recycling volume in cubic yards: 115.2 cu. yd. per month

Monthly compostable materials volume in cubic: 14 cu. yd. X 65% =9.1 cu. yd.

Recycling Rate: 39.55%

Monthly waste generated per person: 0.166 cu. yd. per person per month

We renegotiated our waste contract, lowering trash pickups and increasing recycling, saving the school \$9600 annually. We won 3rd place in 2016 USGBC Green Schools Quest for project on continuing education regarding trash, recycling, and compost.

12. Hazardous Waste

How many gal/L or lbs/Kg. does your school currently have of each of these classes of hazardous materials?

Flammable liquids - 6.0 L Corrosive liquids - 3.0 L Toxics-none Mercury-none Other: none

In 2013, the school completed a thorough inventory, and Kiesel Environmental Operations removed all hazardous chemicals that needed to be removed from the school. The science department utilizes a chemical inventory, along with regular meetings by staff to go over purchasing, safety, and proper storage techniques. In 2013, the science storerooms underwent remodeling including new safety cabinetry, updated SDS sheets, shelving with lips, removal of all glass fronts, and removal of any stored toxic chemicals. They also committed to micro-scale (m 2-3mL as opposed to 20-30mL) experimentation and the selection of curricular components that produce the types and amounts of waste that can be disposed of properly by "flushing".

13. Green Cleaning

Which green cleaning custodial standard is used? None

What % of your products are certified? 67% **BUCKEYE:** 3 of the 4 chemical products we purchase are certified - True 7 - ph neutral cleaner; Tenacity - all purpose cleaner; Star Spray - glass cleaner; Non Certified: Terminator – disinfectant, **H P products:** 1 of the 5 chemical products we purchase are certified: H2 O2 Peroxy - carpet cleaner

What specific 3rd party certified green cleaning product standard is used? Green Seal™ Standard GS-37

14. Electronic Waste

SLUH invites faculty, students and the community to recycle all of our electronic waste using Nilo-Tech E Cycling, LLC. We have a repository and store for pick up electronics, batteries, and Christmas lights that were used to decorate SLUH this year. We promoted and had students volunteer at the St. Louis Earth Day's Recycling Extravaganza on April 2, 2017

TRANSPORTATION

15. Alternative Transportation

We sponsor an Annual Car-Free Day in April. Students kayak, rollerblade, bike, skateboard, roller-skate, walk, and take the bus to school. For the last 3 years, 10-15 faculty paddle the Meramac River from Highway 44 to the Marianist-Retreat Center for our Fall retreat. The group spots bald eagles, deer, wild turkeys, otters and such before breakfast; Other faculty carpool. We conducted a transportation survey in 2012. This spring, the Senior Statistics class will revise survey to improve it for statistical interpretation, and send it out again to the SLUH community. An SLUH west county shuttle bus provides services for students that do not live within walking distance.

16. Accommodations for alternative travelers

We have bike racks, showers, and changing rooms for faculty/student use before, during, after school in order to accommodate alternative transport. We sell discounted METRO passes through our bookstore and have negotiated a METRO pickup/dropoff at our school. We also provide a list of zipcodes to families so they can organize carpools to get their students to school.

PURCHASING

17. Paper

post-consumer recycled content paper: 0% paper from FSC forests: 0% paper from SFI forests: 90%
chlorine-free paper: 0%

White paper in stock at this time is Econosource brand produced by Veritiv paper company which is SFI sourced

18. Food

Fruits and vegetables are locally purchased when the conditions are favorable. We have switched to 100% fair trade coffee for our beverage service and for all functions. We purchase locally all of our fresh bread products. We use the vegetables harvested from our school garden whenever possible. We have installed three healthy vending machines. We purchase locally approximately 40% of our food. We use 30% fresh meat products.

OVERALL ENVIRONMENTAL IMPACT

19. Environmental Impact Summary

This year, SLUH has established four distinct **Sustainability Student Teams** to assess current conditions and practices, create goals and direct implementation in specific areas. Each student team reports to the Directors of Facilities and Maintenance and is supported by an adult mentor who is an expert in the area. The work of the **Waste Team** resulted in significant, measurable reductions to our waste stream and reduced rates from our contractor. The work of the **Energy Team** resulted in a measured 7% reduction in electrical energy use and has garnered us a current Energy Star rating with a goal of attaining certification by the end of the school year. (A side note on utilities: a systematic review of water use resulted in the installation of rain sensors on sprinklers, a doubling of square footage in low maintenance native plants and more efficient aerators on faucets.) The **Food Team** was instrumental in planning and executing our Iron Chef SLUH competitions aimed at raising awareness about the social and dietary value of sustainable food across the school community and donating over \$1200 worth of locally sourced food to St. Patrick's Center, a local organization that works to end homelessness by training individuals in the culinary profession. Finally, our **Green Schools Team** is playing a lead role in the significant effort involved in collecting the information for this application. An additional innovative step we've taken given our location and the wide distribution of our students is the deployment of a bus to serve students coming from far-flung parts of the Metro area.

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

ENVIRONMENTAL HEALTH

1. Water Sources

The City of St. Louis Water Division is a charter member of the Partnership for Safe Water. In 1994, this organization was formed by 187 surface water utilities, several drinking water organizations, including the American Water Works Association and the Environmental Protection Agency. The Partnership's goal is to provide a new measure of safety to millions of Americans by improving water quality nationwide.

SOURCE WATER ASSESSMENT INFORMATION: In 2004, the Missouri Department of Natural Resources (DNR) conducted a source water assessment to determine susceptibility of our source water to contamination. The assessment has determined that our river water source is susceptible due to the presence of potential contaminant sources. The City of St. Louis employs all available measures at its disposal to remove contamination at intakes and during the treatment process. The drinking water produced at these facilities consistently meets or exceeds all Safe Drinking Water Standards.

2. Drinking Water

We completed our last water test in 2016 (which showed 0 contaminants including lead). Our next water test is scheduled for 2019

3. Moisture

We monitor our humidity and take measures to ensure that levels are manageable. If areas are found to be high, we add dehumidifiers and if necessary, employ an outside Environmental Operations company to do additional work.

4. Ventilation

We have 3 fume hoods for ventilation in the science rooms: one in the chemistry storeroom that stays on 24-7 since our flammables, acids, organics, inorganics are all stored there. The other 2 are in each of the chemistry labs. They are used weekly with chemistry activities. The filters are checked by the facilities team and are held to NSTA (National Science Teacher's Association) guidelines. Monthly inspections are made to ensure that proper ventilation and equipment is operating properly.

5. Airborne Contaminants

Both of our regular parking lots are well over 100 yards from school buildings. Our faculty/visitor/handicapped parking lot is closer to the school and accessible with wheelchair entrances, but is still over 50 yards from the building to prevent people in the building from inhaling exhaust. The science department has reduced the number of labs that contain "airborne" contaminants and encourages the use of "respiratory aids" such as dust masks when powdered materials are in use. Fume hoods run during all experiments to aid with filtering of particulates. Finally, 95% of classes use low-odor, recycled, and refillable dry erase markers as opposed to chalk to write on boards.

6. Integrated Pest Management

What is the volume of your annual pesticide use (gal/student/year) 0%

Orkin provides monthly interior and exterior inspections. When pests are found, they are identified and a customized solution, like removing food sources or interrupting pheromone trails, is used to treat the problem. For persistent cases ant and roach traps using gelbait are used. Last year, only 240 g of gelbait was used

7. Chemical Management

The science department meets regularly to go over purchasing, storage, and safety and to update the chemical inventory. The storerooms remain on "lock down" and are properly labeled as "approved staff spaces only". All Acids are in an approved acids cabinet, all VOCs are in an approved flammables cabinet, and all stock chemicals are in locking cabinets stored by reactivity (glass fronts removed for safety). All labs are equipped with spill kits and neutralization powder (baking soda). Students are required to sign safety contracts before handling chemicals and are to research the proper disposal of chemicals used in the labs. Labs are designed to minimize the amount of hazardous chemicals used so that reaction products are safe to flush. All maintenance and cleaning supply closets are kept locked.

NUTRITION AND FITNESS

8. Healthier US Schools

Over the past 3 years the SLUH administration has worked on setting goals to increase our local and sustainable food and make food and nutrition at SLUH a priority. For example, we reduced donut sales to once a week instead of every day. Now we offer multiple protein and complex carb options for sale every day before lunch. We also offer a healthy option that is priced as a blue plate special and showcases a low-fat protein (ie. baked salmon or chicken) and three vegetables/starches such as roasted broccoli, cauliflower, greens beans, carrots and/or corn. We also have an open refrigerated display case where we offer fresh fruit bowls, whole fruit, yogurt cups, fresh deli sandwiches or wraps, bagels, peanut butter sandwiches, cheese sticks and cut cheese cups.

9. Healthy Foods

All of our produce is purchased fresh and local when conditions are favorable. Our garden produce is cooked by student volunteers to serve to area homeless shelters. This year we grew, harvested and donated approximately, 25 lbs of lettuce, 100 lbs of sweet potatoes, 10 lbs of tomatoes, 60 lbs of carrots, 20 lbs of onions, and 25 lbs of bell peppers.

10. Fitness

minutes P.E.: 90 minutes % outdoor P.E.: 40%

SLUH's PE challenges students to improve both fine and gross motor skills, enhancing cardiovascular fitness and improving coordination. We seek to foster sportsmanship through team and individual play. Examples include dodgeball, soccer, wiffle ball, baseball, football, frisbee, biking, basketball, hockey, volleyball, and kickball. In the 2015-2016 school year 712 of our students (68%) participated in at least one of our 19 elective athletic programs.

11. Outdoor Safety

Our Outdoor Adventure Club provides opportunities for Wilderness First Aid Training, Scuba Certification, Whitewater Rescue and Mountain Bike Safety. In health class and in athletic training we frequently monitor and raise awareness of sun exposure, air quality, and heat-indices. Lessons teach students about ways in which sun, air quality, and extreme heat or cold can impact one's health. These include sunscreen education, air quality reports through student guided EPA oral presentations, and modifying sporting events when heat-indices surpass Missouri State High School safety standards. Bike safety is offered through our cycling course.

12. Outdoor Activity

Students have numerous opportunities and green space (north and south part of campus) to engage in outdoor exercise and recreation. Weather permitting, students will often play outside before school, during activity periods in the morning (45 minutes of break time), lunch, free periods and after school hours. Activities include spike ball, frisbee, soccer, lacrosse, and playing catch with a baseball. A Wilderness Retreat for Seniors was instituted April 2016. Summer biking allows 75 students to learn bike safety and maintenance. They bike between 20 and 25 miles over about 3 hours for 8 days throughout the city or on the cross-state Katy Trail. The Outdoor Adventure Club provides multi day/week backpacking, whitewater rafting, mountain biking, scuba diving and skiing. Experienced guides and an emphasis on safety practices are emphasized. Students of all socio-economic levels are encouraged and supported to attend.

COORDINATED SCHOOL HEALTH PROGRAM

13. Health Education

Our Freshman Health course introduces healthy lifestyles, behaviors, and responsible decision-making. The Athletic department combats concussions by running baseline brain measurements of all students and then makes that data available to healthcare providers, in the event of an incident. We have a strong concussion-return to play protocol. X Country runners complete the assigned route in Forest Park, with a teammate and never alone. They are taught injury protocol and practice responses when a partner suffers an injury or heat related illness. Football uses a robotic tackling dummy to teach safe tackling strategies.

14. Health Services

The school nurse implements, manages, and delivers school health services in accordance with the regulations of the State of Missouri and professional nursing standards. The health center provides ongoing assessment of the physical and emotional health of students in addition to the following: initiating referrals for further treatment of health needs, administering medications and observing for side effects and adverse reactions, providing basic first aid and acute care if necessary, monitoring students with chronic conditions and providing information on disease control and symptom management. He also communicates concerns to administration, staff, and students and provides education on health promotion and illness prevention.

15. Mental Health

SLUH administers a semester long Senior advisor program to Freshmen that includes homeroom mentors and Freshmen retreat leaders. Four full-time counselors (separate from our college counselors) work with students to support overall mental health and counseling needs. They teach lessons on time management, mindfulness, making friends, and effective teamwork. Two full-time social workers design individualized learning resources, teach executive functioning skills, and work with local agencies to provide low/no cost testing to identify learning disabilities. We have twice weekly campus visits with a psychiatrist who meets, assesses, and refers students in need for outside treatment and community resources. In addition, we offer Yoga to teach students how to alleviate stress, and learn mindfulness through a practice of movement and breathwork.

16. Employee Wellness

SLUH offers free mental counseling by a consulting psychiatrist. Our healthcare provider offers free annual wellness screenings and flu vaccinations on campus. In addition, SLUH hosts social events to boost morale for faculty such as a meet and greet in the community garden with a firepit, snacks and beverages from local establishments. Yoga, foam rolling, and outdoor activities such as softball are offered throughout the year at various times for social enjoyment and exercise. Many of our faculty participate in intramurals with students or work out either in the school weight room or in adjacent Forest Park, weather permitting.

17. Community

This fall, the entire school community dedicated a day to St. Louis in service. Five hundred students worked in Forest Park, walking 4 miles to get to their worksite and back, while others worked outdoors in community gardens and neighborhoods doing physical labor for our neighbors. We share our community garden with the Kings Oak Neighborhood. SLUH and Big River Running Company cohost The Forest Park Cross Country Festival, and with Go! St. Louis, to host the Festival of Miles. Both are annual events on our campus and in Forest Park to get kids excited about racing in a fun, family environment.

18. Family

We have a family orientation for non-Catholic families to help them understand the religious ceremonies and practices; while the Mothers' and Fathers' clubs work to provide social opportunities through class meetings and school events. *All* school events, including service, adventure trips, retreats, and academic travel opportunities are open and available to any SLUH student regardless of economic ability to pay. The Dean of Students organizes a quarterly Student Life Forum that invites parents, faculty, students, and the administration to discuss wellness issues and we have a quarterly counseling department newsletter that includes upcoming talks and articles on physical, mental and spiritual health of families and adolescents.

OVERALL HEALTH IMPACT

19. Health Summary

SLUH has a remarkably wide range of Health and Fitness courses available to students including Biking, Rock Climbing, Yoga and Fencing in addition to our standard courses of Strength Training and Recreational Fitness. All of these supplement the Health class required for all students, taught by our school nurse.

A wide range of programs and activities aimed at health and wellness are offered at no cost to Faculty and Staff. These programs and experiences include: Free health screenings and flu shots, on campus Yoga classes, and seminars and retreats for mental and spiritual wellness including a retreat rooted in *Laudato Si*, Pope Francis' recent Encyclical on Environmental Stewardship and Our Common Home. The school also hosts free social events throughout the year, two of which take place in our Community Garden. Practices like these have earned SLUH a Top Workplaces Distinction in the Post Dispatch for several years in a row. Retreats are offered for all four years of classes, specific to the needs of each year, also twice a year faculty take a day to pray and reflect together on a particular theme at a day long retreat away from school.

Pillar 3: Effective Environmental and Sustainability Education

CURRICULUM AND ASSESSMENT

1. Environmental or Sustainability Literacy Requirement

Freshmen learn about Throw Away culture as defined by *Laudato Si* – Our Common Home; they write research papers on how throwaway culture has affected one of the UN Sustainable Development Goals. They complete a 2-week biology unit on endangered species and biological systems and imbalance. Campus Ministry hosts immersion trips that bring students face to face with the challenges of sustainably providing resources for All of God’s creation in socially just structures, such as the Kino Border Initiative, the Jerusalem Farms trip, trips to Appalachia, Honduras Service trips at our nutrition center in Yoros, Honduras, the Urban Challenge in Camden, NJ, the Ignatian Family Teach In, the March for Life, and the Arrupe Leadership Summit.

2. Environment and Sustainability integrated into Lessons

Grade	Curriculum or Lesson	Subjects
9	Waste reduction steps incorporated into the Freshman orientation and health class from a public health standpoint	Health
9	Throwaway Culture Research Paper - Students research how throwaway culture as discussed in <i>Laudato Si</i> relates to one of the UN Sustainable Development Goals	Social Studies - Human Geography
9	Passport Program - Students investigate, visit a place in the local community, and reflect on the relation of concepts like place, space, sustainable design, resource use, and Ecovillages to the place.	Social Studies - Human Geography
9	Ignatian Sense of Place - This lesson examines the role of space and place in personal prayer in the context of Ignatius’ call “...to seek and find God in all things,...” including God’s creation.	Theology
10	Peterloo Massacre - Students studying the industrial revolution look at the challenges that workers faced achieving sustainable wages and political rights in light of increased global competition and technology. They research UN Sustainable Development goals to see what challenges workers in poverty today face.	Global History
10	Social Justice Project - Students find a current social justice conflict, research its historical development, a contemporary application of how it defines inequities of sustainability and present in an action plan something they can do as students to impact this issue.	Global History
11	Catch 22 Reading and Discussion – This includes exploitation of natural resources (Milo) and restricting others' access to these as a means of amassing economic, military, and political power; exploitation and abuse of women as objects (typically sexual); the personal, societal, and environmental/ecological consequences of war.	English - Satire
12	Wall-e - Students discuss this indictment of the throwaway culture, immediate gratification and consumerism and write an exam essay that contrasts the end of the film (humans to recultivate and recolonize Earth) with another work -- Voltaire's <i>Candide</i> which ends with the idea that 'We must cultivate our garden.'	English - Satire

9-12	2D Design Project - Create a movie poster/album cover/magazine ad of “what the world needs now more than ever” to get students to imagine how to meet sustainable 2D Design Project - on the transformation, growth, and influence of technology in the world Painting portraits and landscapes from the great depression, studying people and their struggle to find sustainable environments and resources (c.f., L.S. 48-49)	Art – 2-D Design
9-12	3 –D Design - Students find old chairs and furniture and restore them and upcycle them into sculptural pieces for installation around the school	Art – 3-D Design
9-12	Set Design – To learn how to use tools and to create set pieces, students upcycle old furniture into art pieces and create picnic tables for outdoor classroom areas and outdoor garden beds.	Art –Theatre Technology

3. Assessments

Grade	Curriculum or Lesson Assessed	Assessment Tool	Average Student Proficiency (%)
9	Human Geography Idea of Throwaway Culture	Formal Assessment, Presentations, Written Essays	85% or higher average grade, on average our student achieve a B+ average
9	Human Geography: Sustainability in Food, regional food hubs, rural land use	Formal Assessment, Presentations, Written Essays	See above
9	A 10 - 15 minute presentation discussing one of the Ecology Problems in a particular part of the world. (zebra mussels, coral reef bleaching, etc)	Rubric to evaluate presentation and content	See above
10	Mountain top removal mining and its impacts	Test, journal reflection	See above
11,12	Design, construction, and evaluation of wind turbines, drip irrigation, weather balloons	Functionality and power production of the turbine, efficiency of irrigation systems, and weather	See above
9-12	School-wide student, faculty, and staff participation in the Ignatian Carbon Challenge (https://ignatiansolidarity.net/ignatian-carbon-challenge/how/)	Monthly summaries of participation	See above

4. Environment and Sustainability as a context for STEM

Grade	Curriculum or Lesson	Subjects
9	Water Cycle - An interactive lab is done on the properties of this universal solvent and the properties that make it essential to all life.	Biology – Cycles
9	Biology (required all students) water: the water cycle is studied and an interactive lab is done on the properties of this universal solvent.	Science
9	Nutrient/Resource Cycles and Energy Pyramids - Food chains and webs and biotic and abiotic factors are studied in class which ends with a student research presentation on an assigned ecological issue (zebra mussels, coral reef bleaching, etc.).	Biology - Ecology
10	Lab Protocols and Safety - Responsible disposal of chemical waste. Used throughout the year with all 20+ lab investigations.	Chemistry
10	Water and Solution Chemistry – Water structure and function is studied as it relates to solubility, heterogeneous and homogenous solutions, and clean water.	Chemistry
10	Intermolecular Forces and VOCs - Structure of organic molecules are studied and students do a lab on power of VOCs using temperature probes and computers to predict and analyze the forces holding VOCs together and the relation to limited, safe and proper use.	Chemistry
11	Energy and Thermodynamics - The proper study of the harnessing and release of energy as it relates to “useful work” for modern times is studied and investigated through lab, demonstration, and a student project.	Physics
11, 12	The design, construction, and evaluation of wind turbines, a drip irrigation system, weather balloons	Engineering & Technology

5. Environment and Sustainability as a context for Green Tech/Careers

Grade	Curriculum or Lesson	Green Technology/Career Pathway
9-12	Endorsement Program for Sustainability	Sustainable engineering/architecture, energy development, civil engineer, sustainable farmer/horticulturalist, chemical engineering, energy auditor
9	Throwaway Culture research/writing	Public health, recycling rep/sales/research, entomology, alternative energy research, social work, wildlife management
9	Soil science lab	Soil scientist
10	Intermolecular Forces and VOCs. Structures of organic molecules are studied and students research VOCs using temperature probes and computers to predict and analyze the forces holding VOCs together as it relates to why their use should be limited, safe and proper.	Chemistry, sustainable engineering
11-12	Design, construction, and evaluation of wind turbines	Alternative energy engineers

6. A.P. Environmental Science

Percentage of last year's eligible graduates completing the course in high school 12%

Percentage scoring 3 or above: 100% Over the last 13 years, 99.5% have scored a 3 or better.

PROFESSIONAL DEVELOPMENT

7. Certification

Certification	Grade (# Teachers) Year; Grade (# Teachers) Year:...
None	None

8. Workshops Attended

Workshops (Category 1, 2, or 3)	Grade (# Teachers) Year; Grade (# Teachers) Year:...
3 Loyola University Climate Change Conference	12(1) 2016, 2017
3 Nature in Our Neighborhoods (MO Botanical Garden)	12(1) 2014
1 International Jesuit Ecology Project	12(1) 2014
3, 2,1 Cultivating Young Cooks (MO Botanical Garden)	12(1) 2014-2016 (annual)
3, AASHE	10, (1) 2016
1,3 Summit for Transformative Learning (MICDS), Frank Corley	9-12, (7) 2016
1,3 National Biology Teachers Association National Conference, ecology, sustainability	9 (3) 2017: Tim O'Keefe, Nhan Pham, Megan Menne
3 Academy of Science (StL group). Many local lectures.	9-12 (10) 2013-2018
3 Sustainability Institute for Educators at MICDS	9-10 (1) 2017
1,3 Loyola University Chicago, Climate Change Conference	10, 12 (1) 2018, 2017, 2016. Bill Anderson
1 Caring for Creation - Responding to Laudato Si Webinar	2016. Bill Anderson
2,3 Nature in our Neighborhoods Education Summit at Missouri Botanical Garden	2015. Bill Anderson
1,3 American Chemical Society (ACS)	Mary Russo, 2015-2017+
iPad training for the secure paperless classroom (in-house...all members. training on apple classroom management system, notability, and Canvas interaction for paperless classrooms.)	Summer 2015, Fall 2016, May 2017, Full Science department
1,3 American Association of Physics Teachers	Winter 2017: Bradley Mueller
1,3 Promoting Science Policy, Education, and Research (PROSPER) WASH-U group	2015-2017 Bradley Mueller, Mary Russo, Tim O'Keefe
1,3 American Association of Physics Teachers National Conference, project based learning	10-11 (2) January 2018: Eric LaBoube and Robyn Wellen

9. Workshops and Lessons Provided

Workshops or Lessons –	# Attendees
Tom Zinselmeyer, Our Common Home Curriculum Institute - 5 meetings over summer	Summer 2017 - 15 teachers, grades 9-12
Summit for Transformative Learning (MICDS), Frank Corley	Summer 2016, 1000 attendees
St.L Eclipse Task Force. Planning and science education. Recycled glasses project.	2016-2017. Kathy Chott, Mary Russo, 40 attendees
Missouri Botanical Garden Cultivating Young Cooks, attended and presented	2015, 2016, 2017 Bill Anderson, 1000 attendees
<i>Healing Earth</i> AP Environmental Science Text book that integrates Sustainable Stem Investigations with Ignatian Spirituality	Bill Anderson
International Jesuit Ecology Project Conference, Loyola Chicago	2015 Bill Anderson, 25 attendees
Gateway Greening Garden Summit, SLUH	2012-2017, 200 attendees

OUTDOOR LEARNING EXPERIENCES

10. Outdoor Learning

Grade	Outdoor Experience (Subject Standard)
9	Passport Project in Human Geography, students find, identify and reflect on various concepts in human geography that they find in their neighborhoods and local communities
10	Groups of World History students each have their own garden bed, plant seasonal vegetables, weed, harvest plants for use in class, and reflect on how gardens were used in the Medieval Ottoman Empire
11-12	AP Environmental Science designed a weather balloon, launched it, followed it, and brought it back to mine for data about the atmosphere
11-12	AP Environmental Science designed, built, and installed a drip irrigation system for the school community garden, and plants and harvests sweet potatoes in the garden for campus ministry

11. Context & Community

Context: The Passport is an All-Year Field Experiential Project for Freshmen in Human Geography that provides opportunities for students to examine the intersections of human geography unit concepts with real situations within the regional community (businesses, firms, places of worship, historical landmarks, etc...) It ties together opportunities for theology and science experiential learning requirements.

Community Engagement: Our Senior service project requires students to find a site to volunteer at for the month of January. They must initiate contact with the site representative, visit the site, work there for the month of January while reflecting on their service, and when they return explain what they learned about themselves, the larger community, and those they served to the whole school. Many of them go on to work for these non-for profit institutions either as employees or life long volunteers. Most sites are local, but some travel to Russia, Mexico, Honduras, South Africa, and Zambia to name a few places that draw them out of the local community and into the larger world to see how others, such as the elderly, refugees, orphans, and school children can create resilient communities.

COMMUNITY ENGAGEMENT

12. Community Engagement

Our 2017-2018 Green Schools Quest project, *Waste Not, Want Not: Art Reimagined* SLUH Community Art Show collected materials and engaged community members in reflection on “Throw Away Culture” by making art out of reusable materials, which required examining the nature of waste and of art. We partnered with The Easy Chicken and Custom Foodscaping to help students learn about and experience the joys of raising chickens and Foodscaping, a hybrid of landscaping and agriculture. Our required Freshman service project takes produce (planted and harvested by our AP Environmental Science) from our community garden and teaches students with the help of upperclassmen to cook and serve it at local homeless shelters.

13. Partnerships

Pillar 1, Reduced Environmental Impact and Cost - The energy team partnered with Jeff Kelley of Lockheed Martin, Ross Watson of Jacobs Engineering, and Ameren (our local energy company) to register SLUH with EnergyStar and were able to document a 7% energy reduction over the past 3 years! We are working to become EnergyStar certified by the end of the year.

Pillar 2, Health - Our Medical Careers club hosts medical experts from local universities, SLU and WASH U as speakers 2-3 times each quarter to discuss what they do in their job, how they care for patients, and health issues that are applicable for student health. For instance a local cardiologist came to discuss the tests that he runs and how he explains these results to his patients and cares for them long-term. Students also participate in internships and camps at local medical schools over the summer.

Pillar 3, Learning – SLUH AP Environmental Students took a joint field trip with student ambassadors from four area grade schools who are working in the The Greenhouse Venture to do water testing in Tower Grove Park.

OVERALL EDUCATION IMPACT

14. Education Summary

This year we began innovating our curriculum with a singular focus on sustainability. All Freshmen are experiencing a new course in Human Geography as a direct result of strategic planning that identified sustainability as a key component of a 21st Century curriculum. The theme of confronting and resisting a “throw-away culture” is built into the course content and is the required focus of each student’s final major research paper.

We sponsored a summer 2017 Curriculum Institute with 15 faculty and staff participants examining *Laudato Si* – Our Common Home, and the United Nations Sustainable Development Goals. The group consulted with a variety of experts and developed a white paper for implementation in 2018. The goal of the Institute was make cross-curricular recommendations for the student experience of sustainability through four years of instruction and co-curricular experience.

Some of the fruits of the Institute are a program allowing students to earn a Sustainability Endorsement on their diploma in recognition of a commitment to four years of curricular and co-curricular work. The SLUH Energy Team and Math teachers are meeting in January 2018 to discuss how to permanently embed surveys collecting data regarding various sustainability issues (transportation, zero-waste etc) into the statistics and math curriculum.

MEDIA

15. Media - Submit up to 4 photos (with appropriate signed permissions) or up to 4 minutes of video content to illustrate your schools' efforts. Include a list with a brief description below for each item.

- 1. Supermileage Competition** - SLUH student driver, racing for the [Ranken team](#) in the MO Supermileage Competition, Spring 2017. SLUH gathered students from other high schools and then worked with volunteer engineers and Ranken employees to design, build, test, redesign, and race a car and engine that ran the furthest on a single gallon of gas. Our car ran at 219 miles/gallon of gas, winning Ranken their first ever 1st place trophy in this competition!
- 2. Iron Chef** - IRON CHEF SLUH II: Battle Harvest! 5 Teams of students and faculty competed with Chef Alums to prepare locally grown and sourced sustainable foods for the entertainment and education of 1200 students and faculty. All unused food (over \$500 worth) was donated to St. Patrick's Center, a local homeless shelter.
- 3. Weather Balloon** - Bill Anderson, AP Environmental Science teacher and SLUH students work to launch SLUH's 4th weather balloon. Maximum speed recorded was 259 km/h or 161 miles per hour. Maximum altitude reached was 26,964 m or 88,465 feet, or 16.8 miles.
- 4. Art Reimagined Chicken Coop** - Student artists modify a structure from our robotics team to build a chicken coop as an installation piece for our upcycled art show *Waste Not, Want Not: Art Reimagined* that we are completing for the 2018 USGBC Green Schools Quest. We are partnering with The Easy Chicken, a local company that rents chickens to area schools and organizations interested in learning how to raise these animals and support local food. We have spent \$0 dollars on the contest (the limit is \$250) and are using only recycled/upcycled materials from around SLUH and our homes. The art will be auctioned off in our SLUH auction and be used to support SLUH's commitment to educate academically qualified young men regardless of their ability to pay.