



SLIC PROGRAM

TRAINING MANUAL

Version 2.0
October 26, 2016

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1 Introduction

The global problems that our children and future generations will face are unlike those of our parents because the world is connected in ways that it never has been before. Thus, problems are not confined to only communities in which we live but affect communities on a much larger scale. Students entering the workforce today need a variety of “tools” and skills to handle this new way of living and working.

The Student-Led Ideation Challenge (SLIC) Program offers students an incredible experience where they can think beyond high school and beyond their own environment, and engage in a project that is authentic to their lives and will have a direct impact on the world. Through the Program, teachers have an exciting, unique opportunity to guide their students through this creative process — to offer them a pathway to realize their creativity and bring their ideas to fruition.

2 Overview

The goal of this training manual is to help you, the teacher, implement SLIC in your classroom. The manual will begin by discussing the merits of project-based learning, and the background of SLIC; and then continue by introducing the areas that the students will be exploring during the 2016-2017 SLIC Program — presented in the form of Challenge Questions. Each Challenge Question will pose a real-world problem for students to solve.

Then, since SLIC is not only a fulfilling learning opportunity but a competition as well, the manual also discusses the elements of competition, which begins with each team presenting a solution to one of the Challenge Questions and submitting their answers to a series of Application Questions via the SLIC Platform. Judges will evaluate the answers based on Challenge-specific evaluation criteria during a multi-stage competition beginning in early February and culminating in a State Competition in March.

The appendix of this manual provides many of the necessary tools and supplements that teachers and students need during the Challenge.

We are thrilled to offer the SLIC Program to you and your students with its relevant Challenges, and encourage feedback and/or questions from you at any time at support@slc-solutions.com.

STOP!

**If you have not completed the
Teacher Pre-Questionnaire,
please skip to page 57.

3 New Teaching Methodologies Introduce Students to a Changing World

3.1 Why New Teaching Methodologies?

Today's world presents us with an increasing number and wider variety of problems than ever before. The challenge for teachers and administration is preparing students to handle this new world. In the 21st century workplace and in college, success requires more than basic knowledge and skills. Several recent teaching methodologies such as personalized instruction, project-based learning, and teaching the 5C's —critical thinking, creativity, collaboration, communication, and citizenship — all offer new avenues to help students become "life-ready." Across the country, schools are trying to adequately prepare students for the 21st century, and in response, states are creating new initiatives to support this goal. Earning a diploma should be about more than passing a prescribed series of courses and tests. Before they leave high school, graduates will also need life skills such as solving complex problems, working in a team environment, and understanding and responding to the environment in which they live — all contributing factors to success in college, career, and life.

3.2 What Is Project-Based Learning and Why Use It?

Project-Based Learning (PBL) is a teaching method in which students gain knowledge and skills by working for an extended period of time to actively explore, investigate, and respond to an engaging and complex question, problem or challenge. PBL is a more enjoyable way to learn because it puts control back in the students' hands. It is a fun, engaging experience which allows them to have a voice in what and how they create. With less teacher involvement, students feel ownership over their education.

While PBL practices vary depending on grade level and subject area, PBL techniques can be used while teaching to the Virginia Standards of Learning, Virginia Workplace Readiness Skills, and other comparable student achievement expectations. Therefore, for teachers, incorporating PBL into the classroom is an effective way to meet those goals. As a matter of fact, studies have indicated that if students are more engaged in their study, they will have a higher retention rate and as a result, better academic success.

3.3 How Does the SLIC Program Work?

Students today want to make a difference in the world. They want to be impactful. The more often they are engaged in working on real-world problems, the more they will continue to enhance the skills they will need later on. So, PBL in the classroom begins with proposing a meaningful classroom activity with a problem to solve. Students then engage in a rigorous, extended process of asking questions, researching a solution, and ultimately presenting their solution to those beyond the classroom.

This is the idea behind the SLIC Program —SLIC allows students to immerse themselves in an opportunity to solve hard problems in today's real world, and empower them to make a difference. For students, the project involves:

- Choosing a problem that is interesting to them
- Working together as a team to brainstorm ideas
- Developing and architecting a proposed solution
- Verifying and validating the solution through research on similar solutions in the marketplace
- Developing and implementing a plan
- Creating a project plan and risk assessment
- Designing measurement tools and procedures to prove the solution's success

4 The Student-Led Ideation Challenge

4.1 VDOE & ISC Partnering Together

The Innovative Solutions Consortium (ISC) was founded in 2011, and has spent its early history working to find solutions to government and industry challenges by identifying and bringing together innovators worldwide. In 2014 the Loudoun County Public Schools (LCPS) Challenge was the first student-led ideation challenge the ISC executed, and was a pilot program designed to engage students in solving issues that LCPS' administration, teachers, students, and parents had identified. At the same time the Challenge also provided students, K-12, an uncommon opportunity to try and help find solutions to problems that were meaningful to them and had a direct impact on their lives. The solutions that were offered went beyond the normal boundaries of industry solutions, and opened up new perspectives by tapping into the creativity of our youth. The program was publicly praised by Virginia Governor Terry McAuliffe and yielded a variety of innovative student-based solutions around the areas of safety and security, decision support systems, improving the way we teach, and finding tools and technology to support the 21st century classroom. Due to the success of last year's LCPS Challenge, the ISC and VDOE have partnered to launch the 2016-2017 Student-Led Ideation Challenge — a larger, more far-reaching challenge, and the 1st statewide program of its kind aimed at attracting all high schools across Virginia.

The SLIC Program, although designed and developed in Virginia for high school students, is open to all students throughout the country. To register your school, district, or state, please contact info@slic-solutions.com.

The SLIC Program is a completely developed, ready-to-use project-based learning module. The module includes:

- Complete set of lesson plans
- Rubrics and checklists for grading purposes
- Criteria against which the evaluators will judge the ideas
- Lists of skills students will be acquiring/building upon
- Associated Virginia Standards of Learning skills
- Challenge Questions from which students can choose
- Application Questions the students must answer
- All necessary templates and worksheets for students' use
- Suggestions for team creation and team management
- The *SLIC Quick Reference Guide and Student Handouts* for easy access to student material and steps to using the SLIC Platform. (This is a separate document that may be downloaded from the SLIC Platform or the VDOE website.)

The students will be given a choice of three Challenge Questions from which to choose. These questions come from different fields and reflect some of the nation's most significant contemporary challenges. Each question presents students with a problem, and then through rigorous teamwork and collaboration, students will create a unique solution.

In addition to the SLIC Project being an engaging learning experience for the students, it is also a competition. Teams with the best ideas will win scholarships up to \$3,000 and advance to a statewide competition judged by industry experts. The winners will be given an opportunity to build out their design idea into a prototype to be presented to a private audience with the organizations who are looking for solutions to their problems. In addition, all teachers whose teams win the Regional competition will receive a \$500 cash award so that they may continue their dedication and effort to project-based learning.

4.2 SLIC and the Benefits of Global Crowdsourcing

The overarching outcome from the LCPS Challenge pilot program was the discovery that students felt like their ideas really mattered, and that they could really make a difference in their community, both locally and worldwide. This initiative is designed so that — no matter where a student’s interest lies or in what disciplines they excel — they can engage in a fun and stimulating opportunity, by offering them three completely different problems to solve for: education, agriculture, technology/robotics.

SLIC not only leverages crowdsourcing, but does it in an entirely new way. Crowdsourcing is defined as the process of engaging a large group of people, generally via online communities, to provide services, ideas or content. The philosophy behind crowdsourcing for ideation is that we all look at problems in different ways because we view the world based on our own personal experiences. Students represent a unique set of “solvers” because even though they may have acquired fewer life experiences than older people, they are growing up in a world where there is a tremendous amount of information and experiences at their fingertips. The world in which they live uses rapidly changing technology to shape these experiences and it feels natural to them. The SLIC Program intends to give students around the world an opportunity to participate in helping to address areas of need facing the new global environment in which we all live. It is in this way that the SLIC Program is appealing to all students.

5 Challenge Questions for 2016-2017

The students will be given a choice of selecting one of three Challenge Questions. The choice of questions is as diverse as our nation, and offer the opportunity for exploration into our education system, our unmanned flight systems, and forestry and ecosystems. The fields represented in the 2016-2017 Student-Led Ideation Challenge are:

- **EDUCATION:** The 21st Century has changed the way we do business. This requires a new skill set. How can we better prepare graduating students for college, career and life in this ever-changing world?
- **TECHNOLOGY & ROBOTICS:** How can we create a light-weight small unmanned aviation vehicle (UAV, sometimes referred to as a drone) with automated “sense and avoid” capabilities to enable it to fly without colliding with environmental objects?
- **AGRICULTURE AND FORESTRY ECOSYSTEMS:** What solutions do we need to implement to address forest ecosystem challenges to help support healthy forest ecosystems, and the byproducts they produce, to make a healthy planet? How can citizen scientists around the world be engaged to collect data from their communities?

The full details, requirements, and the judging criteria of each Challenge Question are listed on the following pages.



Note: Teachers and students may download a PDF version of each of the Challenge Detail pages in the *SLIC Quick Reference Guide and Student Handouts* or from within the SLIC Platform. (You must be logged into the Platform to download it there.)

5.1 Challenge #1: How to Improve the Way We Teach to Better Prepare Students for Life in the 21st Century

Overview and Background

In 1635 the first public school was opened in Boston, MA. Today there are almost 99,000 public schools in the United States of America, with 2,093 of those in the Commonwealth of Virginia. Since those early Colonial times, the public school system has changed in many dramatic ways, but the system has always strived to better prepare graduating students for life beyond school.

The 21st Century has created some new challenges for graduating students, so The Standards of Learning Innovation Committee, in its [October 29, 2015, report to the General Assembly](#) (PDF), recommended that the Board of Education develop a “Profile of a Virginia Graduate” and adjust Virginia’s diploma requirements to conform with the profile. The 2016 General Assembly approved, and the governor signed, [House Bill 895](#) and [Senate Bill 336](#), which directed the Board of Education to begin the process of:

1. Developing and implementing a “Profile of a Virginia Graduate,” identifying the knowledge and skills that students should attain during high school in order to be successful.
2. Developing what the profile should be, giving due consideration to the “5’Cs.”

Critical Thinking	
<p>Definition:</p> <p>Analyzing and evaluating information in order to make connections, draw conclusions, and/or solve complex problems.</p>	<p>Demonstration includes:</p> <ul style="list-style-type: none"> • Recognizing, analyzing, and solving problems that arise in completing assigned tasks • Identifying resources that may help solve a specific problem • Using a logical approach to make decisions and solve problems
Creative Thinking	
<p>Definition:</p> <p>Using a variety of techniques to generate innovative solutions and ideas.</p>	<p>Demonstration includes:</p> <ul style="list-style-type: none"> • Contributing new ideas (e.g., for improving products and procedures) • Displaying initiative readily, independently, and responsibly • Dealing skillfully and promptly with new situations and obstacles

Collaboration

Definition:

Working within teams towards a common goal in an effective, efficient, and respectful manner.

Demonstration includes:

- Contributing to the success of the team (e.g., brainstorming solutions, volunteering, performing in accordance with the assigned role)
- Assisting others (e.g., supporting team members and leaders, taking initiative)
- Requesting help when needed (e.g., asking questions after reading the materials and FAQs, knowing when to seek help from peers and teachers)

Communication

Definition:

Expressing thoughts and ideas to others using oral, written, and/or non-verbal forms; deciphering meaning from oral, written, and/or non-verbal forms.

Demonstration includes:

- Communicating effectively with peers, teachers, and others (e.g., avoiding the use of slang, being pleasant and helpful)
- Exhibiting public and group speaking skills
- Comprehending details and following directions
- Repeating directions or requests to ensure understanding (i.e., practicing active listening)

Citizenship

Definition:

Contributing to society using thoughtful, effective, and respectful behaviors that enhance local, nation, and global communities.

Demonstration includes:

- Identifying and abiding by government and school laws and policies
- Respecting the property of others
- Identifying how one's actions and behavior can have far-reaching effects (e.g., personal behavior affects others nearby; decisions can have global implications or impact the environment) exhibiting honesty and reliability

Note: The definitions of the 5C's have been developed by WHRO for the purposes of this Challenge. The "Demonstration Includes" section is from the Virginia Department of Education, Career and Technical Education, [Virginia's Workplace Readiness Skills](#).

3. Emphasizing the development of core skill sets in the early years of high school.
4. Establishing multiple paths toward college- and career-readiness for students to follow in the later years of high school, which could include opportunities for internships, externships, and credentialing.

In the execution of this initiative, the Board of Education has heard from students, families and educators that earning a diploma should be about more than passing a prescribed series of courses and tests. The Board also has heard from higher education, businesses and the military that graduates need skills and attributes such as critical thinking, creative thinking, communication, collaboration and citizenship, to be successful in life.

“The “Profile of a Virginia Graduate” describes the knowledge, skills, experiences, and attributes that students must attain to be successful in college and/or the work force and to be “life ready” in an economy and a world characterized by rapid change. The Board has determined that a life-ready Virginia graduate must:

- Achieve and apply appropriate academic and technical knowledge (content knowledge)
- Demonstrate productive workplace skills, qualities, and behaviors (career skills)
- Build connections and value interactions with others as a responsible and responsive citizen (community engagement and civic responsibility)
- Align knowledge, skills, and personal interests with career opportunities (career exploration)

The development of the “Profile of a Virginia Graduate” creates a framework for the Board of Education as it reviews the commonwealth’s diploma standards to ensure that high school graduates are prepared for a successful life after high school.” (*“Profile of a Virginia Graduate”*)

Problem Statement

The current curriculum and the Virginia Standards of Learning (SOL) tests do not fully test or prepare students for life in the 21st century. They focus more on memorization than critical thinking. Accountability Systems are used to assess only students’ memorization proficiencies. Advanced thinking processes are better assessed using Authentic Assessments, where students perform a real-world task that typically requires critical thinking and problem-solving skills to successfully address a challenge. This simulates tasks that would be done in a setting outside the classroom (a workplace or community, for example) (see *Appendix C of the General Assembly Report*).

Nevertheless, to ensure that students are prepared for the future, it is vital that they are taught the skills they will need upon graduation. Therefore, both curriculum and the tests to assess proficiencies of these skills need to be developed to teach students the 5C’s — starting in kindergarten — in a way that will be engaging, meaningful, and memorable for them.

Ideation Challenge

High school students need to be taught skills necessary for success after graduation. The goal of this challenge is to provide authentic learning experiences that will prepare students for college, career, and life.

Your challenge is to choose from one or more subject areas— science, math, English, music, art, computer science, etc.—and design a grade-level program, project-based activity, or other innovative opportunity that will enhance student learning in the chosen subject area(s) and develop the critical skills needed to become "life ready":

***Critical Thinkers
Creative Thinkers
Collaborators
Communicators
Citizens***

Make sure to address the following information in your submissions:

1. Create an Action Plan on how your Team's solution can be implemented.
2. Illustrate how your solution teaches the 5C's and helps prepare graduates for the workforce, college, and life; use the examples above to help guide you.
3. Provide details on how to measure the success of this new approach. You may include both tests given to the students, as well as how to measure the success of the school over a long period of time.

Judging Criteria

- How innovative in thinking is the idea to solve this problem? How novel is this approach?
- Is this technology/approach brand new or does it combine existing technologies/approaches in a novel way?
- Is the solution scalable across other schools and/or disciplines?
- How plausible is the solution? Can it be implemented? Will it meet the stakeholders' needs?
- How well does the solution teach Critical Thinking as defined in the Challenge?
- How well does the solution teach Creative Thinking as defined in the Challenge?
- How well does the solution teach Communication as defined in the Challenge?
- How well does the solution teach Collaboration as defined in the Challenge?
- How well does the solution teach Citizenship as defined in the Challenge?
- Overall, will the proposed technique(s) and approach(es) help students be better prepared for the workforce, college, and life?

5.2 Challenge #2: Develop a Small Light-Weight UAV/System with Autonomous Navigation

Overview and Background

Autonomy in unmanned aerial systems (UAVs), commonly known as drones, is a desirable and futuristic goal. It is also necessary to advance UAV technology.

UAVs are being used by hobbyists, in the military as well as commercial businesses, for a variety of applications. In the military, for example, UAVs are being deployed for Intelligence, Surveillance and Reconnaissance (ISR) missions. In commercial sectors, on the other hand, UAVs are being used for a wide range of functions, including transport monitoring, pipeline and border patrol surveillance, monitoring traffic congestion, assessing damages to buildings after a natural disaster, and delivering packages, just to name a few.

Autonomy can add a new paradigm towards intelligent unmanned systems and opens doors for new applications and tactics. Rapid progress in terms of autonomous flight has been demonstrated in large military UAVs, including advances in semi-autonomous and multi-functional capabilities; however, very limited progress has been made in small UAVs. This is primarily due to a lack of on-board power and payload capability. Given the Army's vision, in order to augment small military units or individual soldiers with small UAVs (weighing from a few tens of grams up to 5kg), advances in small UAV autonomous flight technology is essential.

One critical function that a UAV must possess is a "sense and avoid" capability. Large systems utilize a suite of sophisticated sensors such as radar, LIDAR, and Electro Optical/IR cameras, and also possess significant on-board computational power to analyze objects (i.e., terrain, trees, other environmental or urban elements) around them in real-time while in flight. These types of systems are currently prohibitive on small UAVs due to weight and space considerations.

Problem Statement

The purpose of this challenge is to find a solution that provides a "sense and avoid" capability for a small, light-weight UAV system.

The problem of navigating through uncharted natural and man-made environments without colliding with objects is challenging because one has to create a three-dimensional representation of the terrain/environment with respect to the UAV's instantaneous position while in flight.

For humans, the eyes (our optical sensors) are offset by a few inches, which creates so-called parallax, or a small offset/displacement of an object when viewed by the two different lines of sight (through each eye). The amount of offset/displacement — more for close objects and less for far away objects — can be used to gain a sense of distance to an object, and provide a three-dimensional representation of the landscape or object that is in front of the sensors (eyes). This is often referred to as depth perception.

Ideation Challenge

The objective of this challenge is to develop a small light-weight UAV/system that can autonomously navigate an obstacle course using only optical camera(s).

Select 1 of the 2 following options:

Option A: Using an existing small UAV/drone (no more than 5 lbs. in weight, 18 inches in width) with their on-board camera and standard equipment, how can autonomous flight with sense and avoid capabilities be incorporated into its functionality? Many advanced drones/UAV's can utilize accessories such as advanced flight and/or remote controllers with feature-packed software and open-source programming capabilities that allow you build-in/develop advanced-maneuver functionality. These types of accessories, or your own unique accessories, may be considered in your solution.

Option B: Design a new small UAV platform and flight/remote controller for autonomous flight with sense and avoid capabilities. This can be done by redesigning any aspect of the equipment including, but not limited to the platform, the robotics, the cameras, the controllers, the processors, etc. Be creative! The only restrictions are that the design must be under 5 lbs. in weight, and 18 inches in width.

In the design and response to this Challenge, you must:

1. Describe the systems hardware and/or unique software components (platform, camera(s), controllers, computers, unique software modules, batteries, etc.).
2. Describe how the system will see (sense) and understand objects (terrain, trees, solid obstructions, etc.). That is, how will you achieve things like parallax, size/depth perception, distance, etc., while in flight, or have you figured out other ways to “sense”?
3. Describe how and/or where the system will process the camera/optical/sensing data and object information? Also describe how much time this will take.
4. Describe how the system will take the optical data (described in 3. above) and feed it back to the flight controller(s) as necessary, to avoid objects in flight.
5. Describe how the system will achieve autonomous flight through an obstacle course — including how long it might take to complete — from one point to another (10 feet off the ground and 100 feet apart) considering the following obstacles in your path:
 - A solid stationary object that is roughly the same color as its background environment
 - A horizontal wire that is directly in its flight path
 - A flying object that is on a collision course with your UAV/drone system
 - And, as a bonus, assume your UAV/drone system approaches an extremely large wall that is too big/large to go around. Would it stop and hover? Would it be able to locate an open doorway/passageway in that wall and then fly through it? Describe how this will happen.
6. Include diagrams illustrating how your solution will look and function in your responses.

Whether you pick Option A or Option B, apply the following constraints:

1. The UAV/drone system cannot be more than 18 inches in width or 5 lbs. total weight (including any on-board accessories, batteries, etc. you use).
2. Use only optical camera(s) or device(s).
3. The UAV/drone will fly only in daylight hours.

Judging Criteria

- How innovative in thinking is the idea to solve this problem? How novel is this approach?
- Is this technology/approach brand new or does it combine existing technologies/approaches in a novel way?
- How plausible is the solution? Can it be implemented? Will it meet the stakeholders' needs?
- How complete is the description of the hardware and/or unique software components? Is there anything missing?
- How well does the solution sense things? How well does the solution interpret data to create parallax, size/depth perception, distance, etc., while in flight? Does the solution "sense" objects in other ways?
- How well and where does the solution process the data? How quickly?
- How well does the solution utilize the data while in flight to avoid colliding into obstacles?
- How clearly have you described how the solution will react to each of the obstacles? A solid stationary object that has a similar color as the surrounding environment? A thin wire? An object flying towards the UAV? A large object that the UAV cannot go around?
- Overall, do you believe that the solution will be capable of completing the obstacle course in a reasonable amount of time?

5.3 Challenge #3: Protecting our Forests and Monitoring our Land Use

Overview and Background

The Earth's soils are the foundation for humanity's future and are critical for producing healthy forests. Soil supports forests, urbanization, agriculture and many other land uses. It is critical for society as a whole to recognize that we need healthy forests and soil to support all of the land uses upon which humans rely.

We need to understand and define the state of health of our forested lands — such as what is living in it — and inventory what is growing in these areas.

Globally, tens of thousands of acres of soil each year become so degraded they can no longer sustain life. We continue to lose forested land acreage which is vital for overall planetary health. This Challenge aims to study Earth's forests and their dependence on a healthy soil system. By finding ways for citizen scientists to collaborate — throughout the country and around the world — on ideas about healthy forests, then, information about their ecosystems can be shared. This will ultimately raise awareness of their critical impact upon our Earth.

Problem Statement

The United States represents a combination of extremes — highly urbanized areas surrounded by much larger expanses of agricultural and forested open space. The Commonwealth of Virginia is just one example of this, with pockets of cities skirted with suburbs that are surrounded by the vast Appalachian Mountain Range and farmlands.

Humans rely upon healthy forest ecosystems for products like clothing, paper, lumber, and even water via our watershed systems. In fact, two out of three Americans get their drinking water from a forested watershed every day. Water, a commodity that we can't live without, is perhaps the most important "forest product."

Despite the degradation of our soil and the loss of lands that support our forests, the damage is reversible. In an era when climate change and the need to find ways to reduce carbon being released into the atmosphere is a dominant global issue — even in highly forested areas — collectively we can discover and enable new ways to find solutions to these very important problems. Potential areas for change could include finding new consumer uses for our forests (such as Torrefied wood) as a natural energy resource, and better monitoring of our forest ecosystems' health. Increased citizen participation and the exploration of new approaches to elevate effective land use and forest sustainability could be beneficial in actually lowering the Earth's temperature, while at the same time providing fresh water ecosystems.

Inventorying forests, even just to determine the size, species mix and condition of trees on a forested area, is expensive and time consuming. Most states have inventories that are conducted only every 7-10 years. The industry is always looking for ways to perform these surveys more frequently, efficiently, and cost-effectively to ensure that the data is as current as possible. This information will assist landowners, land managers, and wildlife biologists understand the entire forestry ecosystem, which will enable them to make well-informed decisions about what strategies are necessary to improve

watersheds, increase forestry productivity, reverse the effects of global warming, and create overall healthy forestry ecosystems.

Solution Statement

In order to restore and protect our forest ecosystems, we need to know the following:

- What choices are people making about global land usage (i.e., when they build houses, clear the land for crops, leave the woods untouched, etc.)?
- What is the health of a tree or forest based on standardized criteria?
- What techniques, processes or methodologies can be implemented to create healthier forested lands?
- How can we utilize technology and new social paradigms, like crowdsourcing, to link citizen scientists at scale and better monitor forest conditions? What type of technology solution/system could be built to produce an interactive map of land use, including data regarding plants and animals living in these environments, as well as forest and soil conditions. Would anything need to change to make the implementation of your proposed solution possible?
- What types of plants and animals are growing and living in the trees and forested areas in your community?

These questions need to be answered with data from around the world, but first citizen scientists can begin by finding answers locally.

Ideation Challenge

What humans choose to do with the finite amount of land we have on our planet, and documenting how all areas are being used, is an important aspect to ensure that our forest ecosystems are preserved. This includes the critical interdependency between soils and forests, and the associated impact to our food and water supply. How are land areas being used near you and in your community (housing, business, crops, forests, agriculture, etc.)? What types of tree species are growing in or near your community?

Based on what you observe, what solutions would you implement to address these key forest ecosystem challenges to help support healthy forest ecosystems, and the byproducts they produce, to make a healthy planet?

Propose creative ideas on how to design and build an interactive map of tree, soil and forest health that can be used to monitor and assess land usage and forest ecosystems health. Based on what the data in this interactive map could highlight, please propose new methods to monetize forested lands that would allow landowners to keep forests as forests (i.e., using low-value timber as a fuel alternative, finding new commercial market uses for timber or watershed areas, etc.).

Please include the following information in your responses to the Application Questions:

1. Select an area of forested land, or land with at least some trees on it, encompassing a specific amount of space (e.g., 1 square meter, 1 square acre). Document the GPS location and photograph the area.
2. Describe the land use in detail, such as if it contains housing, what type (single family, apartment, etc.); if it contains crops, what is growing there (corn, potatoes, soy beans, etc.); if it is only forest, what type (deciduous, coniferous, mixed, etc.). Or is it a combination of uses (e.g., a house with a grassy yard or backing up to a forest)? Be observant, and as detailed and specific as possible.
3. Create a Forest/Tree Health Report Card to ensure consistency across citizen scientists. Provide an assessment on the Trees' health based on your "Report Card" criteria, explaining how your team is defining and measuring for healthy forest/tree life so this same technique can be replicated by others over the course of multiple growing seasons. A checklist of tree density, and good and bad plants (invasive species) divided up by region could be a helpful component.
4. What type of plant life is growing with the trees? Specifically identify the invasive plant species growing within the designated area (i.e., Japanese Honeysuckle, Cogon grass, Wavy leaf basket grass, Tree-of-Heaven). Take photographs of the trees and plants, document the date and time, and create a list of what you see. If you cannot identify the plant on your own, how can you figure out what it is?
5. Document any animal sightings (mammals, birds, insects, microorganisms, etc.) living in the soil, on the plants, or in the trees. Take photographs of the animals (or samples of the soil they are living in), document the date and time, and create a list of what you see. If you cannot identify the species on your own, how can you figure out what it is?
6. Describe how you would share this information across a global network. Describe how you would use this network to encourage other citizen scientists to repeat your approach for consistency in data collection and reporting, as documented in your Forest/Tree Report Card. Also include a strategy of when and how often assessments should be conducted. Include a description of how you will globally grow your citizen scientist network and encourage the exchange of information on how all types of forests directly impact our planet's health and all of its inhabitants. Be creative!

Judging Criteria

- How innovative in thinking is the idea to solve this problem? How novel is this approach?
- Is this technology/approach brand new or does the solution combine existing technologies/approaches in a novel way?
- How plausible is the solution? Can it be implemented? Will it meet the stakeholders' needs?
- How effective is the network approach to engaging and retaining citizen scientists over long term? Is it sustainable? For example, does the solution incentivize people to get involved and stay involved (e.g., make it a game, give points or prizes, make it fun, etc.) as citizen scientists, to collect data using your Report Card criteria, and to post their findings (e.g., how Waze uses crowdsourcing to identify traffic issues)?
- How well does the solution scale to a global citizen scientist network?
- How realistic and achievable is the proposed idea in helping monetize different attributes of the forest ecosystems?

- Overall, will the proposed technology/approach enable researchers to build an interactive, near real time “map” of the forests and trees, and the way land is being used with details of what will be found upon all surface areas of the Earth? Will the solution be able to provide forestry, landowners, land managers, biologists, and botanists to accumulate the data they need to help improve our forests?

6 Implementing the Challenge

This section provides guidance to teachers regarding how to begin the SLIC Program with students in the classroom — these are recommendations only. Teachers are encouraged to adjust the process as necessary to fit into their individual classrooms, and manage the activity how they choose.

6.1 Getting Started

Before students begin working on the individual Challenges, ask them to complete the *Student Pre-Questionnaire* (<https://www.surveymonkey.com/r/W7NG9WH>). The Pre-Questionnaire gauges their comfort level, at the start, with the skills that project-based learning and SLIC endeavor to promote. After filling out the questionnaire, the teacher may explain the Program to the students, share the detail information about the Challenges, and allow them to divide into teams.



Important: Before proceeding any further with the Challenge, each student **must** submit a *SLIC Program Parental Consent Form* (refer to Appendix A, or the *SLIC Quick Reference Guide and Student Handouts*). The consent form is to confirm parents' understanding of their responsibility regarding their child's intellectual property (Section 6.8). It is also to grant VDOE, ISC and the media permission to post photographs and video of their child with respect to their participation in the SLIC Program. The forms must be turned in before the teams begin formulating their solutions.



Have questions regarding implementing the Challenge in your classroom? Please email our support center for guidance @ support@slc-solutions.com.

6.2 Teacher Role

The Challenge is designed to be a student-led activity, therefore teacher involvement should be kept to a minimum. As a result, this will naturally promote collaboration within teams, independent research, creative thinking, and offering students ownership over the process, which is ultimately the goal of project-based learning. Teachers act as “Sponsors.” Providing guidance and support is encouraged, interfering with students' creativity and the scientific process is not. Similarly, parents should be informed that the purpose of the SLIC Program is to give students an opportunity to be independent thinkers and leverage their own creativity. If parents would like to submit an idea for any of the Challenges, we welcome that by having them contact slc@worldsolv.com.

That being said, in conducting research it is not uncommon to reach out to an expert in the field and solicit guidance. We encourage student teams to identify resources they may need, and attempt to connect with them. As their Sponsor, please let the experts know that the ideas must be the students, and they belong to the students. They are merely seeking additional information to support their creative work. If a team cannot find a subject matter expert, please contact the SLIC Support Team to make that request and a mentor will be assigned to them.

6.3 Setting Up Teams, Assigning Roles & Beginning The SLIC Projects

To kick off the Challenge, first decide whether you will allow students to pick a Challenge Question from the 3 options, or whether you will minimize the choices to 1 or 2. Generally it is recommended that the students be given as many choices as possible, but if one specific option directly relates to the course in which it is being offered, then limiting the options makes sense. Next, divide the class into small teams, ideally 4-6 students per team. Teams can be assigned in a number of different ways. One suggestion might be for the teacher to break up teams into groups based on the preferred Challenge Question of each student. Another option may be for the teams and questions to be self-selected by the students. Or, the teacher can organize teams based on students' chosen roles, and how the skill set of each role aligns to the project tasks.

Here are a few considerations when deciding how to form teams:

- How do students gravitate to each cluster of ideas that the Challenge presents?
- What skills can each student bring to the table when they work with a team?
- What is their familiarity and comfort level with the Challenge area(s)?

After teams are selected, an important next step is to define roles and responsibilities of each team member (Team Roles Template, B-1). Encourage students to think about:

- What is each team member's role?
- Does each team member understand the complete task, their individual role(s), and how their role(s) affects other team members' tasks?
- Who, if any, are the task leaders, team leader, team contact person, etc.?

Depending on the level of experience students have with project-based learning, they may need some assistance actively engaging in the ideation process. Here are a few ideas that may help them begin collaborating with each other:

- Inquiry-based guidance to assist the team in initiating a starting point in their investigative process
- Narrowing down the scope to fit time line and feasibility
- Identifying skills the team possesses and what does it have to learn collectively to succeed
- Diagramming initial thoughts and ideas via brainstorming sessions

6.4 Time Management

Incorporating the Challenge into the regular classroom activity will require approximately 1.5 hours of total instruction time. This time is best divided over two class periods with time in between for students to work on the project. The total work time that each student dedicates to their SLIC Project can be time in class, at home, or a combination of the two. It is our recommendation that at least some class time be dedicated to this work effort to allow students easier access to their teammates for coordination and collaboration; perhaps one could use any extra time at the end of a class period to allow student teams to check in with each other.

6.5 Collaboration

Although each team member has a defined role, the success of the project depends on the whole team continually sharing work with each other and offering feedback to one another at regular intervals. They cannot work in isolation! With successful collaboration, teams will be able to efficiently use their time and resources to jointly reach a shared goal.

A small amount of classroom time is recommended for students to make progress and share ideas in person, however, it is expected that a significant portion of the project will require outside classroom activity. Students may work collaboratively online or offline. Online tools offer an opportunity to easily connect and share both inside and outside the classroom. Currently, most students have, at a minimum, a basic working knowledge of online collaboration and/or document sharing tools, so the learning curve should be small. Students should use whatever tools and techniques are presently being used at your school (Google Classroom; MS365; making copies).

Additionally, all School Winners will be invited to join the Division Winners to a Think Tank Session where they can share ideas and provide feedback on how they believe the Division Winner's solution can be improved.



Note: Although school policy dictates what tools and applications are offered, the use of any particular tool/application, or the choice to share all work offline is completely at the teacher's discretion.

6.6 Project Management

A critical component to this long-term project is project management. At the outset, and to encourage the most efficient use of time, teams should discuss the following items:

- Identify tasks and connected time lines
- Establish progress evaluation strategies, such as soft deadlines and peer review
- Identify correction process for slippage and solution revisions
- Create shared documents for different sub tasks so that team members can contribute and understand the current status

Teachers please recommend a schedule that will allow time for review and will also allow time to submit the teams' responses for each Application Question (Section 8) into the SLIC Platform (Section 9). Sponsors' feedback should be restricted to checking for grammar and writing style, reviewing completeness of explanation, ensuring that concepts are easily understood, and looking to see that teams have clearly cited references. Allocating time for peer review is an important part of the process, and should be encouraged as well. So, you will also need to allow time for teams to incorporate feedback. One of the goals of the SLIC Program is for students to "pace" themselves, and at regular intervals, log key project information into the SLC Platform.

6.7 Submitting “The Solution”

The student teams will be given 10 tasks to perform. These have been captured in the SLIC Platform, a secure, web-based, user-friendly interface, and provided to you to share with the students in Section 8. Over the course of three months, students submit responses to each of these deliverables by following the instructions, rubrics and checklists, and completing the templates provided. Suggested deadlines for each of the deliverables are provided, but actual deadlines are at the teacher’s discretion. Students are encouraged to turn in all deliverables in PDF format, and it is the teacher’s responsibility to upload the files into the application.

At midnight on December 9th, all submissions for Phase I are final, and the competition part of the SLIC Program begins. On midnight on February 24th, all submissions for Phase II are final.



Important: The teachers may go back into the SLIC Platform on student teams’ behalf at **any** point before the December 9th deadline and change, update, or add information into their Application Question responses for the Phase I questions (#1-#4). The Applications will then be reopened on December 22nd. From this date until Feb 24th, changes and additions can be made to any of the 10 questions.

6.8 Intellectual Property

The 3 most common forms of Intellectual Property are copyrights, patents, and trademarks. The World Intellectual Property Office describes them as:

- **Copyright** is a legal term used to describe the rights that creators have over their literary and artistic works. Works covered by copyright range from books, music, paintings, sculpture and films, to computer programs, databases, advertisements, maps and technical drawings.
- A **patent** is an exclusive right granted for an invention. Generally speaking, a patent provides the patent owner with the right to decide how - or whether - the invention can be used by others. In exchange for this right, the patent owner makes technical information about the invention publicly available in the published patent document.
- A **trademark** is a sign capable of distinguishing the goods or services of one enterprise from those of other enterprises. Trademarks date back to ancient times when craftsmen used to put their signature or "mark" on their products.

SLIC recognizes the importance of Intellectual Property and its protection. For the most part, SLIC student solvers, or participants, will be creating potentially new ideas/concepts and reducing them to writing and/or diagrams; these are so-called expressions of ideas. Such expressions are automatically protected by Copyright Law. In light of this, please include the following in the footer of all submissions:

"Proprietary Information. © Copyright 2016 <insert team name>."

Teachers and parents should understand that all student team submissions uploaded to the SLIC Platform will be protected, and the teacher's role is to help ensure the privacy of their student teams' Ideas. Please do not send out a student team's application to a potentially competing team to protect their Intellectual Property.

If a student team engages the assistance of a mentor, they should insist that the mentor(s) sign non-disclosure agreements to ensure that the team's Intellectual Property is protected, while allowing the students to speak freely with the expert. For more information on non-disclosure agreements and to create one, see [NOLO's Sample NDA](#).

During the competition phase of SLIC, judges will also be required to sign a non-disclosure agreement, protecting student Ideas as they are evaluating their solutions. When student teams are discussing their Ideas during the public portion of the competition, they should not go into detail exposing any proprietary designs, code, etc. — instead only sharing concepts — on parts of the solution that are considered to be Intellectual Property. This includes both the information shared during the oral presentation and in the exposition hall at the team's table display.

For more general information on Intellectual Property Protection, read [10 Ways to Protect Your Intellectual Property](#) (Fitzsimmons, Kelly. "10 Ways to Protect Your Intellectual Property." www.inc.com/kelly-fitzsimmons/ten-ways-to-protect-your-intellectual-property.html. Accessed 15 October 2016).

If there are additional questions regarding Intellectual Property and SLIC guidelines regarding the matter, please contact SLIC Support at support@slc-solutions.com.

7 Evaluating the Solution

The Challenge is designed so that, in the end, the final evaluation is based on two main factors:

- How well the teams were able to work together and perform tasks that utilize the 5C's
- How innovative the solution was that the team designed

The first factor can be determined based on how well the teams met the requirements by following the instructions, templates, rubrics, and checklists provided. The results of the assignments will comprise the teams' grades, and are scored by the classroom teachers. Some Application Questions have a rubric designed specifically for that question. In some cases, where there is no point scale, the grade may simply be based on whether or not the team fulfilled the deliverable. For example, Question #2 is scored using a checklist, with a total possible point score of 100. On the other hand, Question #1 contains a template that is either assessed as "Complete" or "Incomplete."



Note: Teachers may choose to grade each deliverable as a separate grade, or grade all of the parts as one grade. It is our recommendation that each task represents a separate grade based on the provided rubric/checklist for that task.

The second factor will be determined by selection committees and judges utilizing the judging criteria associated with each Challenge area. This evaluation will occur during the competition portion of the SLIC Program, which begins after the December 9th deadline. There is a unique set of criteria per Challenge Question; the criteria can be found at the end of each Challenge Question's detail page (Section 5) as well as in Appendix C. Phase I submissions will be judged based on this criteria to the best of the judges abilities based on what information is provided. It is understood that students will not have truly complete answers, and will not have had an opportunity to do thorough research at this point. At the conclusion of Phase II, the judges will read over all 10 responses which should address all of the judging criteria.

8 List of Application Questions (10)

Regardless of the Challenge Question selected, there are 10 Application Questions that student teams must answer during the project. However, not all teams will be invited to participate in all 3 Phases.

The Phases include:

Phase I - Open to all. This phase covers Questions #1-#4. During this phase, teams will brainstorm ideas to design the best solution to the Challenge they have selected.

Phase II - Open to the Divisional Winners only. They will respond to Questions #5-#10 in support of their idea, and relative to the Judging Criteria for their chosen Challenge.

Phase III – Open to the 1st and 2nd Place State Winners only. They will have the opportunity to build out a prototype to their solution, and present it to the Challenge Area Stakeholders.

Each Application Question corresponds to a task that the student team must complete. Student teams will find the supplements provided helpful because they offer direction and guidance towards the completion of each question. All supplements can be found in Appendix A; a reference to the relevant supplement is noted within each question below. Also noted are suggested deadlines as well as estimated times for completion for each Application Question. These are provided to teachers in order to help students meter out the work effort over the course of the SLIC Program. As mentioned earlier, the SLIC Program is coordinated with the Virginia Standards of Learning (<http://www.doe.virginia.gov/testing/index.shtml>) and the Virginia Workplace Readiness Skills (http://www.doe.virginia.gov/instruction/career_technical/workplace_readiness/index.shtml); so included in each question are the skills and Standards of Learning that are aligned with that specific question. The Application Questions are listed on the next several pages, and may also be found in the SLIC Platform, www.slic-solutions.com, when one clicks on “Submit an Idea.”



Note: Remember that all of the suggested deadlines on the following pages are simply that — **only suggestions** — and it is entirely at the discretion of the teacher how they manage the timeline so that their students do not fall behind. That being said, the final deadlines for all student team solutions is at midnight on December 9th for Phase I, and midnight on February 24th for Phase II. These are firm deadlines with no exceptions.

PHASE I: *Brainstorm ideas with your team to design the best solution to the Challenge you selected. Review the Judging Criteria questions listed as part of your selected Challenge. Try to address the questions based on the information that you gather during Phase I.*

Question #1 *Select the Challenge you want to solve, form a team, and decide upon team member roles needed for successful collaboration and complete the template provided.*

Supplement: Team Roles, Appendix B-1
 Estimated time for completion: Approximately 45 – 90 minutes
 Suggested Deadline: November 3, 2016

Related Skills:

- Citizenship
- Collaboration
- Communication
- Teamwork
- Time Management

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16
Demonstrate effective speaking and listening skills	English 6.2, 7.1, 7.2, 8.2, 9.1, 10.1, 11.1, 12.1 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.13, C/T 9-12.15

Question #2: How will your solution help solve this problem? Describe in detail how your solution solves the problem. Write a summary and include a visual representation of your idea as indicated on the assessment rubric.

Supplement: Summary and Visuals Checklist, Appendix B-2
 Estimated time for completion: Approximately 90 – 180 minutes
 Suggested Deadline: November 11, 2016

Related Skills:

- Analyzing
- Brainstorming
- Collaborating
- Communicating
- Creativity/Inventive Thinking
- Critical Thinking
- Documenting/Citing References
- Negotiating
- Organizing
- Outlining
- Problem-Solving
- Reading
- Real-World Thinking
- Researching
- Strategizing
- Time Management
- Using Correct Mechanics (Formatting, Grammar, Spelling)
- Writing

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7

Workplace Readiness Skills	Virginia Standards of Learning
	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate time-, task-, and resource- management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate proficiency with technologies common to a specific occupation	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.2, C/T 9-12.3
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3
Demonstrate an understanding of Internet use and security issues	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.4, C/T 6-8.5, C/T 6-8.6, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7, C/T 9-12.8

Question #3: Who will benefit from your solution and why? Using the profile template, identify your audience and create a user profile(s) describing who will benefit from your solution by completing each required section. Create profiles for each type of person who will benefit from your solution.

Supplement: Profile Template, Appendix B-3
 Estimated time for completion: Approximately 90 – 180 minutes
 Suggested Deadline: November 15, 2016

Related Skills:

- Analyzing
- Brainstorming
- Collaborating
- Communicating
- Creativity/Inventive Thinking
- Critical Thinking
- Debating
- Empathizing
- Modeling
- Organizing
- Problem-Solving
- Profiling
- Reading
- Real-World Thinking
- Role-Playing
- Researching
- Strategizing
- Time Management
- Using Correct Mechanics (Formatting, Grammar, Spelling)
- Writing

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7

Workplace Readiness Skills	Virginia Standards of Learning
	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate time-, task-, and resource-management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate customer-service skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3
Demonstrate an understanding of Internet use and security issues	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.4, C/T 6-8.5, C/T 6-8.6, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7, C/T 9-12.8

Question #4: In a 90-second video, PowerPoint presentation, or other creative work, present an explanation of your idea and how will it solve the problem as indicated on the checklist. Videos should be uploaded to YouTube and set to "private," while other presentation formats should be uploaded to the Platform.

**If you choose to do a video, upload it to YouTube in this format:
http://www.youtube.com/watch?v=_MVonyVSQoM**

Supplement: Presentation Checklist, Appendix B-4
 Estimated time for completion: Approximately 225 – 450 minutes
 Suggested Deadline: December 9, 2016

Related Skills:

- Brainstorming
- Collaborating
- Communicating
- Creativity/Inventive Thinking
- Critical Thinking
- Organizing
- Outlining
- Problem-Solving
- Reading
- Real-World Thinking
- Strategizing
- Time Management
- Videoing
- Writing

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16
Demonstrate effective speaking and listening skills	English 6.2, 7.1, 7.2, 8.2, 9.1, 10.1, 11.1, 12.1

Workplace Readiness Skills	Virginia Standards of Learning
	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.13, C/T 9-12.15
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate time-, task-, and resource-management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3
Demonstrate an understanding of Internet use and security issues	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.4, C/T 6-8.5, C/T 6-8.6, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7, C/T 9-12.8
Demonstrate telecommunications skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.13, C/T 6-8.14, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.15, C/T 9-12.16

PHASE II: Divisional Winners - Respond to the following questions (#5-#10) in support of your idea, and relative to the Judging Criteria for your Challenge.

Question #5: How will you solve this Challenge? Develop an action plan using a flow chart, Gantt Chart, or list, etc. to illustrate the steps/processes needed to accomplish your proposed solution, in detail, following the checklist (what you are building and how you will perform these tasks w/milestones, major steps, & sub-steps).

Supplement: Action Plan Checklist & Gantt Chart Template, Appendix B-5 & B-6
 Estimated time for completion: Approximately 180 – 225 minutes
 Suggested Deadline: January 23, 2017

Related Skills:

- Analyzing
- Brainstorming
- Collaborating
- Communicating
- Creativity/Inventive Thinking
- Critical Thinking
- Diagramming
- Negotiating
- Organizing
- Problem-Solving
- Reading
- Researching
- Strategizing
- Time Management
- Using Correct Mechanics (Formatting, Grammar, Spelling)
- Writing

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1

Workplace Readiness Skills	Virginia Standards of Learning
	Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16
Demonstrate effective speaking and listening skills	English 6.2, 7.1, 7.2, 8.2, 9.1, 10.1, 11.1, 12.1 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.13, C/T 9-12.15
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate lifelong-learning skills	History and Social Science CE.1, CE.3, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate time-, task-, and resource-management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3
Demonstrate an understanding of Internet use and security issues	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.4, C/T 6-8.5, C/T 6-8.6, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7, C/T 9-12.8

Question #6: What do you think the most difficult tasks will be in creating your solution and prototype/pilot program? Using your action plan, generate a list of tasks, itemizing all potential problems and related solutions, to create a Risk Assessment Report with the provided template.

Supplement: Risk Assessment Template, Appendix B-7
 Estimated time for completion: Approximately 90 – 180 minutes
 Suggested Deadline: January 26, 2017

Related Skills:

- Analyzing
- Brainstorming
- Collaborating
- Communicating
- Creativity/Inventive Thinking
- Critical Thinking
- Debating
- Experimenting
- Listing
- Modeling
- Organizing
- Problem-Solving
- Reading
- Real-World Thinking
- Resiliency
- Strategizing
- Time Management
- Using Correct Mechanics (Formatting, Grammar, Spelling)
- Writing

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate effective speaking and listening skills	English 6.2, 7.1, 7.2, 8.2, 9.1, 10.1, 11.1, 12.1 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.13, C/T 9-12.15
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate lifelong-learning skills	History and Social Science CE.1, CE.3, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate time-, task-, and resource-management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3

Question #7: Based on your research, did you find any other solutions similar to what you are proposing? Given your proposed solution, conduct research and compare existing solutions. Document your findings in a spreadsheet or comparative essay. Include visuals and citations. A template and rubric are provided.

Supplement: Competitive Analysis Template and Comparative Essay Rubric, Appendix B-8

Estimated time for completion: Approximately 225 – 450 minutes

Suggested Deadline: February 3, 2017

Related Skills:

- Analyzing
- Brainstorming
- Collaborating
- Collecting Data
- Communicating
- Comparing & Contrasting
- Creativity/Inventive Thinking
- Critical Thinking
- Debating
- Empathizing
- Interviewing
- Modeling
- Organizing
- Problem-Solving
- Real-World Thinking
- Researching
- Surveying
- Time Management
- Using Correct Mechanics (Formatting, Grammar, Spelling)

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1

Workplace Readiness Skills	Virginia Standards of Learning
	Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16
Demonstrate effective speaking and listening skills	English 6.2, 7.1, 7.2, 8.2, 9.1, 10.1, 11.1, 12.1 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.13, C/T 9-12.15
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate time-, task-, and resource-management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate proficiency with technologies common to a specific occupation	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3
Demonstrate an understanding of Internet use and security issues	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.4, C/T 6-8.5, C/T 6-8.6, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7, C/T 9-12.8
Demonstrate telecommunications skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.13, C/T 6-8.14, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.15, C/T 9-12.16

Question #8: What resources (i.e.; equipment, people, money, physical space/environment, etc.) will you need to build your solution and prototype/pilot program? Given your proposed solution, make a list of required resources needed to build your prototype/pilot on the template.

Supplement: Required Resources Template, Appendix B-9B-90
 Estimated time for completion: Approximately 90 – 180 minutes
 Suggested Deadline: February 7, 2017

Related Skills:

- Analyzing
- Building
- Brainstorming
- Collaborating
- Communicating
- Creativity/Inventive Thinking
- Critical Thinking
- Documenting/Citing References
- Listing
- Organizing
- Outlining
- Problem-Solving
- Prototyping
- Reading
- Real-World Thinking
- Researching
- Strategizing
- Time Management
- Using Correct Mechanics (Formatting, Grammar, Spelling)
- Writing

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate effective speaking and listening skills	English 6.2, 7.1, 7.2, 8.2, 9.1, 10.1, 11.1, 12.1 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.13, C/T 9-12.15
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate time-, task-, and resource-management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate proficiency with technologies common to a specific occupation	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.2, C/T 9-12.3
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3

Question #9: How will your new solution’s success be measured? Analyze the solution and design an assessment instrument (AKA a measurement tool or recording document) that allows for a collection of data to be recorded and used for measuring and proving your solution is better than other solutions as indicated on the checklist.

Supplement: Assessment Instrument Checklist, Appendix B-10
 Estimated time for completion: Approximately 225 – 450 minutes
 Suggested Deadline: February 17, 2017

Related Skills:

- Analyzing
- Brainstorming
- Collaborating
- Communicating
- Comparing & Contrasting
- Creativity/Inventive Thinking
- Critical Thinking
- Documenting/Citing References
- Negotiating
- Organizing
- Outlining
- Problem-Solving
- Reading
- Real-World Thinking
- Researching
- Strategizing
- Testing
- Time Management
- Using Correct Mechanics (Formatting, Grammar, Spelling)
- Writing

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate effective speaking and listening skills	English 6.2, 7.1, 7.2, 8.2, 9.1, 10.1, 11.1, 12.1 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.13, C/T 9-12.15
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate time-, task-, and resource- management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3
Demonstrate an understanding of Internet use and security issues	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.4, C/T 6-8.5, C/T 6-8.6, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7, C/T 9-12.8

Question #10: Create a 10-minute presentation (video, PPT, etc.) that summarizes your solution. Describe why your solution should be chosen as the most impactful and innovative idea, and why it is better than other options based on the challenge criteria (use responses to #5-#9 to support this answer)? Upload file/insert link.



Note: This presentation will be given at the Regional Event.

Supplement: Presentation Checklist, Appendix B-11

Estimated time for completion: Approximately 225 – 450 minutes

Suggested Deadline: February 24, 2017

Related Skills:

- Brainstorming
- Collaborating
- Communicating
- Creativity/Inventive Thinking
- Critical Thinking
- Organizing
- Outlining
- Problem-Solving
- Reading
- Real-World Thinking
- Strategizing
- Time Management
- Videoing
- Writing

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate positive work ethic	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate integrity	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate teamwork skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.5, C/T 6-8.13, C/T 9-12.6, C/T 9-12.7, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate self-representation skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.5, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7
Demonstrate diversity awareness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate conflict-resolution skills	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate creativity and resourcefulness	History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.10, C/T 6-8.11, C/T 6-8.14, C/T 9-12.12, C/T 9-12.13, C/T 9-12.16

Workplace Readiness Skills	Virginia Standards of Learning
Demonstrate effective speaking and listening skills	English 6.2, 7.1, 7.2, 8.2, 9.1, 10.1, 11.1, 12.1 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.13, C/T 9-12.15
Demonstrate effective reading and writing skills	English 6.6, 6.7, 6.8, 7.6, 7.7, 7.8, 8.6, 8.7, 8.8, 9.5, 9.6, 9.7, 10.5, 10.6, 10.7, 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1
Demonstrate critical-thinking and problem solving skills	Science LS.1, PS.1, ES.1, ES.2, BIO.1, CH.1, PH.1, PH.2, PH.3 History and Social Science CE.1, CE.4, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.7, C/T 6-8.8, C/T 6-8.9, C/T 6-8.10, C/T 6-8.11, C/T 9-12.8, C/T 9-12.9, C/T 9-12.10, C/T 9-12.11, C/T 9-12.12, C/T 9-12.13, C/T 9-12.14
Demonstrate time-, task-, and resource-management skills	History and Social Science CE.1, CE.4, CE.11, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.7, C/T 6-8.9, C/T 6-8.11, C/T 6-8.13, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.11, C/T 9-12.13, C/T 9-12.15, C/T 9-12.16
Demonstrate information technology skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3
Demonstrate an understanding of Internet use and security issues	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.3, C/T 6-8.4, C/T 6-8.5, C/T 6-8.6, C/T 9-12.5, C/T 9-12.6, C/T 9-12.7, C/T 9-12.8
Demonstrate telecommunications skills	History and Social Science CE.1, CE.4, CE.14, GOVT.1, USI.1, USII.1, VUS.1, WG.1, WHI.1, WHII.1 Computer Technology C/T 6-8.1, C/T 6-8.2, C/T 6-8.13, C/T 6-8.14, C/T 9-12.1, C/T 9-12.2, C/T 9-12.3, C/T 9-12.15, C/T 9-12.16

PHASE III: State Winners - 1st and 2nd Place Winners will perform the following tasks:

- Build a solution into a working prototype with assistance from industry and/or academia experts.
- Present the prototype to the Challenge Area Stakeholders.

9 Exploring the SLIC Platform

The SLIC Platform is a secure, web-based, user-friendly interface which has been designed to:

- Provide teachers information about the SLIC Program
- Allow teachers to create student teams
- Enable teachers to store and update student team responses to SLIC Application Questions
- Receive important updates about the SLIC Program
- Permit judges to view team submissions, collaborate on their evaluations, and then rate solutions



Important: At no time may students log into the Platform. To protect student identities and intellectual property, only teachers and evaluators will have access; teachers will upload deliverables on behalf of their student teams. Teachers may email teams' answers back to them to review, but only teachers are going in and out of the Platform.

9.1 Landing Page Overview

The screenshot shows the SLIC Landing Page with four callout boxes labeled A, B, C, and D. Callout A points to the 'register' and 'log in' links in the top right. Callout B points to the 'WELCOME' and 'MY IDEAS' navigation links. Callout C points to the 'ACTIVE CHALLENGES' section, which includes three challenge cards: Education, Technology and Robotics, and Agriculture and Forestry. Callout D points to the footer, which contains links for 'ABOUT', 'TECHNOLOGY POWERED BY', and 'SUPPORT'.

WELCOME

The Innovative Solutions Consortium (ISC) and Virginia Department of Education (VDOE) are proud to invite you to join us in bringing Project-Based Learning on real world problems to the high school students in our communities.

By joining us in this pilot program, you are taking the first step in engaging students to solve some of the world's hardest problems and better preparing them for the future.

STUDENT-LED IDEATION CHALLENGE (SLIC)

The Innovative Solutions Consortium is dedicated to delivering solutions to re-imagine the world

Register Now

YOUR ROLE

The SLIC Program is designed to be a student-led activity, therefore teacher involvement should be kept to a minimum, allowing the students to take ownership and work collaboratively with their teammates.

ACTIVE CHALLENGES

Browse our Active Challenges

Education

The 21st Century has changed the way we do business. Information is always accessible, and we are now required to go beyond just knowing the facts, but to understand the relationships between those facts. This requires a new skill set. How can we better prepare graduating students for college, career and life in this ever-changing world? [READ MORE](#)

Technology and Robotics

How can we create a light-weight small unmanned aviation vehicle (UAV, sometimes referred to as a drone) with automated "sense and avoid" capabilities to enable it to fly without colliding with environmental objects? [READ MORE >>](#)

Agriculture and Forestry

What solutions do we need to implement to address forest ecosystem challenges to help support healthy forest ecosystems, and the byproducts they produce, to make a healthy planet? How can citizen scientists around the world be engaged to collect data from their communities? [READ MORE >>](#)

ABOUT

- About SLIC Program
- About Innovative Solutions Consortium
- SLIC in the News
- Sponsors

TECHNOLOGY POWERED BY

- IdeaScale
- WorkSolv

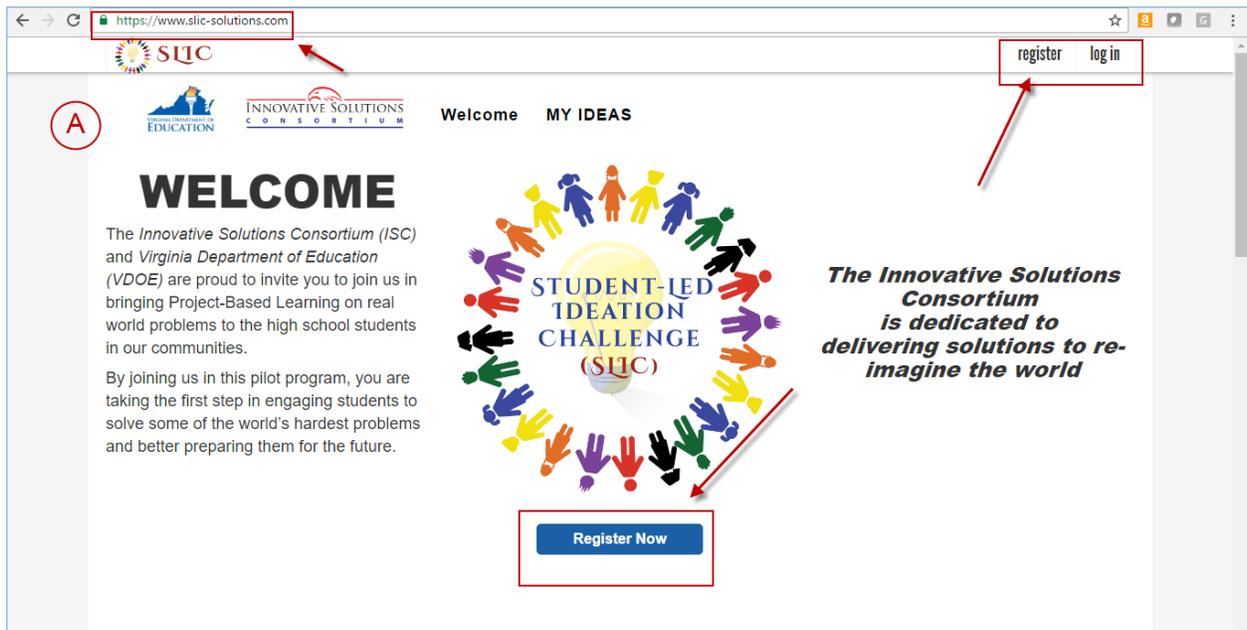
SUPPORT

- Support Email
- FAQs
- SLIC Training Resources

From the SLIC Landing Page, a user can access the following areas (please see detail for each area on the following pages):

- A. Login/Registration
- B. Main Navigation
- C. Challenges
- D. Footer

A. Registration/Login Area



For users who already possess a SLIC account, please click the ‘log in’ icon in the top right corner. If you’d like to register for an account, click the ‘Register Now’ button or the ‘register’ icon in the top right (see Section 9.2 for instructions).

B. Main Navigation

SLIC Landing Page



Idea and Challenge Pages



The Main Navigation area at the top of the screen can be found on every page, and contains two important links. The first is the “Welcome” link which returns the user to the SLIC Landing Page, no matter where you are on the site. The second item is the “My Ideas” link which will take the user to a full list of student team Ideas, regardless if the submission is at a complete or incomplete status (see Section 9.7). The list shown will only contain teams that are associated with the account.

C. Challenges

C



Education

The 21st Century has changed the way we do business. Information is always accessible, and we are now required to go beyond just knowing the facts, but to understand the relationships between those facts. This requires a new skill set. How can we better prepare graduating students for college, career and life in this ever-changing world? [READ MORE >>](#)



Technology and Robotics

How can we create a light-weight small unmanned aviation vehicle (UAV, sometimes referred to as a drone) with automated "sense and avoid" capabilities to enable it to fly without colliding with environmental objects? [READ MORE >>](#)



Agriculture and Forestry

What solutions do we need to implement to address forest ecosystem challenges to help support healthy forest ecosystems, and the byproducts they produce, to make a healthy planet? How can citizen scientists around the world be engaged to collect data from their communities? [READ MORE >>](#)

The Challenge area on the Landing Page will only show a Challenge Summary for each of the Questions. Click on "Read More" in the summary area to read the full-length Challenge Briefs. The Challenge Brief will also show a "Download a PDF" link so that that you can download a copy to share with others (students, parents, teachers, etc.).

D. Footer

D

ABOUT	TECHNOLOGY POWERED BY	SUPPORT
About SLIC Program	IdeaScale	Support Email
About Innovative Solutions Consortium	WorldSolv	FAQs
SLIC in the News		SLIC Training Resources
Sponsors		

The footer contains a few useful links:

- Click "About SLIC Program" or "About Innovative Solutions Consortium" to learn more about the Program or the designers of the SLIC Program.
- Get help via FAQs or send an inquiry via "Support Email."
- Click "Training" to access the Training Manual, the Quick Reference Guide, or a Video Recording.

9.2 Registration Page

SLIC register log in

INNOVATIVE SOLUTIONS CONSORTIUM

STUDENT-LED IDEATION CHALLENGE (SLIC) Ideas

WELCOME

Please create your account.

Please use your school email address, as only approved domain names will be allowed to register for security purposes. If you are not in our system, but you are an educator and wish to represent high school students to allow them to participate, please email info@slc-solutions.com for approval.

If you, personally, are interested in submitting ideas for these challenges, and you are 18 years old or over, please email SLIC@worldsolv.com.

If you need any further assistance in registering, please email support@slc-solutions.com.

*Required fields

Email Address *

Language *
English

TERMS AND CONDITIONS: Please check the box below to agree to the terms and conditions found at <http://www.isc-connect.org/terms-of-use/> and that I understand that non-disclosure agreements will not be accepted by the ISC or VDOE. All submissions are subject to being presented in an open forum to the public. *

Send me news and updates about IdeaScale OFF

Register

TRUSTe Certified Privacy

Copyright © 2016 IdeaScale Feedback Software | [IdeaScale Privacy Policy](#) | [IdeaScale Cookie Policy](#)

From the SLIC Homepage, when you click the “Register Now” button in the middle of the page, or alternatively, in the upper-right corner. This takes you to the Registration Page.

Complete the following steps for your registration:

1. Enter your school email address. Every school district/division in VA has been pre-approved for security reasons, so this step is simply to verify your email address.



Note: This platform is open to all teachers representing students. It has been designed for high school students in VA, but others may join. If you are not in VA, and you are a teacher, please contact us at info@slc-solutions.com. If you are personally interested in solving solutions, and are over the age of 18, contact slc@worldsolve.com.

2. Click the “Terms and Conditions.”

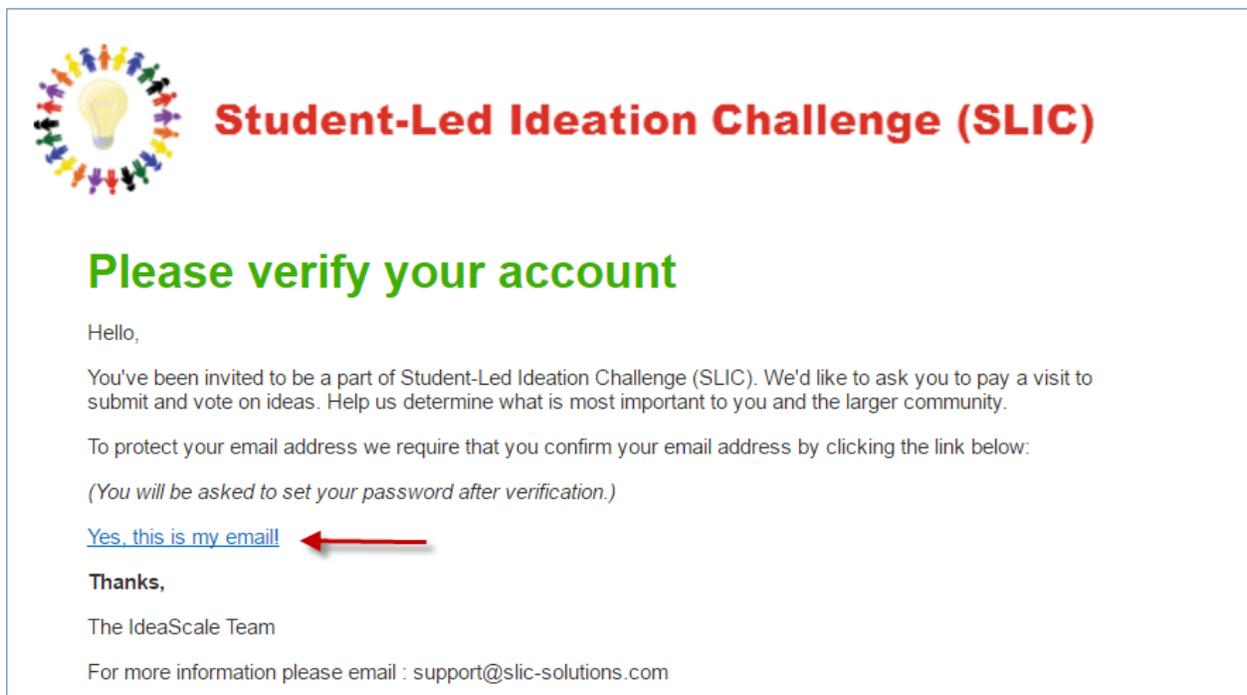
3. Click the “Register” button. A pop-up message (see below) will display at the top of the screen **if your school division is registered with us**, saying, “Your account has been approved! Please check your email to confirm your account.”

Alternatively, **if your division has not been pre-approved**, you will receive a notice stating, “Your account has been created! A moderator will approve your account as soon as possible.” The SLIC Team will contact you and verify that you represent a school and students, then you will be approved and you will receive an email asking you to verify your email address.



Note: System communication messages will appear at the top center of your screen, within the blue bar. You can exit out of these messages at any time by clicking the “X” on the right.

4. Log into your school email account. Open the confirmation message and select “Yes, this is my email.” The system will automatically take you to the Create Account webpage.



9.3 Create an Account Page

Now that your email has been verified and you are registered, please create an account so that you may begin submitting student team Ideas.

Set Password

Welcome to Student-Led Ideation Challenge (SLIC)

You're almost there! It just takes a moment to complete your profile and then we'll never ask again!

Step 1 (1 minute) | **Step 2 (1 minute)**

1 Full Name

2 Choose your username what is this? letters, numbers, periods, no spaces

3 Password

password should be at least eight characters long, includes one number or one special character

4 Confirm Password

Next

Fill in the following information:

1. Full name
2. User name that contains letters, numbers, or periods, but no spaces
3. Password that is at least 8 characters long, and includes one number and one special character
4. Confirmation password

Click "Next."

School Demographics

Welcome to Student-Led Ideation Challenge (SLIC)

You're almost there! It just takes a moment to complete your profile and then we'll never ask again!

Step 1 (1 minute) **Step 2 (1 minute)**

School Name :

School Divisions :

Superintendent's Regions :

Then, please provide some basic school demographics information:

1. School Name
2. School Division (select from dropdown menu)
3. Superintendent's Region (select from dropdown menu)

Continue scrolling down the page to select the training options you prefer.

Training Registration

SLIC PROGRAM PROFESSIONAL DEVELOPMENT TRAINING: The ISC and VDOE will be providing a 2-hour professional development course for educators to train you on how to implement the SLIC Program in your school. This optional course will be available to you to be taken in one of three different formats. :

-

A) Answer this question if you answered YES, and you are interested in REGISTERING for a live, in-person, hands-on, small classroom training session with instructors to help guide you through the material and answer questions, then select the regional location that works best for you. :

-

B) Answer this question if you answered YES, and you are interested in REGISTERING for a live webinar that will walk you through the content of the training materials with a Q&A session at the end; you can attend this training from any location using a computer, tablet, or mobile device. Choose one. :

-

C) Answer this question if you answered YES, and you are interested in watching the pre-recorded video of the course that can be viewed anytime, anywhere. Select one. :

-

D) Answer this question if you answered NO :

-

The SLIC Program is currently in the pilot phase of development. We would greatly appreciate it if you would be willing to provide us with feedback in an on-going fashion so that we can improve SLIC. Please send all feedback to info@slic-solutions.com. Please let us know if you are willing to help. Thanks! :

-

Save

The last step in creating your account is to register for the SLIC Program Professional Development Training. This 2-hour training course is highly recommended so that you can get the most out of the Program. There are 4 options:

1. Option A: In-person
2. Option B: Webinar
3. Option C: Pre-recorded Video
4. Option D: Opt out of guided training, and use the Training Manual independently

**Training Registration Questions will be removed after Nov 1.*

In order to select the most suitable training option:

- From the dropdown menu, click “Yes” or “No” whether you are interested in receiving training.

SLIC PROGRAM PROFESSIONAL DEVELOPMENT TRAINING: The ISC and VDOE will be providing a 2-hour professional development course for educators to train you on how to implement the SLIC Program in your school. This optional course will be available to you to be taken in one of three different formats. :

-

-

Yes, complete A, B, or C

No, complete D

- Select the option you are most interested in from the dropdown A, B, or C. The following table provides detail on all options types, dates, and times.

Region	Address	Date & Time
1	VA Department of Education James Monroe Building 101 N 14th Street, 22nd Floor Conference Room Richmond, VA 23219	10/21/2016 9 a.m.-11 a.m.
2	Tidewater Community College Advanced Technology Center 1800 College Crescent Virginia Beach, VA 23453	10/21/2016 3 p.m.-5 p.m.
3	Stafford Hospital Center 101 Hospital Center Blvd Stafford, VA 22554	10/25/2016 8:30 a.m.-10:30 a.m.
4	Loudoun County Public School Administration Building, 100C 2100 Education Court Ashburn, VA 20148	10/28/2016 2 p.m.-4 p.m.
5	Monticello High School 1400 Independence Way Charlottesville, VA 22902	10/26/2016 9 a.m.-11 a.m.
6	Roanoke County Public Schools Central Offices, Rm #E 5937 Cove Road Roanoke, VA 24019	10/26/2016 1:30 p.m.-3:30 p.m.
7	Wytheville Community College 1000 E Main Street Wytheville, VA 24382	10/26/2016 5 p.m.-7 p.m.
8	Luther P. Jackson Adult Ed Center 16 School Road Cumberland, VA 23040	10/25/2016 2 p.m.-4 p.m.

Region	Address	Date & Time
All Regions	<p>ISC: Webinar 1</p> <p>Please join the meeting from your computer, tablet or smartphone.</p> <p>https://global.gotomeeting.com/join/424525877</p> <p>You can also dial in using your phone.</p> <p>United States +1 (571) 317-3117</p> <p>Access Code: 424-525-877</p>	<p>10/20/2016 4 p.m.-6 p.m.</p>
All Regions	<p>ISC: Webinar 2</p> <p>Please join the meeting from your computer, tablet or smartphone.</p> <p>https://global.gotomeeting.com/join/424525877</p> <p>You can also dial in using your phone.</p> <p>United States +1 (571) 317-3117</p> <p>Access Code: 424-525-877</p>	<p>10/28/2016 9 a.m.-11 a.m.</p>

7. If you chose No, you would not like to participate in training, option D allows you to ask the SLIC Support Team to send you a Training Manual. (But if you are reading this, you clearly already have one.)
8. Click “Save” at the bottom of the screen to save your profile.

Additional Questions — *Teacher Pre-Questionnaire*

On October 17, 2016, the *Teacher Pre-Questionnaire* (see next page) will be posted on the SLIC Platform. The *Teacher Pre-Questionnaire* seeks to establish what you already know about project-based learning and the skills you will be using during the SLIC Program. Since this is a pilot program, SLIC is looking to create a baseline to compare how future attitudes/skills have changed after participating.

If a registrant signed up before October 17, 2016, a system communication message will pop up at the top of your screen asking you to fill it out. On the other hand, if the teacher signs up after October 17, 2016, then the *Teacher Pre-Questionnaire* will appear immediately after a training option is selected.

At the conclusion of the Program, there will be a *Teacher Post-Questionnaire* sent out to all participants, in order that we can assess what you have learned during SLIC. We will continually look for ways to improve the Program, and will happily accept input both during and after the program.

EDUCATORS PRE-QUESTIONNAIRE: Please complete the following questionnaire to help us better support you in teaching students the SLIC Program. Briefly describe your past experience in Project-Based Learning, what your general comfort level is with the tasks you will need to perform (listed below), and how we can support you. :

1. Have you participated in any professional development activities or courses in Project-Based Learning? :

2. Have you incorporated Project-Based Learning into your classroom activities previously? :

3. Have you ever taught students to work on real world or authentic problems? :

Please briefly describe the real world experience(s) :

4. Have you ever brought in experts from the community to talk about their work and challenges, or engaged students to participate in activities with them? :

Please briefly describe the experience(s) :

5. Composing professional communications for use with business partners (business memos and emails, project updates, etc.) :

6. Forming a positive first impression through a 30-second elevator speech or other vehicle :

7. Making a formal presentation to a group :

8. Helping students prepare for a competition, such as a science fair or other academic event :

9. Conducting a 1-on-1 conversation with a business professional and/or mentor :

10. Understanding and "owning" their personal strengths and passions :

11. Collaborating effectively as part of a project team in order to accomplish team goals :

12. Ability to exhibit leadership :

13. Ability to turn an idea or concept into a product or service :

14. Ability to positively respond to mistakes or other unexpected circumstances :

15. Overall confidence in themselves and their ability to be successful in life :

The SLIC Program is currently in the pilot phase of development. We would greatly appreciate it if you would be willing to provide us with feedback in an on-going fashion so that we can improve SLIC. Please send all feedback to SLIC@ic-connect.org or you may contact us directly at 571-245-2411. :

Save

9.4 Header Navigation Bar



After you are logged in, the header area at the top of the SLIC Platform will appear like this and contains several items:

- Logo
- Communities
- Home
- Checkbox
- Flag
- Mail
- Your Name

Logo Icon

By clicking the logo, the user will immediately return to the SLIC Homepage.

Communities Dropdown

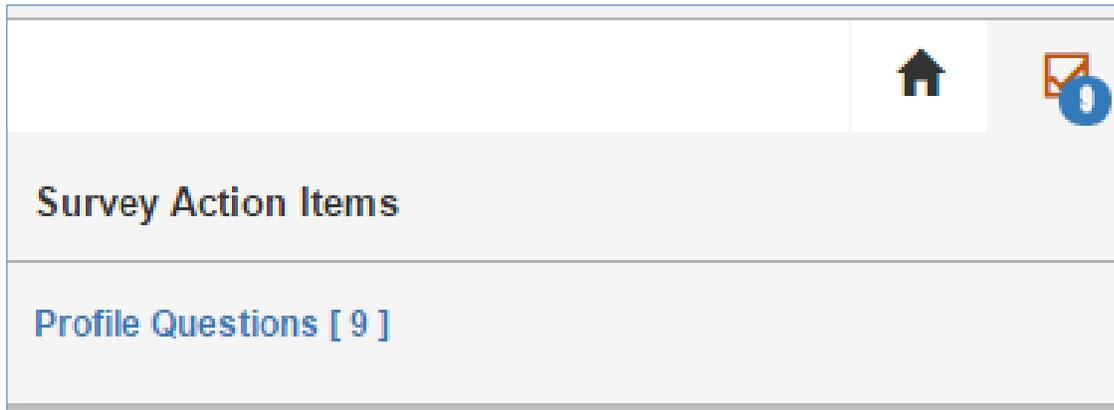


This dropdown indicates that you are now part of the SLIC Community. Clicking on “Student-Led Ideation Challenge” on this dropdown list will return you to the SLIC Homepage.

Home Icon

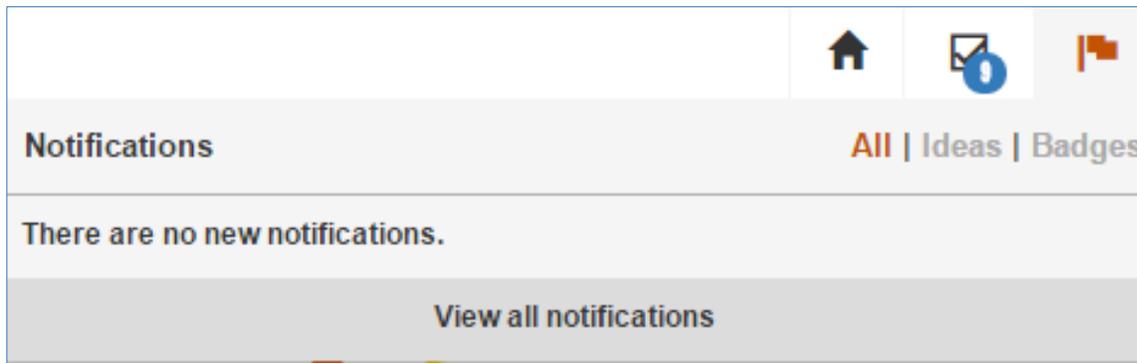
By clicking the logo, the user will immediately return to the SLIC Homepage.

Checkbox Icon



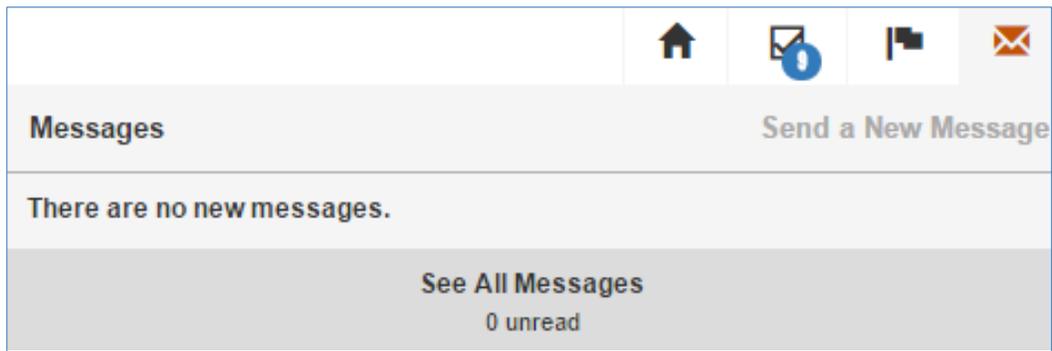
Any Action Items appear here. The number that appears indicates the number of outstanding action items the user has. Click on the Checkbox icon and it will take you to the items (i.e., questions to answer, tasks to be completed, etc.).

Flag Icon

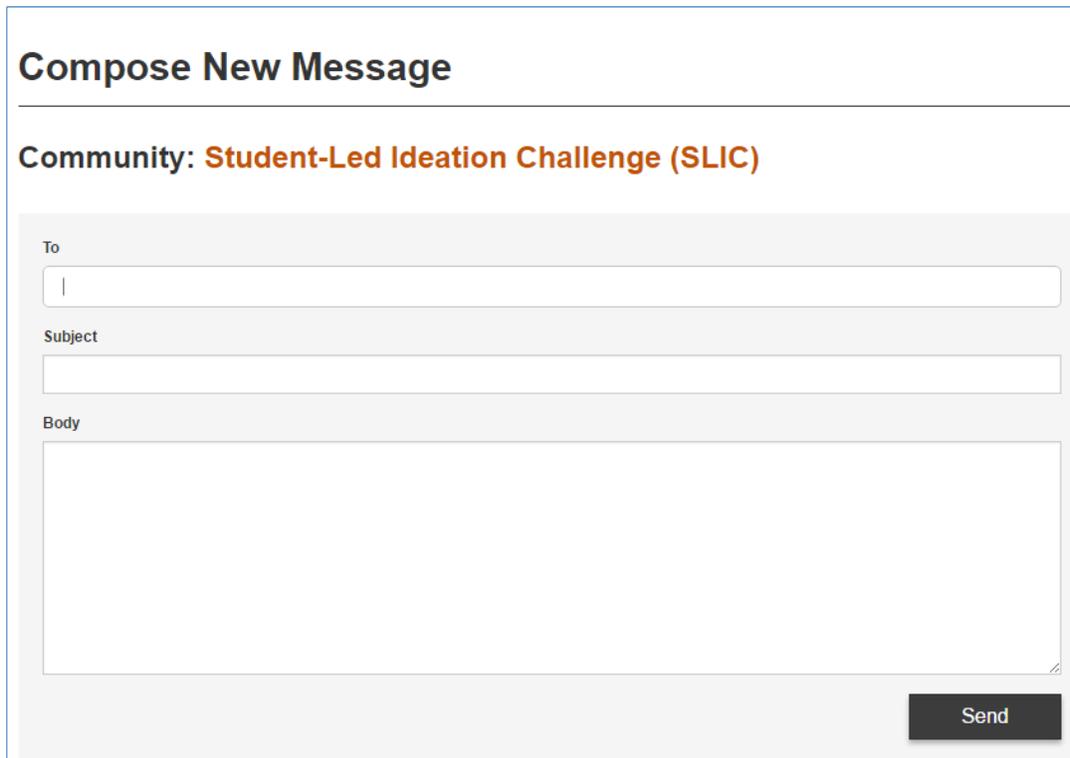


The flag will light up if the user has any new SLIC Platform notifications waiting to be read.

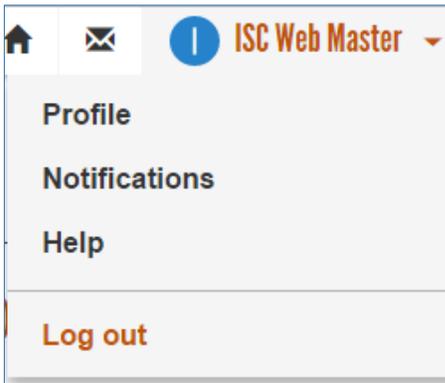
Email Icon



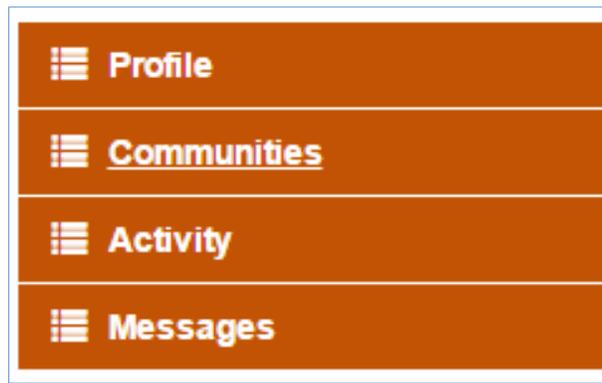
The email icon will light up if there are any unread messages. Within the SLIC Platform, you have the option to send or receive messages to/from any other member within the SLIC Community; just simply click the “Send a New Message” text to open up the email editor.

A screenshot of a 'Compose New Message' form. The title is 'Compose New Message'. Below the title, it says 'Community: Student-Led Ideation Challenge (SLIC)'. The form has three input fields: 'To', 'Subject', and 'Body'. The 'To' field contains a vertical bar. The 'Body' field is a large text area. A 'Send' button is located at the bottom right of the form.

Member Settings



SLIC Member Dropdown List



Left Sidebar Navigation

The SLIC Member dropdown list allows the user to customize the member settings. When the Profile and Notification links in the Member dropdown list are engaged, the left sidebar navigation appears. You may also access the member settings via the Left Sidebar Navigation. **The only areas that are pertinent to SLIC users are the Profile and the Messages sections, described below.** The majority of the features are not applicable for the SLIC Platform or SLIC users.

Member Settings: Profile → Profile Information

Profile Information

Name*

Usernames

The username `iscwebmaster` is used in the following communities:
[www.slrc-solutions.com](#) [[Manage](#)]

Your Avatar



- You can set your own avatar image here.
- By default we display Gravatar images associated with your email addresses, images provided by your SSO provider, images uploaded by you, and finally a set of default avatar images.

Upload new Image

 No file chosen
The maximum image size allowed for avatar is 100x100 (in pixels).
If your image is bigger than this, it will be resized to fit into the maximum size.

Language

[Click here for more information](#)

Hide My Identity

- Check this box to hide your identity on this community.
- This will hide your first name, last name, and profile icon (email address is always hidden).

Community List

Your Communities	Hidden Identity
Student-Led Ideation Challenge (SLIC)	(Not Applicable*)

Note: *Not Applicable* means that you cannot hide your identity in that community.

Change your profile information by clicking the “Profile Information” sub-menu item. Update your username, upload a picture to your profile, or select a new language. Click “Save” once you are done.

Member Settings: Profile → Email, Services, and Devices

Email, Services and Devices

Email Addresses

Allows the Administrator to add multiple Email addresses and set one of them as Primary. [Click here for more information.](#)

Email Address	Primary	Verified	Remove
webmaster@isc-connect.org	Primary	Verified	Remove
Add email address			

If you click the “Email, Services and Devices” sub-menu item, the system will allow you to add additional email addresses to your account.

Member Settings: Profile → Password

Change Password

Current Password

New Password

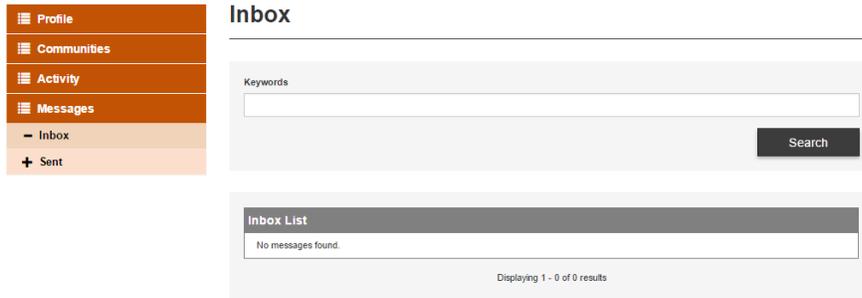
(password should be at least eight characters long, includes one number or one special character)

Confirm New Password

Change Password

The last sub-menu item within the Profile menu is Password. Change your password by entering the current password for verification; then enter the new password, and confirm it by entering it again. Click “Change Password” button to save.

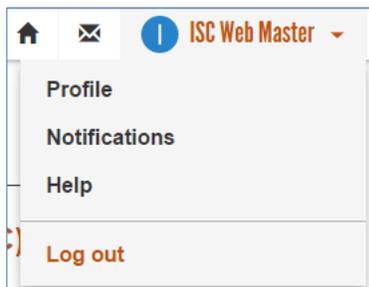
Member Settings: Messages



Click “Messages” to open the sub-menu. You can search your inbox or sent SLIC messages by keyword.

Member Settings: Help

This is a system feature that is not recommended for SLIC users. If you click “Help” on the Member Settings dropdown menu, you will be directed to IdeaScale, the makers of this platform. If you want to learn more about IdeaScale, click the link in the footer.



To receive support, the SLIC Team has created our own set of FAQs and our own Support Center which can be reached by email support@slc-solutions.com. You can access either of these in the footer or in the right rail of the Idea and Challenge Pages.

9.5 The Challenges

There are two ways that a user can navigate to the Challenge Pages:

On the Main Landing Page, click any of the three Challenge Summaries.

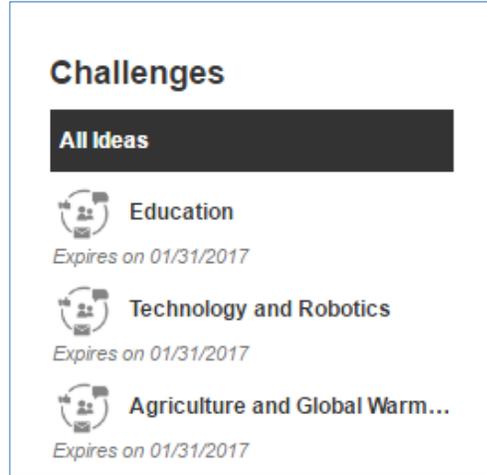


The image shows a challenge summary card for 'Agriculture and Forestry'. It features a photograph of a forest at the top. Below the photo is a dark blue header with the title 'Agriculture and Forestry' in white. The main text asks about solutions for forest ecosystem challenges and citizen scientists. A 'READ MORE >>' link is at the bottom.

Agriculture and Forestry

What solutions do we need to implement to address forest ecosystem challenges to help support healthy forest ecosystems, and the byproducts they produce, to make a healthy planet? How can citizen scientists around the world be engaged to collect data from their communities? [READ MORE >>](#)

On the My Ideas Page, click any of the three Challenge Areas in the right sidebar.



The image shows a sidebar titled 'Challenges'. It has a dark grey button for 'All Ideas'. Below are three challenge areas, each with a circular icon containing three people, the challenge name, and an expiration date of 01/31/2017.

Challenges

All Ideas

 **Education**
Expires on 01/31/2017

 **Technology and Robotics**
Expires on 01/31/2017

 **Agriculture and Global Warm...**
Expires on 01/31/2017

By using either method above, you will jump to the individual **Challenge Page**.

Student-Led Ideation Challenge (SLIC)
Agriculture and Forestry Ecosystems

WELCOME MY IDEAS

Submit New Idea

Search Ideas

Agriculture and Forestry Ecosystems

What solutions do we need to implement to address forest ecosystem challenges to help support healthy forest ecosystems, and the byproducts they produce, to make a healthy planet? How can citizen scientists around the world be engaged to collect data from their communities?

[Download the Forestry Ecosystems Challenge \(PDF\)](#)

[MORE DETAILS](#)

[SUBSCRIBE TO CAMPAIGN]

My Ideas ▾

Challenge Activity

0 Ideas Posted

0 Comments

0 Votes

Michelle Chance
Challenge Owner

CHALLENGE TEAM

Challenge Funnel

ALL STAGES 0 IDEAS

There are several important areas on this page that will assist in navigating through the site:

1. Click on “Submit New Idea” to create a new student team Idea. (From this Challenge Page, the Submission Form that you see next will be pre-populated with this specific Challenge Question.)
2. Click “Download the Forestry Ecosystems Challenge (PDF)” to receive a PDF version that you may share with students, parents, etc. (other Challenges will be labelled similarly)
3. Click on “More Details” to read the complete Challenge (see image on following page, including a long description with Challenge-specific criteria). This link will not jump to a new page; instead, the current page will expand down below to include the additional Challenge details.
4. Click on “My Ideas” to see a list of your student teams’ Ideas for the specific Challenge Area you are viewing. To see all of your student teams’ Ideas, click on “All Ideas” found in the right rail.

The **Challenge Brief** shows the full Challenge description.

<p>CHALLENGE BRIEF</p> <h2>Protecting our Forests and Monitoring our Land Use</h2> <h3>Overview and Background</h3> <p>The Earth's soils are the foundation for humanity's future and are critical for producing healthy forests. Soil supports forests, urbanization, agriculture and many other land uses. It is critical for society as a whole to recognize that we need healthy forests and soil to support all of the land uses upon which humans rely.</p> <p>We need to understand and define the state of health of our forested lands — such as what is living in it — and inventory what is growing in these areas.</p> <p>Globally, tens of thousands of acres of soil each year become so degraded they can no longer sustain life. We continue to lose forested land acreage which is vital for overall planetary health. This Challenge aims to study Earth's forests and their dependence on a healthy soil system. By finding ways for citizen scientists to collaborate — throughout the country and around the world — on ideas about healthy forests, then, information about their ecosystems can be shared. This will ultimately raise awareness of their critical impact upon our Earth.</p> <h3>Problem Statement</h3> <p>The United States represents a combination of extremes — highly urbanized areas surrounded by much larger expanses of agricultural and forested open space. The Commonwealth of Virginia is just one example of this, with pockets of cities skirted with suburbs that are surrounded by the vast Appalachian Mountain Range and farmlands.</p> <p>Humans rely upon healthy forest ecosystems for products like clothing, paper, lumber, and even water via our watershed systems. In fact, two out of three Americans get their drinking water from a forested watershed every day. Water, a commodity that we can't live without, is perhaps the most important "forest product."</p> <p>Despite the degradation of our soil and the loss of lands that support our forests, the damage is reversible. In an era when climate change and the need to find ways to reduce carbon being released into the atmosphere is a dominant global issue — even in highly forested areas — collectively we can discover and enable new ways to find solutions to these very important problems. Potential areas for change could include finding new consumer uses for our forests (such as Torrefied wood) as a natural energy resource, and better monitoring of our forest ecosystems' health. Increased citizen participation and the exploration of new approaches to elevate effective land use and forest sustainability could be beneficial in actually lowering the Earth's temperature while at the same time providing fresh water ecosystems.</p>	<h3>Challenges</h3> <p>All Ideas</p> <ul style="list-style-type: none"> Education <small>Expires on 01/31/2017</small> Technology and Robotics <small>Expires on 01/31/2017</small> Agriculture and Forestry Ecology <small>Expires on 01/31/2017</small> <p>[Manage Campaigns]</p> <h3>NEED HELP?</h3> <p>Check the FAQs</p> <p>or</p> <p>Contact the SLIC Support Team support@slic-solutions.com</p> <p>powered by ideascale </p>
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9.6 Submitting an Idea

As a teacher, one of the main tasks is to submit the student teams' responses to the Application Questions. The My Ideas Page will serve as a repository of all their ideas and submissions. From the Landing Page, click on "My Ideas" in the main navigation and it will take you to the My Ideas page. From here you can browse all the Ideas, submit new Ideas, and link to the Challenges. Here is an example of a **Blank My Ideas Page**.

The screenshot shows the SLIC My Ideas page. At the top, there are logos for the Virginia Department of Education and the Innovative Solutions Consortium. The main heading is "Student-Led Ideation Challenge (SLIC) Browse My ideas" with a "WELCOME" message. A blue "Submit New Idea" button is highlighted with a red box and a callout: "This button takes you to the Idea Submission Form". Below this is a "My Ideas" section with a dropdown menu and tabs for "My Ideas", "My Owned Ideas", "My Idea Teams", "Ideas I'm Following", and "My Action Items". The main content area is empty, showing "No ideas found." A callout points to the "All Ideas" link in the "Challenges" section: "Click on 'All Ideas' to see all of the ideas you have submitted". The "Challenges" section lists "Education", "Technology and Robotics", and "Agriculture and Global Warm..." with expiration dates of 01/31/2017. A callout points to these challenge links: "Click on any of these to navigate to that challenge's details".



Note: It is helpful to mention that each time the user scrolls down past the "Submit New Idea" button, a "Submit New Idea" icon appears in the Header Navigation area for convenience.

The header navigation bar includes a home icon, a notification icon, a mail icon, a user profile icon for "Michelle Chance", and a blue "Submit New Idea" button.

As soon as the teacher knows who the teams are and which Challenge they want to work on, an Idea Application can be started. If you submit an Idea via the “Submit New Idea” button, the form will not be pre-populated with a Challenge selection. That’s ok, you will just simply have to select the Challenge from the dropdown list. After a Challenge is selected, the Application Questions will display. Here is an example of an **Idea Submission Form (prior to selecting a Challenge)**.

The following information is required when submitting a new Idea:

1. Team Name
2. Title of the Project
3. The Challenge Area (dropdown list). When you choose the Challenge, the associated questions will generate on the right-hand side of the form.
4. School Name (dropdown list). If it is not here, remove all symbols and characters (e.g., ampersands, periods, apostrophes, parentheses, etc.), type the school name in all lowercase letters and replace spaces with a dash.

Example: stone-bridge-high

These 4 fields are mandatory and must be completed before you click “Save.” If you have additional content, you may upload it at this time (Section 9.9).

On the other hand, if you first selected a Challenge prior to clicking Submit an Idea, the **Idea Submission Form (with Challenge selected)** will be shown. In this instance, the chosen Challenge Area, as well as the Application Questions, will already be generated. After you fill in the required fields (team name, title, school name) you may click “Save,” or if you have additional content, you may upload it at this time (Section 9.9).

Submit Your Idea

Complete This Form by 11:59pm ET, Jan 31, 2017

*Required fields

Team Name*

 120 characters left in Team Name field

Title*

Challenge*

NOTES:
 Changing campaign will lose campaign specific custom fields data.

School Name [Predefined Tag Enabled] *

Upload Student Team Tasks/Docs (PDFs) (Optional)

 Maximum upload size 100 MB

Which Technology & Robotics challenge option would your Team like to focus on?:

1. What is your idea (solution) to solve this problem? Using communication and critical thinking skills, formulate a hypothesis within your teams that solves your challenge question. :
2. How will your solution help solve this problem? Describe in detail how your solution solves the problem. Write a summary paragraph and include a visual representation of your idea as indicated on the assessment rubric. :
3. Who will benefit from your solution and why? Using the profile template, identify your audience and create a user profile describing who will benefit from your solution by completing each required section. :
4. How will you do this? Develop an action plan and flow chart that illustrates the steps/processes needed to accomplish your proposed solution, in detail, as indicated on the checklist (include what you are building and how you will perform these tasks). :
5. Take the steps from the previous question, and put them in order with estimated times that it will take to complete each step. Using your action plan, create a Gant Chart that illustrates milestones, major steps, and sub-steps for the proposed solution with the provided Gant Chart template. :
6. What do you think the most difficult tasks will be in creating your solution and prototype/pilot program? Using your action plan, generate a list of tasks itemizing all potential problems and related solutions with the provided template. :
9. What resources (i.e.: equipment, people, money, physical space/environment, etc.) will you need to build your solution and prototype/pilot program? Given your proposed solution, make a list of required resources needed to build your prototype/pilot on the template. :
10. How will your new solution be measured for success to prove that it is better than the other solutions? Analyze the solution and design a report that explains the measure(s) proving your solution is better than other solutions as indicated on the assessment rubric. :

Challenges

All Ideas

- Education
Expires on 01/31/2017
- Technology and Robotics
Expires on 01/31/2017
- Agriculture and Global Warm...
Expires on 01/31/2017

NEED HELP?
 Contact the SLIC Support Team
 support@slc-solutions.com

powered by **ideascale**

Once you click “Save,” you will be directed to the **Idea Submitted Page**. At this point, the team submission will be added to the My Ideas Page, but it will not be submitted to the Evaluators and it can still be edited up until midnight on December 9, 2016 for Phase I and midnight February 24 2017 for Phase II.

The screenshot displays the SLIC (Student-Led Ideation Challenge) website interface. At the top, there is a navigation bar with the SLIC logo, a 'communities' dropdown menu, and user information for 'Michelle Chance'. A blue banner across the top reads 'Your idea has been submitted!'. Below this, the page title is 'Student-Led Ideation Challenge (SLIC)' with a 'Submit New Idea' button. The main content area features an idea titled 'Customized Small UAV with Asymetrical Cameras' submitted by 'stone-bridge'. The idea includes a 'votes' section with a 'Moderate Idea' label and 'Idea No. 11'. A list of instructions for submitting ideas is provided, including deadlines for Phase I (Nov 1, 2016) and Phase II (Feb 24, 2017). On the right side, there is a search bar and a list of categories: Education (expires 01/31/2017), Technology and Robotics (expires 01/31/2017), and Agriculture and Global Warm... (expires 01/31/2017). A 'NEED HELP?' section at the bottom right provides contact information for the SLIC Support Team.

9.7 My Ideas Page

The screenshot displays the 'My Ideas' page for the Student-Led Ideation Challenge (SLIC). At the top, there are logos for SLIC, communities, and the Innovative Solutions Consortium. The main heading is 'Student-Led Ideation Challenge (SLIC) Browse My Ideas' with a 'Submit New Idea' button. Below this is a 'My Ideas' section with tabs for 'My Ideas', 'My Owned Ideas', 'My Idea Teams', 'Ideas I'm Following', and 'My Action Items'. Two ideas are listed: 'Sample 2' and 'Sample 1'. Each idea has a 'VOTING DISABLED' status and a '1 vote' count. The page also features a 'Challenges' section on the right with a search bar and a list of challenges: Education, Technology and Robotics, and Agriculture and Global Warm... The page is powered by ideascale.

The **My Ideas Page** (shown above) becomes a repository of individual team submissions. A teacher can look at this page and be able to see an overview for each student team which includes:

1. Challenge
2. Team name (links to the Team Page)
3. Idea Title
4. Date of the last submission

9.8 Edit a Team Ideas Page

From the My Ideas Page (shown in the previous section), click on a team name and you will jump to the **Team Ideas Page** (see below). Click “Edit” to edit the details of the team’s Idea Submission Form.

From the Team Ideas Page, you can scroll through the Team Ideas Pages one by one, making it easy to edit multiple teams’ submissions at once.

The screenshot displays the Student-Led Ideation Challenge (SLIC) interface. At the top left is the SLIC logo and a "WELCOME" message. A "Submit New Idea" button is in the top right. The main content area shows a list of ideas, with "Sample 2" selected. The idea title is "Sample 2" and the text is "Mine's better". Below the text are buttons for "[Follow]" and "[Edit]", with a red arrow pointing to the "[Edit]" button. The submission date is "Submitted by You on 15th Sep" and there is an "[Edit tags]" link. To the right of the idea is a voting interface showing "VOTING DISABLED" and a "1 vote" counter. A callout box with a red arrow points to the "NEXT IDEA >" button, with the text "To move from one Team Idea page to the next". Below the idea is a "Comments [0]" section. On the right side, there is a search bar and a "Challenges" section listing "All Ideas" with categories like "Education", "Technology and Robotics", and "Agriculture and Global Warm...". At the bottom right, there is a "NEED HELP?" section with contact information for the SLIC Support Team. The footer includes the IdeaScale logo and copyright information.

All fields are editable on the **Idea Submission Form**. You can edit any of the general team information, upload new responses, and delete old ones. Once you are done with your changes don't forget to click "Save"!

Submit Your Idea

Complete This Form by 11:59pm ET, Jan 31, 2017

*Required fields

Team Name

115 characters left in Team Name field

Title

Challenge

School Name [Predefined Tag Enabled]

Upload Student Team Task/Docs (PDFs) (optional)

Maximum upload size: 100 MB

1. Select the challenge you want to solve, form a team, and decide upon team member roles needed for successful collaboration and complete the template provided. :

2. What is your idea (solution) to solve this problem? Using communication and critical thinking skills, formulate a thesis within your teams that solves your challenge question. :

3. How will your solution help solve this problem? Describe in detail how your solution solves the problem. Write a summary paragraph and include a visual representation of your idea as indicated on the assessment rubric. :

4. Who will benefit from your solution and why? Using the profile template, identify your audience and create a user profile describing who will benefit from your solution by completing each required section. :

5. How will you do this? Develop an action plan and flow chart that illustrates the steps/processes needed to accomplish your proposed solution. In detail, as indicated on the checklist (include what you are building and how you will perform these tasks). :

6. Take the steps from the previous question, and put them in order with estimated times that it will take to complete each step. Using your action plan, create a Gantt Chart that illustrates milestones, major steps, and sub-steps for the proposed solution with the provided Gantt Chart template. :

7. What do you think the most difficult tasks will be in creating your solution and prototype/pilot program? Using your action plan, generate a list of tasks/items for all potential processes and related solutions with the provided template. :

8. Based on your research, did you find any other solutions similar to what you are proposing? Given your proposed solution, conduct research, compare and contrast existing solutions, and compose a comparative essay with visuals and citations as indicated on the assessment rubric. :

9. What resources (i.e., equipment, people, money, physical space/environment, etc.) will you need to build your solution and prototype/pilot program? Given your proposed solution, make a list of required resources needed to build your prototype/pilot on the template. :

10. How will your new solution's success be measured? Analyze the solution and design an assessment instrument (AKA, a measurement tool or recording document) that allows for a collection of data to be recorded and used for measuring and proving your solution is better than other solutions as indicated on the checklist. :

11. In a 30-second video, please summarize your solution. In terms of your challenge area, why should it be chosen as the most impactful and innovative idea? Using your research, produce and publish a 30-second video that summarizes your solution, emphasizing its impact and innovation as indicated on the checklist. (1/25) : (sk: http://www.youtube.com/watch?v=Mf0ny31q0M)

12. Review all of your responses, make edits, and resubmit your Final version for the competition. (Suggested Deadline: Jan. 29, 2017 to allow teachers time to upload everything) :

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9.9 Upload Question Responses

Upload documents into the Idea Submission Form (Section 9.8). You may upload student team documents at any time up until the deadline at midnight on December 9, 2016 for Phase I and midnight on February 24, 2017 for Phase II. Any file format is acceptable, but we suggest and highly recommend you upload a PDF(s).

Upload Student Team Tasks/Docs (PDFs) (Optional)

[Browse File](#)

Maximum upload size 100 MB

A list of uploaded files appears on the page (see below). If at any point you want to delete a previously uploaded file, just simply click the “X” to the right of the file name.

Upload Student Team Tasks/Docs (PDFs) (Optional)

q2_bulldog_blues.docx	X
q3_bulldog_blues.pdf	X

[Browse File](#)

Maximum upload size 100 MB

The next time you log into the SLIC Platform, the list of previously uploaded files will look a little different (see below).

Upload Student Team Tasks/Docs (PDFs) (Optional)

[Browse File](#)

Maximum upload size 100 MB

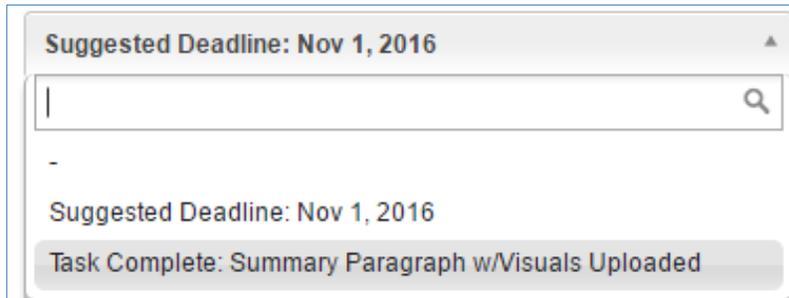
 q2_bulldog_blues-901070.docx on Monday	Delete
 q3_bulldog_blues-99e041.pdf on Monday	Delete



Note: When uploading files, please label each response with the team name and Application Number, all lowercase, so there will be no confusion on who presented it and which question the response is for.

Example: q2_bulldog_blues.pdf

For Questions #1 through #3 and #5 through 9, there is a dropdown menu with a suggested deadline. After a student has submitted their response to each one of these questions, and the file with the response has been uploaded, change the “Suggested Deadline” to “Task Complete.”



For Question #4 and #10, upload the presentation or, if applicable, upload the YouTube™ video and set to private. For instructions on uploading your video, see www.wikihow.com/Upload-a-Video-to-YouTube. The private URL should be submitted to the teacher. Visit this link for directions regarding YouTube privacy settings: <https://support.google.com/youtube/answer/157177?hl=en-uk>

Prior to beginning on Question #10, teachers may download all of the responses for student teams to review and reflect upon in the creation of their final presentation (response to Question #10).

Teachers may also email out the incomplete or fully completed applications at any time to individuals that are deemed appropriate by the teacher (i.e.; students who wish to see their work; parents of those students; other school employees; etc.) based on privacy policy constraints.

The screenshot shows the SLIC interface for an idea titled "Bulldog Blues" under the "EDUCATION" challenge. The idea has 0 votes and is submitted by "stone-bridge". It includes a list of 13 questions for students to answer. At the bottom, there is an "Attachments" section with two files: "q2_bull..." and "q3_bull...". A red box highlights these files, and a red arrow points to them from a callout box that says "Click on file icons to download attachments".

Follow these instructions:

1. Go to the Team Ideas Page
2. Scroll to the bottom of the page where a list of previously uploaded attachments appears
3. Click on an attachment and the selected file will open in your browser
4. Save the file to your local drive
5. Open your email application and attach the file(s)

9.10 A Brief Look at Evaluator “Area”

The Evaluators will be reviewing the teams’ submissions using the criteria stated earlier. They will be rating them using a low, medium, and high scale as to how well they have incorporated each criterion into their solution.

Education Challenge

[Save & Quit]

< Incomplete Review 2 of 2 (0 completed this session)

TEST3

Submitted by You on Friday

Description: help

1. What is your idea (solution) to solve this problem? Using communication and critical thinking skills, formulate a hypothesis within your teams that solves your challenge question. : Suggested Deadline: Nov 1, 2016
2. How will your solution help solve this problem? Describe in detail how your solution solves the problem. Write a summary paragraph and include a visual representation of your idea as indicated on the assessment rubric. : Suggested Deadline: Nov 1, 2016
3. Who will benefit from your solution and why? Using the profile template, identify your audience and create a user profile describing who will benefit from your solution by completing each required section. : Suggested Deadline: Nov 1, 2016
4. How will you do this? Develop an action plan and flow chart that illustrates the steps/processes needed to accomplish your proposed solution, in detail, as indicated on the checklist (include what you are building and how you will perform these tasks). : Suggested Deadline: Nov 1, 2016

Is the solution scalable across other schools and/or disciplines? ✓

L M H NA

Add Review Note

Save

Is this technology/approach brand new or have the students combined existing technologies/approaches in a novel way?

This is rating the resourcefulness of the approach.

L M H NA

Add Review Note

10 The Challenge Process, Events, and Winners

The deadline for submissions for Phase I is midnight on December 9, 2016. Teachers must upload student teams' answers to Application Questions #1-#4 in support of Phase I into the Idea Submission Form by the deadline to be entered in the SLIC Competition. Ideas will be judged for their innovativeness based on the criteria specific to their Challenge. Teams will compete against others in their same category, i.e., education solutions will compete against other education solutions. Those teams selected as the Divisional Winners will **need to complete Application Questions #5-#10 by midnight on February 24, 2017, for Phase II** of the competition.

10.1 School and Divisional Competition — Round 1

Round 1 of the Challenge will be decided via online tools within the SLIC Platform. Using the criteria documented in the Challenge Detail Pages, the judges will announce 3 winners per school and the 3 top winners per division, one winner per each Challenge category (education, agriculture, and technology/robotics). The 3 winners per division will advance to the Regional Competition.

***School and Divisional Winners will be announced December 22, 2016**

10.2 Divisional Think Tank Sessions

All School and Divisional Winners are invited to attend their division's think tank sessions to come and share ideas and support their Divisional Winners. Additional team members may be added to the original team at that time.

***Divisional Think Tank Sessions to be held week of Jan 9, 2017; exact date to be decided by each division.**

10.3 Regional Competition — Round 2

The student teams at each of the 8 Regional Events in Virginia will compete in-person, in front of a live audience and panel of expert judges. At the Regional Competitions, each team should come prepared to do the following:

- Present their idea to an audience and panel of judges, using the 10-minute presentation they created. After the presentation, a Q&A session will follow.
- Produce a science fair-style table display that will be set up in an exhibition hall. The display will showcase the solution and representatives from the team should be prepared to talk about the solution to the public. At the conclusion of each event, the top 3 teams, one per category, will be selected as the Regional Winners. Since there are 8 regions, 24 teams will advance to the State Competition.

***Regional Competitions will be held March 1-10, 2017 (8 single-day events)**

10.4 State Competition — Round 3

The 24 Regional Winners will be expected to once again be prepared to present their idea to a panel of judges in front of an audience and answer questions, as well as display their solution in an exhibition-style manner. The 24 teams will be competing for one of 3 of the "Best SLIC Idea – 2017" awards, which will be presented to the top 3 teams for their innovative ideas (one for each category).

- The top **3 State-winning teams** will receive the award "Best SLIC Idea – 2017" as well as:
 - A \$3000 team scholarship
 - The opportunity to build out their idea into a prototype with the assistance of industry and academia leaders in their Challenge area
 - A private audience with the Challenge area stakeholders and other industry and government agencies interested in the student team's solution, where the team will be able to demonstrate their solution in action
- There will also be **6 supporting awards**, 2 for each Challenge Area at the State Event (award categories TBD). These teams will be presented with:
 - A \$1500 team scholarship
 - The opportunity to build out their idea into a prototype with the assistance of industry and academia leaders in their Challenge Area
 - A private audience with the Challenge Area stakeholders and other industry and government agencies interested in the student team's solution where the team will be able to demonstrate their solution in action
- All **teacher sponsors of Regional Winners** will receive a \$500 award — to be used in their classrooms for future project-based learning activities — in appreciation and recognition of their dedication to the SLIC Program.

***The State Competition will be held between March 27-31, 2017 (single-day event), specific date TBD**



Important: Exact dates and locations for the Regional Events and the State Event will be announced shortly. Updates will be emailed to everyone registered in the SLIC Program, and posted on the VDOE website.



Note: Events in other states will be conducted in the same manner. If you are in a state other than Virginia, please have your division/district or your state's department of education contact us at info@slic-solutions.com to coordinate the specifics of the events and scholarships in your state.

Appendix A Parental Consent Form

The consent form is to confirm parents' understanding of their responsibility regarding their child's intellectual property. It is also to grant VDOE, ISC and the media permission to post photographs and video of their child with respect to their participation in the SLIC Program. The forms must be turned in before the teams begin formulating their solutions.

**Consent for Participation in the
Student-Led Ideation Challenge (SLIC) Program**

I hereby grant my child permission to participate in the Innovative Solutions Consortium (“ISC”) and Virginia Department of Education’s Student-Led Ideation Challenge (the “Challenge”).

I understand that by participating in the Challenge, my child will have the ability to submit ideas, code, information and other materials relating to his or her solutions to real world challenges via his or her teachers to _____ [insert school name] (the “School”),
_____ [insert division name] (the “Division”) and ISC.

I also understand the following:

- During the registration process, my child may be asked to provide certain information for notification and security purposes, including a parent or guardian’s email address, my child’s email address and my child’s first and last name. I hereby agree to the submittal of such information.
- Photographs of my child may be published by the School, Division, the Virginia Department of Education, ISC, or media outlets (including, without limitation, via print media, online, social media, and other media interested in or reporting on the Challenge). The photographs may include my child’s first and last name, and information concerning the School and Division he or she attends and his or her grade level.
- Neither my child nor I will be compensated by ISC, his or her School, or Division for my child’s participation in the Challenge or any solutions submitted by my child.
- ISC, my child’s School, and Division may publicly display my child’s solution. I understand that it is my responsibility to determine whether and how any intellectual property rights in my child’s solution should be protected. By signing below I am giving ISC and my child’s School and Division permission to upload, reproduce, edit and modify for display, permit others to access and otherwise publicly display my child’s solution.
- Individuals may, without ISC’s consent, copy and distribute portions (or all) of the photographs and solutions and I agree that I will not hold either ISC or my child’s School or Division responsible for these actions if they occur.
- The ISC, my child’s School and Division are not, and cannot, be held responsible for the release of all or any portion of the solution submitted by my child in participating in the Challenge. It is my responsibility to determine what my child should share in connection with the Challenge, and how to protect any proprietary information relating to any such solution.

By signing below, I authorize my child’s photographs and other personally-identifiable information, as well as any solutions my child submits to the Challenge to be displayed by ISC, the Division and School my child attends.

I understand that if I would like to have my child’s personal information deleted from ISC’s records, I may contact you at support@slc-solutions.com.

Name of Student: _____

AGREED TO AND ACCEPTED BY:

Signature of Parent/Guardian: _____

Printed Name and Relationship
to Student: _____

Date: _____

Appendix B Rubrics, Templates, Checklists

B-1 Team Roles Template (Question #1)

Using the template below, record your team's selected Challenge (including the option if applicable), team name, the idea title, the list of team members by name, and the list of each team member's designated role with a description of their responsibilities. Each section must represent the work of the entire team. This template will be assessed as "Complete" or "Incomplete."

Challenge		
Team Name		
Idea Title		
List below each team member's first and last name	List the role of the team member	Describe role responsibilities

B-2 Summary and Visuals Checklist (Question #2)

As you create the summary and visuals, keep the following points in mind:

- The subject tells what you are proposing as a solution.
- The position explains why your proposal is a valid solution. This cannot be merely fact. It has to be an opinion that you can prove, debate, and support.
- The topics include how you are proving your solution. These are the reasons for your opinion and the “because” answers to your problem.

Review the checklist below to ensure you have included all of the needed items to receive full credit for your work.

<i>*The summary and visual should include all of the criteria listed below to receive full credit.</i>		
Included?	Item	Point Value
	The summary includes a topic sentence that describes the main idea.	10 Points
	The summary includes at least 3 sentences with details supporting the main idea.	10 Points
	The summary contains a concluding sentence that recaps the main idea.	10 Points
	The summary represents research conducted.	10 Points
	The summary contains clear details regarding how the proposed solution solves the problem.	10 Points
	The visuals clearly represent the proposed solution.	10 Points
	The visuals are attractive with good use of colors, design, and space.	10 Points
	The visuals are appropriately labeled.	10 Points
	The summary and visuals are free from any spelling or grammatical errors.	10 Points
	All outside resources are correctly cited.	10 Points

_____ / 100

B-3 Profile Template (Question #3)

Using the template below, create a profile for each type of user that will benefit from your solution. Use a new template for each different type of user. Each block must be filled in completely. The template(s) will be assessed as “Complete” or “Incomplete.”

User Profile		
Image:	Word or phrase that summarizes user:	
	Age:	Gender:
	Profession:	
	Geographic location:	
Interests:		
Values:		
Needs:		
Concerns:		
How will your solution benefit this user?		

B-4 Presentation Checklist (Question #4)

As you create your presentation, please review the checklist below to ensure you have included all of the necessary items to receive full credit for your work.

If you create a video, it needs to be uploaded to YouTube™ and set to private. The private URL should be submitted to your teacher. Visit this link for directions regarding YouTube™ privacy settings:

<https://support.google.com/youtube/answer/157177?hl=en-uk>

<i>*The presentation should include all of the criteria listed below to receive full credit.</i>		
Included?	Item	Point Values
MECHANICS		
	The presentation should be 90-seconds long.	10 Points
	If it is a video, it has a private YouTube™ URL submitted to the teacher.	
QUALITY		
	The presentation is visually clear and easy to see.	10 Points
	The presentation uses clear audio.	10 Points
CONTENT		
	All members of the group are represented in the presentation.	20 Points
	The presentation summarizes the student group solution.	15 Points
	The presentation emphasizes the solution's impact and innovation.	15 Points
	The presentation reflects creativity.	10 Points
	All outside resources are correctly cited.	10 Points

_____ / 100

B-5 Action Plan Checklist (Question #5)

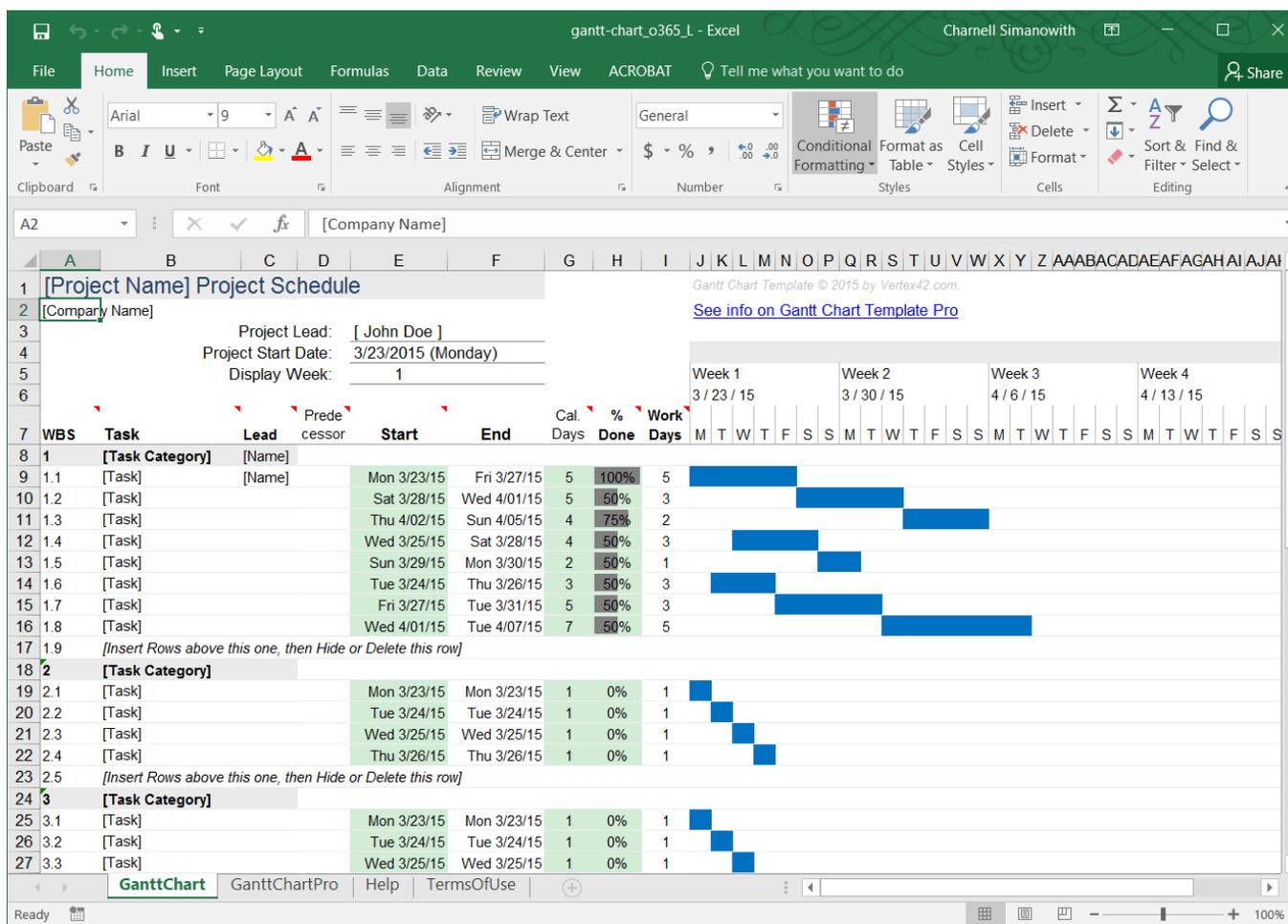
As you create your action plan, please review the checklist below to ensure you have included all of the needed items to receive full credit for your work. . The information can be presented in a format of your choice (e.g., list, Gantt Chart, flow chart, etc.).

<i>*The action plan and visual should include all of the criteria listed below to receive full credit.</i>		
Included?	Item	Point Value
	The action plan describes the actions required to solve the problem.	20 Points
	The action plan describes who will carry out each step/action.	10 Points
	The action plan describes how long each step/action will take.	10 Points
	The action plan describes what resources are needed to carry out the plan.	10 Points
	The action plan is free from any spelling or grammatical errors.	10 Points
	The action plan lists all of the milestones.	10 Points
	The action plan lists all of the major steps.	10 Points
	The action plan lists all of the sub-steps.	10 Points
	All outside resources are correctly cited.	10 Points

_____ / 100

B-6 Gantt Chart Template (optional)

Refer to <http://www.vertex42.com/ExcelTemplates/excel-gantt-chart.html> to download templates for several project schedule options. The templates support a variety of software apps so teachers can choose the one that best fits their classroom needs. For a simple template, click Gantt Chart in the top menu bar, then scroll midway down the page to download a sample. Although you may find other more robust templates, the simple Gantt Chart below only requires a basic knowledge of Excel.



B-8 Competitive Analysis Template (Question #7)

Use the following Competitive Analysis Template to compare to your own solution the features and functionality of other solutions currently available. You may present your data in a spreadsheet or a comparative essay. Include visuals and citations. Add or delete additional rows as needed. This template will be assessed as “Complete” or “Incomplete.”

If you choose to write an essay, use the rubric below to help you complete this assignment and understand how your work will be assessed. 100 bonus points may be added for choosing to write the essay.

Organization Name & URL	Solution Description	Differentiators	Notes

Comparative Essay Rubric (Optional)

	20 Points	15 Points	10 Points	5 Points
Organization and Clarity	The comparative essay is organized and clear and effectively uses transitions. Meets or exceeds a minimum of 5 paragraphs.	The comparative essay is organized and clear and uses transitions. Meets or exceeds a minimum of 5 paragraphs.	The comparative essay lacks some organization and clarity. The use of transitions is limited. Meets a minimum of 5 paragraphs.	There is little evidence of organization or clarity with the comparative essay. Does not include the minimum of 5 paragraphs.
Comparative Content	Ample and accurate comparative details and evidence (statistics, facts, examples, expert testimony, analogies, definitions, and anecdotes) are provided and effectively used.	Comparative details and evidence (statistics, facts, examples, expert testimony, analogies, definitions, and anecdotes) are provided.	The comparative details and evidence (statistics, facts, examples, expert testimony, analogies, definitions, and anecdotes) contain misinterpreted information and lack development.	The comparative details and evidence (statistics, facts, examples, expert testimony, analogies, definitions, and anecdotes) contain misinterpreted information and are not developed.
Mechanics (Format, Works Cited, Grammar, and Spelling)	The formatting of quotes, paraphrased information, and source information adheres to the proper formatting guidelines. The text contains no errors in grammar that distract the reader from the content.	There are minor formatting (quoted and paraphrased material and source information) errors. Overall, the comparative writing adheres to the formatting guidelines. The text contains 1-2 errors in grammar or spelling that distract the reader from the content.	There are several formatting errors (issues with quoted and paraphrased material and source information). The text contains 3-4 errors in grammar or spelling that distract the reader from the content.	An attempt at formatting is made, but it does not follow the proper guidelines. The text contains more than 4 errors in grammar or spelling that distract the reader from the content.
Visual Content	The visuals contain a title and labels. The comparative content is organized and clearly represented.	The visuals contain a title and labels. The comparative content is adequately represented.	The visuals are poorly labeled. The comparative content is partially represented.	The visuals are not labeled. The comparative content is not represented.

	20 Points	15 Points	10 Points	5 Points
Visual Aesthetics	The visuals are original and effectively uses color, design, and space and are attractive and visually appealing.	The visuals are original and uses adequate color, design, and space.	The visuals poorly use color, design, and space.	The visuals do not use color, design, and space and are not visually appealing.

_____ / 100 Points

B-9 Required Resources Template (Question #8)

Resources can be anything that is needed to create the prototype/pilot (i.e. time, money, equipment, people, etc.). Using the template below, provide information about the needed resources for your proposed solution. In the first column, list all required resources. In the second column, describe how the resource will be used. In the third column, indicate where the resources can be found (i.e. URL, school item, etc.). See the example provided in the first row. Add or delete additional rows as needed. This template will be assessed as “Complete” or “Incomplete.”

Required Resource	Purpose (How will it be used?)	Location of Resource
3-D Printer	Building landing gear of UAV	https://www.makerbot.com/replicator-mini/

B-10 Assessment Instrument Checklist (Question #9)

As you create your instrument, please review the checklist below to ensure you have included all of the needed items to receive full credit for your work.

<i>*The instrument should include all of the criteria listed below to receive full credit.</i>		
Included?	Item	Point Values
	The instrument allows for data to be collected.	10 Points
	The instrument clearly labels what data is to be collected, how to collect the data, and how often to collect the data.	10 Points
	The instrument effectively measures the proposed solution.	10 Points
	The instrument contains a narrative section that allows users to explain how the solution is successful as presented from the data and/or measurements collected.	10 Points
	The instrument could be replicated for other proposed solutions to the same problem in order for a comparison analysis to be conducted.	10 Points
	If implemented, the instrument would allow your team to create a report supporting the outcome(s) of the proposed solution.	10 Points
	The instrument is designed in a clear and organized manner and contains a title.	10 Points
	The instrument is cohesive and is easy to read.	10 Points
	The instrument is free from any spelling or grammatical errors.	10 Points
	All outside resources are correctly cited.	10 Points

_____ / 100

B-11 Presentation Checklist (Question #10)

As you create your presentation, please review the checklist below to ensure you have included all of the necessary items to receive full credit for your work. If you create a video, it needs to be uploaded to YouTube™ and set to private. The private URL should be submitted to your teacher. Visit this link for directions regarding YouTube™ privacy settings:

<https://support.google.com/youtube/answer/157177?hl=en-uk>

<i>*The presentation should include all of the criteria listed below to receive full credit.</i>		
Included?	Item	Point Values
MECHANICS		
	The presentation should be 10 minutes long.	10 Points
QUALITY		
	The presentation is visually clear and easy to see.	10 Points
	The presentation uses clear audio.	10 Points
CONTENT		
	All members of the group are represented in the presentation.	15 Points
	The presentation summarizes the student group solution.	10 Points
	The presentation emphasizes the solution's impact and innovation.	15 Points
	The presentation explains how the solution is better than other solutions.	10 Points
	The presentation reflects creativity.	10 Points
	All outside resources are correctly cited.	10 Points

_____ / 100

Appendix C Challenge-Specific Judging Criteria

C-1 Education

- How innovative in thinking is the idea to solve this problem? How novel is this approach?
- Is this technology/approach brand new or does it combine existing technologies/approaches in a novel way?
- Is the solution scalable across other schools and/or disciplines?
- How plausible is the solution? Can it be implemented? Will it meet the stakeholders' needs?
- How well does the solution teach Critical Thinking as defined in the Challenge?
- How well does the solution teach Creative Thinking as defined in the Challenge?
- How well does the solution teach Communication as defined in the Challenge?
- How well does the solution teach Collaboration as defined in the Challenge?
- How well does the solution teach Citizenship as defined in the Challenge?
- Overall, will the proposed technique(s) and approach(es) help students be better prepared for the workforce, college, and life?

C-2 Technology & Robotics

- How innovative in thinking is the idea to solve this problem? How novel is this approach?
- Is this technology/approach brand new or does it combine existing technologies/approaches in a novel way?
- How plausible is the solution? Can it be implemented? Will it meet the stakeholders' needs?
- How complete is the description of the hardware and/or unique software components? Is there anything missing?
- How well does the solution sense things? How well does the solution interpret data to create parallax, size/depth perception, distance, etc., while in flight? Does the solution "sense" objects in other ways?
- How well and where does the solution process the data? How quickly?
- How well does the solution utilize the data while in flight to avoid colliding into obstacles?
- How clearly have you described how the solution will react to each of the obstacles? A solid stationary object that has a similar color as the surrounding environment? A thin wire? An object flying towards the UAV? A large object that the UAV cannot go around?
- Overall, do you believe that the solution will be capable of completing the obstacle course in a reasonable amount of time?

C-3 Agriculture & Forestry Ecosystems

- How innovative in thinking is the idea to solve this problem? How novel is this approach?
- Is this technology/approach brand new or does the solution combine existing technologies/approaches in a novel way?
- How plausible is the solution? Can it be implemented? Will it meet the stakeholders' needs?
- How effective is the network approach to engaging and retaining citizen scientists over long term? Is it sustainable? For example, does the solution incentivize people to get involved and stay involved (e.g., make it a game, give points or prizes, make it fun, etc.) as citizen scientists, to collect data using your Report Card criteria, and to post their findings (e.g., how Waze uses crowdsourcing to identify traffic issues)?
- How well does the solution scale to a global citizen scientist network?
- How realistic and achievable is the proposed idea in helping monetize different attributes of the forest ecosystems?
- Overall, will the proposed technology/approach enable researchers to build an interactive, near real time "map" of the forest and trees, and the way land is being used with details of what will be found upon all surface areas of the Earth? Will the solution be able to provide forestry, landowners, land managers, biologists, and botanists to accumulate the data they need to help improve our forests?