Section 1 – Program Description

Project Title:
Model Green Team

Summary:
The goal of this project is to create a model "Green Team" program at an Irvine middle school. Currently, our IUSD Maintenance and Operations Department has created a "Green Team" goal for each district school and has asked schools to identify a "Green Team" leader. While this district initiative has helped to recycle plastic and paper, discussions with Joe Hoffman, our District Director of M & O, reflect that in far too many cases, there is much more that can be done at each school to not only improve environmental friendliness, but also to educate students about acting each day in an environmentally friendly way. The model "Green Team" school would include students in "service learning" opportunities, reaching beyond just the boundaries of school to include the entire school community, while also educating students about how their actions have a direct impact on the environment. This grant proposal is submitted to ask for assistance in creating that model Green Team approach and to coordinate this effort with the current efforts being made by our district Maintenance and Operations Department.

Need for the project:
- In our observations at our own school and in discussions with Joe Hoffman, there is a great deal that still can be done to enhance the "Green Team" efforts at our IUSD schools. Enhancing these efforts take dedicated teacher and student time.
- Students, teachers and our district M&O department need to work together to: Enhance the educational component of our school's current recycling program; enhance the effectiveness in our collection of recyclable materials; broaden our community outreach to improve the proper disposal of common household hazardous wastes (such as batteries, spray cans, computer components, etc.), and enhance the cooperation of our community with these efforts when school is not in session on the weekends, and yet recyclable material is still left improperly on our campus.
- One goal of the district's Maintenance & Operations department is for the Green Teams to carry out the tasks efficiently enough for money to begin going back into the program and thus freeing up district money to be utilized in other ways. With ongoing educational budget cuts, developing programs that are both directly enriching for the students involved as well as monetarily beneficial to all students (money put into a program generating revenue that is put back into the program) is of utmost importance.
- While our students have the opportunity to participate in science fair projects, there is little opportunity for our students to actually implement real world science and community action, applying interdisciplinary classroom knowledge, which can then be implemented and have a positive societal impact within a short time frame.
- In addition, no middle school in Irvine offers honors science classes, so this program would provide GATE and honors students with enrichment and challenging opportunities in science.
- As a global economy, companies and organizations in the United States are looking for individuals that can execute ideas and problem solve. In the quest of covering state standards, not developing these skills in our students is a huge disservice to them, their future, and our communities.
- We all know that it is important to make a positive impact on our environment, but this project moves us from "need" to "empowerment" by enlisting many students in implementing our team project goals and actions.
- It is important that students are provided a platform that fosters team work and the skills necessary to be successful in life.

- We have a need to cultivate student leaders by providing different leadership opportunities.
- We have a desire to provide ecological education for all students and the community.

Goals of the project:

- To create a model "Green Team" for an IUSD middle school. To accomplish this, Mr. Hoffman has already been contacted and has agreed to partner with our school and our school's custodial staff. Our head custodian has offered to help and contribute in any way he can.
- To allow students to see how they can utilize science to make a positive environmental difference in their community.
- To educate students about the importance of ecological awareness, educating others, and taking action.
- To increase self-esteem and confidence of students that they CAN make a difference.
- Integrate science and real-world enrichment activities with environmental goals with the district.
- To create a school culture that sustains participation in this project for subsequent years while providing a model for other schools so they can also participate.
- To provide additional activities where students will gain skills that will help them with mastery of 7th and 8th grade science standards, such as inquiry and the scientific process.
- To use the knowledge and application of science to bring the school and the community together.

How will the project improve current instruction and add to IUSD's Continuous Improvement Efforts?

The Model Green Team project supports the goals outlined in our IUSD Continuous Improvement Efforts as follows: promotes "curiosity and a sense of wonder," encourages "lifelong exploration," and provides "a foundation for understanding the natural world." This program will align with the goals in the areas of hands-on, inquiry-based learning and in reading and writing in science. IUSD states that "the most effective instructional practices foster higher-order thinking, critical analysis, clear communication, and inquiry." Students involved in the Model Green Team program will study the district's current advancement of school Green Teams, evaluate the efficiency of the program, and come up with solutions to improve the program. IUSD's Continuous Improvement Efforts also state that "there is an integral connection between academic progress and personal/social progress," and students will be developing advocacy skills as well as improving social aspects with friendships and peer collaboration. In addition, students will be using the Science Content Standards of Investigation and Experimentation, "and will have to carry out extensive research through informational text." Students will also be incorporating the use of a variety of technology programs such as Publisher (newsletters), Excel, Word, and PowerPoint.

Activities we will undertake to meet this Continuous Improvement Effort:

1st Trimester: Students would focus on enhancing the current action of IUSD Green Teams – the recycling of aluminum cans, plastic bottles, and paper.

Components:

i. **Recruiting and Organizing Students:**
ii. **Behavioral Study:** Conduct a behavioral study of why some of our students and teachers recycle and why some people do not. Students will observe during lunch why some students recycled and some students do not, and create a student survey based on their observations to determine causality. After conducting field observations during snack and lunch, and consulting with Joe Hoffman of IUSD, we would implement a "fix" to increase recycling at the school. (Depending upon our findings, the fix could be more containers,

placement of containers, different kinds of containers, knowledge of why recycling is important, specific goal setting targets, etc.)

iii. **Data Compilation & Analysis:** Students would also take a field trip to another school (only during 1st & 2nd trimester) to observe what works and doesn't work for that site's recycling program. The visitation would conclude with a meeting with Joe Hoffman, IUSD's Director of Operations & Maintenance, for reflection and discussion of what steps to take next.

iv. Presentation Component: students will create a PowerPoint presentation for all 7th and 8th grade science classes, educating the students body about plastic and paper recyclables. (Even if the "education" component was not found to be a factor motivating increased recycling, few people actually understand the impact of our use of plastic bottles and tons of paper throughout our school.) Student led presentations will be given to science classes so that all students in the school will be engaged in learning about the impact that our school's plastic and paper waste has upon the environment. Students will be encouraged to properly recycle during lunch and school hours.

v. **Implementation of New Ideas to create change:** Students would initiate recommended changes (such as clearly marked containers, more containers, strategic placement of containers, different kinds of containers, more educational motivation, etc.).

vi. **Secondary Compilation & Analysis of Data:** Students will obtain information by working with our head custodian & collect data to determine if our actions resulted in an improved percentage of recyclables in their correct containers. The student body will be notified through a "recycling" meter poster to provide a visual reference showing any improvements.

vii. **Ecological Field Trip Component:** As an incentive for students who participate on our Green Team, we will take student participants on an educational ecological field trip each trimester. At the end of the first trimester, students will take a trip to Waste Management's Sunset Environmental Transfer Station in Irvine to see what happens to trash and recyclables once trucks bring them in for processing.

2nd Trimester: Outreach to Community

Components:

Background Notes: Trimester 2 has two outreach components: (A.) Joe Hoffman has informed us that when schools are used for sport functions over the weekend, maintenance crews find garbage and plastic disposed of in the same containers. (B.) Our city and schools are not doing an effective job of safely disposing of common household products that become environmentally hazardous when simply dumped with other trash in landfills.

i. **Research and Collecting Data:** Students will use the data and conclusion from the 1st Trimester and begin to take steps to reach out to the community. (A.) Students will study school site field use on weekends (sporting events), which might include obtaining a schedule of weekend events at our school, observing a few of those events, and collecting data regarding why people do not recycle. Since bottles can be recycled for money, improperly disposed of bottles cost the school and the district time as well as money, not to mention damage to our

environment. (B.) Students will meet with the Director of IUSD M&O and a City of Irvine representative to determine how our school can create a safe and meaningful outreach to the community to properly dispose of common household waste products that could be hazardous to the environment (batteries, paint, spray cans, computer components, etc.)

ii. **Presentation Component:** Students will create a PowerPoint and present their findings to 7th and 8th grade science classes. Data might include: (A.) How many pounds of plastic and paper the district collects from each school site, how much money the district generates, estimated number of pounds of plastic thrown away at our school site and what that would mean in dollars, how much recyclables are thrown away during weekend field use, and possibly showing students how the money recouped from plastic bottles being thrown away would help programs at our school. (B.) Information about the problems created by improper disposal of household hazardous waste.

iii. **Action Component: Household Hazardous Waste program:** Students would introduce the program at the end of their PowerPoint presentation in science classes, and create a newsletter using Microsoft Publisher to be sent home educating students and families, notifying them of (A.) How to properly dispose of plastic bottles and cans when using our school facilities on the weekend and, (B.) Days and times to drop off Household Hazardous Materials at school. Joe Hoffman will work with our school to obtain appropriate containers and pick-up of materials from our school.

iv. **Ecological Field Trip Component:** Students will enjoy a half day at Crystal Cove State Park and explore the tide pools and learn how humans impact our oceans (trash, dissolved pollutants, ocean acidification) and marine animals. Students learn about the effects of how urbanization and trash on our environment and indigenous wildlife.

3rd Trimester: Implementation of Best Practices

Components:

i. Students will work with Maintenance & Operations to implement environmental exemplars that exist in other schools such as composting and energy saving.

ii. **Presentation Component:** Students would aim to present at two other middle schools in Irvine willing to try a similar program for the following school year.

iii. **Sustainability:** During the 3rd Trimester, students will focus on having two other schools implement the program, and recruit students from our school to take part in the program the following year. Potentially, students could present to the City of Irvine to gain additional support for upcoming years.

iv. **Field Trip Component:** Students will join our principal for a ½ day of gleaning, learning about how food from farms go from the earth to the supermarket and then to their homes, and the energy needed for that process. There will also be a social science component to this field trip, as we will study hunger in Orange County - as the food we glean will be donated to The Second Harvest Food Bank.

How is this Project Innovative?
This project is innovative because it takes a new approach to "service learning" and science education. As opposed to creating a new project, we are simply taking a very worthy district goal that is underfunded and understaffed, and utilizing the resources of this grant to create a worthy and replicable exemplar for our district that will both improve the environment and increase the science learning and empowerment of our students. In the past, we have attempted to reach this goal with some very elaborate projects. What we have learned is that it is important to keep it both simple and replicable. That may not seem like much of an innovation, but if we can pull it off, the results will be powerful.

Quantify the number and grade level of students:
Students in this program will begin with a core "team" of 7th and 8th grade students, anywhere from 20-30 students. However, because the students will be working with the district to improve green efforts for the entire school, all 570 students in the school will be impacted. Our ASB student body would also be involved in promoting awareness of these issues through student activities, and in the 3rd Trimester, our Model Green Team will target implementation at two additional middle schools and impacting their students.

Timeline:
We included the timeline in our detailed explanation for how the project will improve instruction and address IUSDs Continuous Improvement Efforts.

Section II – Evaluation of the Project

How will the project benefit students? How will funding help you implement creative approaches to teaching and learning?
Students will benefit academically as well as socially. They will have to practice interdisciplinary skills, develop and refine real-world interpersonal skills, and work in settings outside the classroom. All of these abilities are essential in creating thriving individuals and successful scientific teams. Our service learning program is built around environmental responsibility, giving back to the community, and the idea that every individual and the position they hold in society is no more or no less valuable. The nature of this program nurtures civic action on both a school and community level. This project promotes a "caretaker" position towards our environment and helps build student leadership and empowerment in that capacity. Funding will help set the foundation of responsibility and actions a Green Team teacher could actually implement towards reaching our district continuous improvement effort. Funding will provide us with the financing to purchase resources to implement new ideas that will promote environmental recycling. Funding will allow our students to visit other school sites and to take enriching fieldtrips in order to build a bigger picture of the South Orange County environment they live in.

What quantitative and/or qualitative indicators will you use to assess the impact of the project on students?
Assessment of the impact on students will be multi-faceted. Qualitative indicators will include: Student enthusiasm, sense of accomplishment, commitment, change in skills such as critical thinking and leadership, and the overall success of the projects will serve as indicators of the level of impact. Both informal and formal meetings between the principal, IUSD's Director of Operations & Maintenance, and the teacher will also occur throughout the process to discuss and evaluate student impact. Quantitative indicators will focus on the collection of data about the school's recycling program at the beginning of the school year in contrast to the data we collect at the end of the year. We will be able to quantify the effectiveness of the program at the end of each trimester to see if any improvements occurred. The willingness of other schools to

implement our Model Green Team program in the 3rd Trimester will help to indicate the level of sustainability in years to come.

Section III – Funding Request

Budget:

The budget for materials for this project will be enhanced with matching contributions from our District M&O department. We will utilize grant funds to pay for bus transportation fees, a stipend (at the district hourly rate) for the teacher-Green Team leader/grant coordinator to contribute some compensation for the hours devoted to this project, and other miscellaneous material costs that can be assumed when one reads the trimester outline of this project. (Because one goal is creating a sustainable program and a model for other Irvine schools, target teacher hours spent outside of the school day for the year will be targeted at 40 hours.)

1. **Please provide an itemized, prioritized budget of your project. (Include all expenses such as product purchase costs, labor/installment costs, shipping/handling, etc.)**

40 teacher stipend hours @ $35.00/hr	$1400.00
Buses @ $80/hr ($80/hr for 4 hrs per field trip; 3 field trips)	$960.00
Scientific Project Support Materials (District has agreed to match with $500)	$500.00
TOTAL	$2860.00

2. **Indicate levels of funding that would enable you to partially and/or fully initiate your program.**
   We have submitted this proposal in hope that ITAP will fund this collaborative school-district service learning educational project completely. The district's Operations & Maintenance department has already agreed to match $500 in funds for project support materials.

3. **Indicate additional sources of support that you anticipate having for the project, e.g., from your school or PTA.**
   We have already secured a promissory $500 match from IUSD's Maintenance & Operations department for project support materials. Additionally, we will ask funding support from PTSA to provide occasional snacks for students on days when students stay after school for several hours to work on a project.

4. **Sustainability:**
   Our goal is to encourage and activate science based, service learning opportunities that our students can participate in that would impact their school and their community. Because the program is broken down into specific and manageable components, the sustainability of this program is quite realistic. Additionally, the target hours the teacher advisor would spend outside of school is 40 hours, making the program also realistic for other schools to implement and sustain. Support through collaboration with IUSD's Operations & Management department also greatly increases the sustainability of this program.