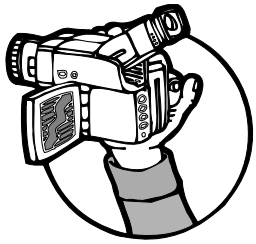
INTERNATIONAL TECA

Technology Education Colligate Association

Competitive Events Challenges

Fall 2009 Regional

Communication Contest



REGIONAL CHALLENGE
2009

Title: Innovation in Repurposing

Challenge: Create a 30 second video showing the power and need for innovation as it pertains to the repurposing movement of recycling.

Background: Innovation and creativity are said to be the contemporary currency of industry. It seems every year new initiatives and efforts are made to "Go Green" – however, many have associated with "Going Green" as coming up with new technologies to replace what we current have (i.e., the Smart Car). Sadly, these innovations have been quick fix ideas, and have not had the immediate positive impact needed or desired. Many economist feel that the idea of "repurposing" current and past materials and products, even systems, is a better "quick fix" and potential longer-lasting solution.

Procedure:

1. Assume your audience is the American Public – and your "video/commercial/advertisement/infomercial" will be shown during prime-time television (6 – 9pm) on a popular channel (i.e., Fox, NBC, CBS, ABC).
2. Focus your commercial on innovation and repurposing.
3. The video must only be 30 seconds – no credits, no lead-ins, no extra b-roll footage (as this will be a commercial on prime-time, and TV ad space is expensive).
4. The video may include video, audio, photos, and text.
5. Complete the storyboard and associated preliminary paper work at the assigned time and location.
6. Turn in a completed video as a MP4 - not other formats will be accepted. The video.MP4 should be on a DVD as a file, not as a VideoTS file (we don't want to have to rip the DVD to aggregated each of the entries.
7. Only members of the communication team may work on any part of the project (i.e., pre-production, production, and or post-production).
8. Consult the on-site director or head-judge if you have any other questions or concerns.

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Manufacturing Contest

REGIONAL CHALLENGE
2009

Sorry for the inconvenience but this problem is still being developed. As soon as the volunteer coordinator provides the challenge it will be passed along to each regional.

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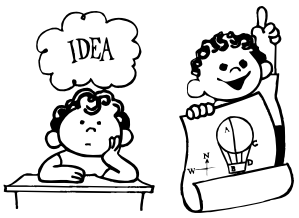
Problem Solving Contest



REGIONAL CHALLENGE
2009

Waking Up Is Hard To Do!

Sammy Snoresall is your local school's principal. Recently he has been coming in late to school because his alarm clock is not waking him up. He manages to hit the snooze button on his alarm clock at least 3 times each morning according to his wife, Dreamy. Sammy says he rarely remembers hitting the snooze button and only hears the alarm clock on the third time. You and your team have been asked by Dreamy Snoresall to develop a device that will hopefully wake up her husband up each morning when the alarm sound the first time so that he will not be late to work. The device must attach to an alarm clock that is 8" long, 4" deep and 2'' high and make a noise at each 15-second interval during a one-minute time span. One should assume that the device is triggered only once by hand when Sammy hits the snooze button. Hopefully your device will teach Sammy a lesson and help him wake up.

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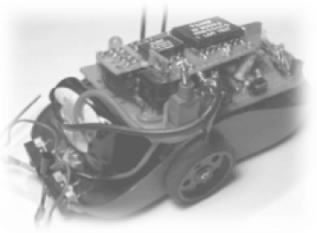
Robotics Contest



REGIONAL CHALLENGE
2009

Participants design, fabricate, test, and demonstrate the use of a junkbot that navigates across the arena avoiding obstacles during a five (5) minute demonstration. Evaluation is based on team performance, robot craftsmanship, documentation of design efforts, and quality of the oral presentation.

PLEASE SEE COMPETITION MANUAL FOR DEATAILS ON CHALLENGE

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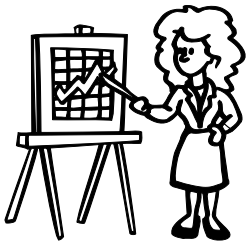
Teaching Lesson Contest



REGIONAL CHALLENGE
2009

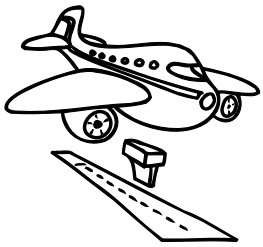
The first, eighth, and tenth Standards for Technological Literacy discuss the engineering design process as it pertains to innovation, among other things.

Innovation is a key part of our economy. Dating from the foundation of the United States, one of its defining characteristics has been its ability to encourage and accept innovation. However, with the economic need and acceptance of outsourcing, and competition in global product development, among other things, many American engineering and technology companies and institutions are re-thinking and re-structuring the content and instruction of engineering and technology curriculum.

Considering the need to be innovative, your objective for this lesson plan is to teach a lesson about innovation. Your lesson can focus on the process of innovation, key principles, techniques, reasons/the need for being innovative, and so forth.

Prepare your lesson and media following the contest guidelines outlined in the Teaching Lesson packet. Finally, your lesson should be developed assuming the learners at the secondary level.

Transportation Contest



REGIONAL CHALLENGE
2009

Overview
This year's transportation problem will require the use of a fully autonomous robot that can be configured into an all-terrain vehicle. Robots will NOT be provided for you but the contest may be entered using any type of mobile robot such as VEX, LEGO Mindstorms, LEGO NXT, Fisher-Technic, etc.

Specifications
The robot must be fully autonomous. That is, it must be programmed to navigate a course and make decisions on its own without human interaction once the robot is started in the test cell.

- The mobile robot must be able to fit into a 12" cube upon final construction.
- The robot must have sensory capability to include touch, temperature, and light.
- The robot must be capable of climbing over objects of at least 1.5" in height.
- The robot must be robust enough to traverse a 10' X 10' test cell.

Problem
You and your design team have been called upon to develop a prototype of an autonomously controlled all-terrain vehicle that will detect IED's in a given area. The IED's will be represented by 2" round black dots against a white background. Every time an IED is detected the robot should flash a blinking light and sound a 2 second alarm.
Each robot will have two runs of 90 seconds each in the test cell.
Two points in efficiency will be awarded for each IED detected by the robot.
Robot construction and physical performance will also be assessed.

Note: Regional Coordinators are asked to construct a test cell that is 10' x 10'. It can be made up of white butcher paper or tarp with 2" black dots placed at random. Placing small objects, such as block, index cards, or paper, underneath the paper would create uneven terrain. Coordinators will need to set up the test cell the evening prior to the competition so that participants can test their robots prior to the actual competition.

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