



School Nominee Presentation Form

ELIGIBILITY CERTIFICATIONS

School and District's Certifications

The signatures of the school principal and district superintendent (or equivalents) on the next page certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of their knowledge. *In no case is a private school required to make any certification with regard to the public school district in which it is located.*

1. The school has some configuration that includes grades early learning to 12.
2. The school has been evaluated and selected from among schools within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. Neither the nominated public school nor its public school district is refusing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review. The Department of Defense Education Activity (DoDEA) is not subject to the jurisdiction of OCR. The nominated DoDEA schools, however, are subject to and in compliance with statutory and regulatory requirements to comply with Federal civil rights laws.
4. OCR has not issued a violation letter of findings to the public school district concluding that the nominated public school or the public school district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
5. The U.S. Department of Justice does not have a pending suit alleging that the public school or the public school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
6. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the public school or public school district in question; or if there are such findings, the state or public school district has corrected, or agreed to correct, the findings.
7. The school meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.
8. The school or its district has in place and is willing to provide a link to or a copy of a non-discrimination policy, upon request. The U.S. Department of Education reserves the right to disqualify a nomination and/or rescind an award if unlawful discrimination is later discovered.

U.S. Department of Education Green Ribbon Schools

Name of Principal:

(Specify: Ms., Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name:

(As it should appear on an award)

**Private Schools: If the information requested is not applicable, write N/A in the space*

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

(Principal's Signature)

Date:

Name of Superintendent:

(Specify: Ms., Mrs., Dr., Mr., etc.) (As it should appear in official records)



District Name: Hoover City Schools

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

K - M -

Date: 1-24-24

(Superintendent's Signature)

Nominating Authority's Certifications

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of the Authority's knowledge.

- 1. The school has some configuration that includes grades Pre-K-12.
- 2. The school is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
- 3. The school meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency: Alabama State Department of Education

Name of Nominating Authority: Mr. Jonathan W. Thompson

(Specify: Ms., Mrs., Dr., Mr., Other)

I have reviewed the information in this application and certify to the best of my knowledge that the school meets the provisions above.

Jonathan W. Thompson

Date: 1-24-24

(Nominating Authority's Signature)

SUBMISSION

The nomination package, including the signed certifications, narrative summary, documentation of evaluation in the three Pillars, and photos should be submitted online according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509
Expiration Date: October 31, 2026

Public Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email ICDocketMgr@ed.gov and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

GREEN RIBBON Hoover High School - Evidence of Sustainability

Summary Narrative

Hoover High School develops champions in all we do. Hoover High School maintains a healthy and environmentally aware learning environment. Our school has a framework of academic content, engaged technology initiative, and building design that mitigates negative environmental impacts on the Cahaba River. Our self reflective analytics and strategic plans save energy, provide tools and resources for the continuity of the well-being of faculty and students, and persist with the goal of inclusivity for scientific research and community involvement. We have been academically successful, but even more so, have seen our community image flourish because of our deep connection to the roots of sustainability and outdoor education. School board members and local news outlets reach out to us for important stories that engage our students with the community. Our environmental awareness facilitates a hope that as a school, we will continue to pursue the goals of health, awareness, impact, and inclusivity. One example is the Lexus EcoChallenge. The Lexus Eco Challenge was a multiyear, cross cutting process sponsored by the Scholastic Corporation. Our student team, the BioBucs (and Team Cahaba), identified issues related to Land & Water/Climate & Energy. We completed investigations, community outreach/education, and media promotion sections. We won 4 four southeast regional first place awards. Each garnered \$10,000 for student scholarships and grants for HHS and Ms. Ort. Our particle pollution and human health project and our project about the movement of CO₂ went on to First place national awards garnering an additional \$15,000 scholarship each. In addition to monetary awards, we have been recognized as the Best Environmental School Project and Best Environmental Educator from the Alabama Environmental Education Association in 2019. We are the only high school with an Alabama Wildlife Certified Outdoor Classroom, 2023. Ms. Ort won the Governor's Best Conservation Educator Award through the Alabama Wildlife Federation, the ASTA teacher of the year award, and is a 2021 PAEMST state finalist due to the amazing work of students. We are one of 178 nationally Green Flag ranked EcoSchools (only a few high schools in this group too). We have been awarded several grants (\$10,000+ over 10 years) from the Hoover City Foundation to support Solar Energy Learning stations, Monarch Way stations, drones for environmental sensing, drones for STEM education, building and distributing environmental sensors, sensory gardens for exceptional education students, mental health trails, and outdoor field equipment. Money allows some autonomy and innovation. Prizes and awards engender media and community recognitions. All of this success breeds more success and opportunities for student leadership. These are just a few examples of Hoover's successes, which ensure the longevity of our sustainability through awards, recognitions, and resources earned.

Pillar I: Reduce Environmental Impact and Costs

Element 1A: Reduced or Eliminated Greenhouse Gas (GHG) Emissions

The State Department of Education Pupil Transportation guidelines limit the idling of school buses. Buses are subject to safety and emission inspections. New buses follow increasing air pollution prevention standards including diesel particulate filters. No vehicles are permitted to load or unload near air intakes, and the loading areas for vehicles are at least 25 feet from building air intakes, doors, and windows. Our “Buc Away” shredding program (outlined below) also keeps hundreds of pounds of paper from landfills. We are reducing GHG emissions through repurposing the paper and reducing solid waste. Since a portion of the electrical power comes from coal fired power plants, reducing and conserving our electrical needs indirectly reduces GHG. The BAS program (outlined below) helps manage our power usage; again, reducing GHG production. Education about the impacts of GHG is as important as Actual GHG diversion.

In 2019, Ms. Ort convinced the world famous climate/Antarctic scientist, author and advocate Dr. James McClintock to speak at Hoover HS. She coordinated 250 people (Including AP Environmental science students from four high schools, 2 colleges, and Hoover community members) to hear him speak about the drastic changes he has witnessed. His presentation brings the immediate need for climate change mitigation into clear focus. We constructed solar hot water and photovoltaic panel stations in our outdoor classroom space to encourage a more direct understanding of renewable energy sources. Two science fair projects demonstrate the advantages of solar hot water production. Understanding the anthropogenic sources of GHG and reducing GHG emissions is an important component of all environmental science classes curriculum as designated by the Alabama Science Course of Study.

Lights near classroom windows dim automatically as natural light increases to conserve energy. In 2018, the BioBucs and environmental science classes initiated the Great HHS Light count. We documented over 8000 light bulbs. The maintenance and facilities crew taught us about the cost of fluorescent lights vs. LED fixtures. We also learned about the labor costs to maintain each system; as well as the energy savings. Our report highlighted the long term benefits and was part of the reason LED replacement returned as a priority. As fluorescent lights throughout the school go bad, they are replaced with LED lights in an energy efficient system with the “Energy Star” label from the EPA – meaning they use up to 90% less energy, last 15 times longer, and produce 70-90% less heat. The replacement process is part of our Energy Master plan. In several campus buildings, there are motion detecting room lights (37 rooms total plus the entire band facility) to save electricity.

Hoover High received a Building Automation System (BAS) upgrade in the summer of 2022. The high school's BAS system was implemented in 2009 and was

upgraded in 2019 with an expenditure of \$1.8 million. It controls all of the mechanical systems in the school, and the BAS ensures that the equipment is running at its peak efficiency - reducing energy consumption by up to 30%. Hoover is also on a reduced power initiative for weekends – power or heat over the weekend must be requested from administration. Power only automatically turns on in situations like freezing temperatures. Native trees of various heights and coverage, including southern magnolias, 3 species of pines, and 2 species of maples, are placed strategically around campus buildings to reduce the cost of heating and cooling by providing shade in the summer months and a wind barrier in the fall and winter months. The Arbor Day foundation documents up to 25% energy savings from planting trees. Trees also mitigate particle pollution. Hydropower provides approximately 7% of its electricity in our regions of Alabama. In 2022, Nuclear energy produced 29% of Alabama's electricity. Approximately 3% is produced by biomass. These are all renewable sources of electricity for Hoover HS and therefore produce fewer GHGs. Each environmental science class calculates their individual and corporate carbon footprint. We then discuss ways to reduce carbon footprints.

Element 1B: Improved Water Quality, Efficiency, and Conservation

Students and teachers investigate the whole school plant to understand our potential impacts on the Cahaba River watershed. We start the year in environmental sciences with data visualization activities about the school plant. The students collect and portray the potential impacts and mitigations practices on the map. These include waste, chemicals, energy usage, water mitigation, and Best Management Practices. This activity is a catalyst and connection point towards understanding our intertwined needs and responsibilities about our drinking water sources.

We mitigate environmental impacts by maintaining the quality of our nearby drinking water source, the Cahaba River. Green buffer zones protect the Cahaba River from sedimentation and other surface contaminants. Trees also reduce the volume of runoff. Stormwater systems direct runoff water from our campus and it flows into our retention ponds. They collect and filter this water before it reaches the Cahaba River. Sediment settles to the bottom of the pond, and biological processes break down surplus nutrients, like Nitrogen and Phosphorus, which could potentially cause harmful activity in the river such as eutrophication or hypoxia. These features are required by the Safe Drinking Water Act. They are called Best Management Practices or BMPs. The ponds and intact forest areas have become teaming wildlife habitats as well as migratory way stations.

20 total automatic water fill stations, located on every stairwell at every floor level, allow students to reuse their own water bottles, greatly reducing the amount of plastic bottle waste. As of 12/07/23, just one of these fill stations reads that it has saved 72,554 single use bottles. Our baseline plastic recycling was 0 bottles until the filling

stations saved 150,000+ bottles. 5000 plastic bottles from our marching band have been collected by a student and will be made into a greenhouse for our outdoor classroom starting in 2 weeks. This is a service project and part of IB diploma fulfillment. In several campus buildings, there are motion detecting room lights (37 rooms total plus the entire band facility) and bathroom faucets which conserve water and electricity by detecting when they are not in use. Our art faculty highlighted the reduction of plastic bottles in 2019 with large sculptures made from single use water bottles. Reduction of plastic bottles saves water, also, by reducing the amount of water used during their production. The water for the school system's irrigation systems comes from the local water utility at each school. Bathroom faucets which conserve water are part of all new construction. Low flow nozzles are attached to all spigots which reduce the water usage by 10-20%. We also use rain barrels in our outdoor classroom and plant drought resistant pollinators to reduce the needs for irrigation.

Element 1C: Reduced Waste Production

In each of our school bathrooms, there are automatic air hand dryers instead of paper towels, reducing total paper usage. All other paper products and cardboard are recycled to an on - campus recycling dumpster. Paper products are made from recycled materials. Students are only allotted 10 pages to print per day (total). Since the implementation of the BUCAway project, approximately 30 % of our paper is recycled through shredding. The shredding provides jobs at the United Ability Center and raises money for the ExEd program. Once there are around 100 bags of shredding, it is taken to United Ability and given to their Gone for Good Program. Their program can bail the paper and properly recycle it.

In the lunchroom, there is a "shareable fruit tray" where students can place fruit from their lunch that they are not planning to eat so other students can eat it before it goes to waste. The city of Hoover participates in an annual "hazardous waste disposal day," where toxic items such as old paint and electronics are dropped off to be disposed of properly - some electronics are able to be recycled or reclaimed, other waste is either incinerated or properly placed in a landfill.

The Hoover High School art department recycles materials for use in their art projects. Mr. Simpson, a previous sculpture teacher, would scrap junk metal and material from around the school for students to use for their sculptures, which continues with present sculpture classes.

Element 1D: Use of Alternative Transportation

Hoover High School and Hoover City Schools offer buses that run on a schedule in the morning and afternoon, which reduces the number of families that must drive to drop off and pick up students, reducing emissions of carbon dioxide, exhaust fumes, and other particles. Students can also get to school on golf cart trails connecting adjacent neighborhoods to the school and with several sidewalks also connecting these

neighborhoods to the school. The upland riparian forest that surrounds our campus, and buffers the Cahaba River, helps mitigate the particle and runoff pollution inherent to cars and large parking lots. HHS is zoned for 7 elementary schools and 2 middle schools. Our terrain is extremely hilly and many HS students use their own transportation. The elementary and middle schools have active walking programs.

Pillar II: Improve the Health and Wellness of Students and Staff

Element 2A: Integrated School Environmental Health Program

Hoover has integrated health improvement programs and has created a functional environment for students and faculty to thrive. With our updated ventilation system, air is more efficient to control via computer or phone. Air filters capable of screening out viruses are changed regularly, and many teachers have air filtration units in their individual classrooms. There are also regular inspections to prevent mold, moisture, pest, and proper filtering.

According to our facilities management team, "Hoover follows IPM principles outlined by the EPA, including evaluating action thresholds, monitoring and identifying target pests, and using preventative measures to avoid potentially risky methods being necessary later". According to our systems operations management, we use integrated pest management on our athletic fields and groundskeeping as well as in our buildings. The groundskeepers are transitioning from cultivars to native species whenever possible. Recently, drought and heat tolerant plants have replaced some that require constant irrigation. The % change in plantings changes each year.

Our facilities adhere to national, state, local and standard safety practices. Hoover High School sits on karst formations under the borders of Jefferson & Shelby Counties; according to the Alabama State Department of Health. Since they include karst formations above uranium or radium deposits, the US EPA suggests radon testing. We are in the zone with the highest potential for elevated radon levels. Only 20% of schools nationwide have been tested for radon concentrations as of 2021; according to the Alabama State Department of Health. Since testing is not required, our facilities director does not allow testing for radon and does not want us to test. We do discuss radon sources, formation, and mitigation in environmental and earth science classes.

Hazardous materials are managed according to the safety requirements of each type of use. According to our building facilities management team, reduced toxicity chemicals and procedures are used in cleaning, maintenance, and landscaping. Another example of systemic safety is the science program. In Alabama students take 4 years of science. 100% of the students and teachers follow safety precautions in science and Engineering Academy (EA) activities. Each student goes through science safety according to the subject, including a signed lab and field safety contract. **Science labs:** Label all containers and storage areas. Fume hoods are tested and active for

volatile chemicals. Formerly living specimens for biology and anatomy are monitored and disposed of appropriately. In 2014, we disposed of the last weather demonstration devices that contained mercury with the help of the Hoover Fire Department's hazardous waste team. EA students pass certification tests to use power tools in the Prototyping Lab.

Our facilities, like all schools, are no illegal substance zones. There are signs posted to warn people of the legal implications of such activity. Organizations, programs, and practices (See TNT above) actively discourage harmful behavior. Our SROs (School Resource Officers) are integral to our continued health and preventive safety.

Element 2B: Health and Wellness

Wellness policy Hoover City Schools Wellness Policy:

<https://www.hoovercityschools.net/Page/1102>

Employee wellness Hoover employees receive PEEHIP wellness communications via email regarding health tips, counseling, and information about upcoming healthy lifestyle opportunities.

Hoover High School promotes inclusivity, equal opportunities, and education for mental and physical health. We have a Peer Helping team that is trained to support students' academic and social connections in classes. They go through a rigorous 9 week training period before assignments. Our peer helping group leads several yearly events and awareness activities, including suicide prevention week, "Red Ribbon Week" (standing up against drug use), and a canned food drive for our local food bank. Peer helpers travel to individual classes throughout the school to lead personalized discussions and encourage participation. Our "Teens need Teens" (TNT) group works to reduce tobacco, drug and alcohol use among other teens. They educate elementary and middle schoolers about the harmful effects of substances and create a space where teens can have fun together without these substances.

Hoover High School's campus has a central outdoor courtyard approximately the size of one and a half football fields, where students gather before the first bell in the morning, pass through between classes, and eat lunch or do interactive class activities (in the case that the students have proven they can keep the courtyard clean). The opportunity to be outside benefits students' mental health and performance. Our campus is a living laboratory. It includes several miles of trails through temperate deciduous forest; 1.2 miles of the Cahaba River (The most biodiverse per river mile in North America); Best Management Practices (retention ponds, stormwater management, water filtration, green buffer zones, etc.) to protect the Cahaba River; and terrestrial and aquatic resident and migratory wildlife populations. Science, math, art, language arts, and athletics use the many green spaces for training, pleasure and investigations.

Hoover takes pride in our adaptability and concern for students, especially in trying times. During the recent Covid - 19 pandemic, all students were given access to free school lunches for a length of time. At this time, students may have been learning fully virtually (never coming onto campus) or on a hybrid schedule. Teachers conducted weekly “check ins” with students to discuss mental health and to offer support. Many virtual options remained after strict COVID protocols relaxed. As a school, our counseling and administration department is strong. Each grade level has a principal (under Hoover High School principal Jennifer Hogan) and a counselor. Counselors offer academic and social support, while grade level principals handle disciplinary matters. Additionally, we have a testing coordinator, intervention counselor, college and career specialist, mental health counselor, and New Beginnings counselor. Our principal is dedicated to a culture of excellence in all we do including character. She meets regularly with her administration team, staff members, and advisory teams (student & teacher) to ensure that all voices are heard as well as meeting standards of excellence in academics, character, health, staff, and athletics. She (and the admin team) is/are in the halls and at most functions. She talks to students about what they are learning as well as what/how they are doing. She models the care, excellence, and character she expects from all.

New Beginnings is a program for students with social, emotional, or mental issues that make it harder for them to adjust to a large school environment. Students receive more one - on - one instruction in a smaller room of the library with access to the courtyard and its own kitchen and restroom. They take part in group conversations, learn ways to adapt to different social situations, and even enjoy extracurricular activities together, like group movie nights, an end-of-the year cookout, and a trip to the local McWane Science Center.

Hoover High School is proud to have 2 full time nurses on campus daily who do a wonderful job handling students’ daily medical needs as well as coordinating flu vaccine dates and Covid - 19 protocols when applicable. Hoover was also a certified “Let’s Move!” active school for the years 2016-2018 and was named one of America’s healthiest schools (founded by the American Heart Association) the same years through an application process.

Hoover is extremely athletically focused - as of 2021, there were over 780 male and female athletes involved in approximately 13 different team sports with 93 state championships since 2000. There are 3 gyms for basketball, volleyball, wrestling, pep rallies, and other activities. The Dr. Bill Bryant training room features 5 treatment tables, 5 taping stations, 2 whirlpools for hydro-therapy, and ice machines which are used for recovery and treatment of injuries. The athletic complex contains both boys and girls weight rooms which teams take advantage of for conditioning before school and for conditioning during practice times. Hoover meets all ADA (American Disabilities Act) regulations regarding elevators, wheelchair ramps, and braille signs which makes all of

this even more accessible. There are also annual athletic events with participation open to all students, like the 2022 Turkey Trot color run with over 1,000 participants and the 2023 “Running in a Winter Wonderland” 3k run. Hoover also has a social and emotional trail, part of the outdoor classroom, which is a mental health pathway where students or faculty can scan a QR code, linked to a PDF, which walks them through each station of the classroom. The social and emotional trail demonstrates how people can connect themselves with each station and nature in order to improve mental health.

According to the system’s Child Nutrition Director “The Child Nutrition Programs in Hoover City Schools are operated under the USDA National School Lunch Program (NSLP) and the School Breakfast Program (SBP).” We also provide USDA Seamless Summer food for the students attending the Summer Literacy/Math programs. At this time, the only "organic" foods procured is the hydroponic lettuce served at the 2 high schools. We are purchasing hydroponic lettuce from Gardens on Air in Hokes Bluff, Alabama. It is Alabama's Largest Indoor Hydroponic Farm - Non-GMO, Vegan Certified, Certified Naturally Grown, USDA/FSA Farm, according to their website. The salads in the grab n go boxes, and lettuce offered at the food bars in Hoover High School are from this farmer. Many of the Alabama farmers had crop failures this past Spring; therefore, we were not able to purchase as much produce from local farmers. I have procured strawberries, watermelon, peaches and tomatoes from Alabama farmers in the past and plan to do so as crops are in season.”

Pillar III: Provide Effective Environmental and Sustainability Education, Incorporating STEM, Civic Skills and Green Career Pathways

Element 3A: Interdisciplinary Learning about the Key Relationships between Dynamic Environmental, Energy and Human Systems

We have 161 content based teachers. Approximately 11 English, 18 STEM, 8 Social Studies, 3 art teachers or 25% participate in PD that touches on E/S topics that we can document. Another 10 teachers have used the Outdoor Classroom our first year. We provide a curriculum for the OC. Perhaps 31%. Each freshman must take either regular or advanced level biology. Sophomores, juniors, or seniors can take a regular or AP environmental science with chemistry as a required prerequisite or concurrent course. In addition to physical sciences, further science course options include research and design in biology (elective credit) AP or IB biology, marine science, Earth and Space science, and STEM Team. Because of Hoover’s proximity to the Cahaba River, AP /regular level environmental and IB biology science classes collect and analyze phenomena in the Cahaba River watershed that surrounds the school.

With an estimated 2830 pupil student body during the 2023-24 school year, the entire freshman class (763 students and about 26% of the student body) is enrolled in an introductory biology course. About 105 students are enrolled in AP environmental

science (3.75% of student body), 210 in regular level environmental science (7.5%), and about 90 between AP and IB biology (3.2%). There are also several upper-level anatomy and physiology classes (estimated 50 students) and marine science courses (about 150 students; about 5% of the student body). The AP environmental science course emphasizes maintaining biodiversity to protect the living world, human populations and demographics, earth's resources and their uses, land management, energy consumption and reduction, mitigation of environmental impacts, and projected future global change. Even non-science classes, like AP United States history and AP Human Geography, briefly discuss the protection of natural resources. For instance, AP US history discusses President Roosevelt's role in the formation of America's national parks for resource conservation and community involvement. Hoover also has chapters of National, Math, and STEM honor societies to celebrate those who have shown excellence in academics, especially related to STEM disciplines. 2D & 3D art classes include environmental and sustainable art units. From clay to digital images to painting to sculpture, their creations have won many awards. Chalk art images added beauty and cohesiveness to the opening/dedication of our Outdoor Classroom.

Teachers must complete 15 hours of professional development each year for the state of Alabama. Hoover teachers complete an average of 24 hours with most exceeding the school average. Some examples of agencies and organizations that have provided STEM PD include Alabama Science in Motion (AL Science COS aligned labs as part of a cohesive integrated curriculum. Teachers receive hands-on materials throughout the year. All biological science include E/S topics), College Board 1-7 days (content training, AP Exam reading, Mock exam readings), AP virtual PLNs, NOAA monthly and at NSTA conferences (Climate training, Remotely Operated Vehicles, Climate/Planetary Stewards), Amazon Teachers' Training in Peru (10 days), 6 week Summer Research Fellowship with Southern Research, GLOBE 1-2 days & monthly virtual meetings (protocol and student research), graduate degrees at local universities, Alabama Water Watch 1 day per certification (chemistry, watershed, & biological sampling), Samsung SummerTeachers Institute 4 days (sustainable project & problem based learning) + virtual PLN, Society of Science Research teachers training 2 3 day conferences (presenting and mentoring), Science Olympiad 1- 4 days (coaches, summer boot camp, new protocols), Siemens STEM summer Fellowship 5 days (STEM investigations and training, AL Geography workshop 4 days. School based PD has integrated E/S principles to support other subjects. One English teacher says "We discuss Transcendentalists and Realists in my class; both are concerned with environmental concerns. The Realists talk more directly about pollution, industrial impacts on the environment, etc". Engineering teachers attend CTE conferences, training, and competitions like the TSA that include sustainable design. We have 2 teams that are state finalists in the Samsung Solve for Tomorrow competition. One from our engineering academy and one from our STEM class. Social studies teachers attend state, local and national PD that incorporates environmental laws & history.

Element 3B: Use of the Environment and Sustainability to Develop STEM Content Knowledge and Thinking Skills

The STEM team has the opportunity to address STEM and sustainability in their competitions. Science Olympiad events include ecology, forestry, geologic mapping, and disease detectives this year. Any student can become involved with Hoover's STEM team and/or "Bio Bucs/Green Initiatives" club, both led by teacher and mentor, Ms. Janet Ort. We have 60 students involved in our STEMpire of competitions, projects, robotics, and research. Several teachers help manage portions and events. The Bio Bucs club also maintains ongoing projects. Recently they included: maintaining and expanding the recently certified outdoor classroom; taking part in and leading community and environmental cleanups; and bringing awareness to local environmental issues.

Bio Bucs have finalized pollinator, songbird, and sensory gardens, a frog pond, a decomposition station, and a solar station which are part of an Alabama Wildlife Federation certified outdoor classroom. Exceptional education students and life science classes or any students interested will have access to them as an outdoor classroom, benefitting from learning and being outside. Earlier this year, Mrs. Junkin's exceptional education class harvested and cooked squash grown in the outdoor classroom as part of their life skills academy!

The Bio Bucs have also installed game cameras around the school to capture animal activity and have recently discovered the presence of deer and owls! The Hoover OWLS (Outstanding Women Leaders in STEM) organization hosts events at schools for elementary through middle school aged girls, where they perform science experiments and engage in fellowship together. Past experiments include elephant toothpaste, extracting DNA from strawberries, and learning about static electricity. The goal of this organization is to provide more outreach to younger girls, encouraging them to pursue STEM careers. This creates networking within the STEM community – the goal being to create a balance between men and women in STEM careers as the participants become older. A few other community organizations that help with STEM career exploration include the Society for Women Engineers, Southern Research STEM education division, Technology Student Association, and Alabama Junior Academy of Science and Humanities. Our Engineering Academy (EA) has 2 classes where E/S principles develop sustainable designs. The Sr project targets projects to support physical handicaps. EA students design structures for our Outdoor Classroom. AP Env Sci students participate in "Skype a Scientist" events most years.

Element 3C: Development and Application of Civic Knowledge and Skills

Hoover is grateful to be partnered with several community businesses, schools, and organizations to further our mission of sustainability. Turkey Creek and Ruffner

Mountain Nature Preserve generously donated many native wildflowers for this project. HHS Bio Bucs has recently fostered a partnership with the Environmental club at Homewood High School. The schools have already completed several joint community cleanup projects and worked together to freshen up Hoover's sensory garden. Bio Bucs manages an Instagram account to promote environmental education and inform the community of the impacts of our projects. This includes photos of animals from our camera traps, invitations to the community to participate in Bio Bucs activities, our new partnership with the Homewood environmental club, and environmental awareness infographics created by students. BioBucs of previous years hosted Arbor Day tree data collections at local elementary schools, including members from the Hoover Beautification Board, Arbor Day committee, mayor's office, and students. Elementary schools were given plaques for Arbor Day Trees from the past. The plaques had information on pollution, migration, and the environmental value of the trees. Individual members of Bio Bucs may simultaneously conduct research projects. In the past, projects have included studies of local air quality and benthic macroinvertebrates as indicators of environmental conditions. These include a BioBlitz along the Cahaba with 4 different schools and particle pollution studies in different parts of Birmingham. One current student project involves the study of the correlation of different air quality parameters to impacts on achievement in different regions of the city. Last year 2 Eagle Scout projects added swings, ADA tables, our frog and toad pond to the outdoor classroom.

A Girl Scout Gold project revitalized the major trailheads along the river this fall. This will be an ongoing community and student project. Bio Bucs also took part in another trail restoration project, led by the GS Gold awardee. We uncovered a concrete and tile piece of art installation. It was created in honor of the first environmental science teacher. It represents the elements of nature, earth, wind, fire, and land. Preventing the erosion that covered it up is now a joint project with operations. It makes a visual connection between nature and science. This will enhance continuity of trails adjacent to Hoover High School and to the Cahaba River for years to come. In December 2023, Hoover participated in the "Dash for Trash " event which was a public litter cleanup put on by the Hoover Green Team and the Beautification board, one of multiple that occurs each year. The STEM team class entered a design for a sustainable flashlight powered by water or breath into the prestigious Samsung Solve for Tomorrow contest. We are one of the state finalists. We garnered \$2500 for HHS. Hopefully we will be the state WINNER! Many IB internal assessments and service projects are E/S based. Some inspire longitudinal projects and partnerships. Our STEMpire has been honored at many school board meetings celebrating excellence. A local legislator donated \$10,000 recently to support our Outdoor Classroom and STEM Competitions.

The Lexus EcoChallenge projects involved many sectors of the school system including custodians, tech staff, facilities, administration, other faculty members, and community experts all led by student teams. They addressed issues like biodiversity, CO2 movement, air pollution, ultra fine particles and human health, replanting trees, and energy efficiency. Through energy and lighting audits, outdoor native pollinators, sensory gardens, songbird gardens, bioblitzes, famous speakers, and outdoor STEM based art installations, we integrated the concepts of sustainability into Hoover High School's everyday life. These multifaceted projects increased our presence and recognition. They also helped catalyze the growth of AP Environmental Science; provided seed money for our outdoor classroom; underwrote the rebirth of science and research competitions; and made innovative STEM and sustainability based projects a "cool" thing to plan and execute. We consistently place with top scores in STEM based regional, state, and national research competitions.