

## Integration of TSA into Technology Education 2007

### Digital Photography Challenge:

#### Background

Digital Photography Challenge is an individual event where the student produces an 8 X 10 collage of digital photos consisting of six color or black and white photos that present a single chapter activity or theme. Each student chooses three images to manipulate and describes in writing the techniques used to create the effects. Rules, guidelines and other information may be found at [www.tsaweb.org](http://www.tsaweb.org) , TSA official competitive event guide. Additional information may include “The TECH know project” (from Centre Point Learning, [www.cplearning.com](http://www.cplearning.com)).

#### Rationale

The technology of photography is rapidly changing and students need to be aware of the changes and how they affect society.

#### Teaching Content

Unit	Digital Photography
Lessons	Introduction to Digital Camera Use Guidelines of Photography Digital vs. Film Appropriate Photography Digitally Enhancing Photos Evaluation

#### Academic Expectations

2.13, 6.3, 1.11, 2.3

Core Content	Standards for Technological Literacy
MA-07-1.4.1 {Rule of Thirds in Photography} PL-07-4.3.2	1F- H , 11H, 4D-F, 8E, 11H,I,K,L 10F-H

#### Building Interest

In the classroom students are introduced to each station or unit and given a brief description of the events. Often a demonstration of the previous year or pictures of the event are shown. The top 3 will compete at the regional level and then the top 2 from the regional level will compete at state.

#### Connecting the Activity to Content

Allows the student the opportunity to work with a tool and photo editing software to provide an awareness of digital photography, it's applications, and it's effects on society. The student will learn the difference between the two media and how it has and is changing society. Digital photography has revolutionized the photography industry.

**Taking the Activity to Next Level**

Three of the best performing TSA members will advance to compete at the regional level. Subsequently, the top two regional winners will advance to the state level with improvements made from suggestions of the judges. The top three in the state will compete at the national level.

**Benefits of this Activity**

The students gain the awareness of digital photography, how to manipulate images and it's effects on society.

The students will receive a ribbon at the regional level and a plaque at the state level and the top 10 at the national level receive a finalist lapel pin and the top 3 receive a trophy.

This event will prepare students for the PL/VS portion of the CATS assessment.

## Integration of TSA into Technology Education 2007

### Electrical Applications:

#### Background

Electrical Applications is an individual event where a student has to take a test of electrical theory and then assemble a specific circuit from a schematic diagram using a kit and make required electrical measurements. The student is also asked to explain their solution. Rules, guidelines and other information may be found at [www.tsaweb.org](http://www.tsaweb.org), TSA official competitive event guide. A helpful resource might include Riverdeep software "Electro-loft" ([www.riverdeep.net](http://www.riverdeep.net)) to provide a basic electronics kit with schematics.

#### Rationale

The student gains an understanding of electrical theory, components and how they work allowing them to understand and read a schematic diagram. It also allows the student a chance to design and construct a circuit. Electrical theory is important in many technological based careers.

#### Teaching Content

Unit	Electrical Applications
Lessons	Electro-loft Software introduction to theory and components Wiring from Schematic Evaluation

#### Academic Expectations: 1.5-1.9, 1.16,5.1, 6.1

Core Content	Standards for Technological Literacy
<b>SC-07-4.6.2</b>	10,16

#### Building Interest

In the classroom, the students are introduced to each station or unit and given a brief description of the events. Often a demonstration of the previous year or pictures of the event are shown. The top 3 students on the written and performance test will compete at the state level

#### Connecting the Activity to Content

This activity allows the students the opportunity to learn electrical theory, components and how to wire using a schematic. This activity allows the students to apply what they have learned in class about electrical theory in a real life setting.

#### Taking the Activity to Next Level

Three of the best performing TSA members achieving top scores on the written and performance test will advance to the state level.

**Benefits of this Activity**

The students become aware of electrical theory and how it connects to science principles and every day life.

This activity assists in preparing students for the Science portion of the CATS assessment.

Students who win at the state level receive a plaque and a chance to compete at the national level. The top 10 at the national level receive a finalist lapel pin and the top three receive a trophy.

Local business partnerships may be formed to sponsor local recognition of students via company incentives and newspaper articles.

## Integration of TSA into Technology Education 2007

### CO2 Dragster Design Challenge:

#### Background

Dragster Design Challenge is an individual event where the student develops working drawings of, and produces CO2-powered dragster. Rules, guidelines and other information may be found at [www.tsaweb.org](http://www.tsaweb.org), TSA official competitive event guide, and “The TECH know project” (from centre point learning). Students are provided with a kit which includes wheels, axels, CO2 cartridge, and wood blank to personalize their design according to guidelines.

#### Rationale

This event gives students exposure to the design process and the opportunity to engineer the product according to set specifications.

#### Teaching Content

Unit	Dragster Design
Lessons	Introduction- Reading dragster history/competition rules Sketches Detailed drawing Preparation for Cutting Designing Finishing Evaluation or Race

**Academic Expectations:** 1.5-1.9, 1.16, 2.9, 2.10, 5.1, 6.1

Core Content	Standards for Technological Literacy
MA-08-2.1.1, MA-08-2.2.1, MA-08-3.1.4 SC-08-1.2.1	8,9,10,11,12,16

#### Building Interest:

In the classroom students are introduced to each station or unit and given a brief description of the events. Often a demonstration of the previous year or pictures of the event are shown. Depending on the number regional competitors permitted, each school will compete at the regional level and then the top 2 from regional will compete at state.

#### Connecting the Activity to Content

This activity gives the student a chance to learn about the research and design process and also allows the student to build and test a car to certain specifications. This activity gives opportunity to apply principles of research and design in a real life setting. Students are exposed to the concepts of manipulating variables within set limits.

**Taking the Activity to Next Level**

Depending on the number of car entries permitted to compete at the regional level, a race will take place at school to see which students will compete at regional competition. The top two regional competitors will go on to the state level with improvements made from suggestions of the judges.

**Benefits of this Activity**

The students gain the awareness of design process and how to complete drawings and produce an item to certain specifications.

Math/measurement concepts learned through this activity will prepare students for CATS assessment.

The students will receive a ribbon at the regional level and a plaque at the state level and the top 10 at the national level receive a finalist lapel pin and the top 3 receive a trophy.

## Integration of TSA into Technology Education 2007

### Mechanical Challenge

#### Background

Mechanical Challenge is a team event where two students design, and produce a mechanical device, using 3 or more simple machines. The goal is to produce a machine that can collect a variety of balls from a specified gaming court in the shortest amount of time. Students are permitted to choose materials used to create the machine. Students will interview with a panel of judges to explain their machine. Rules, guidelines, and other information may be found at [www.tsaweb.org](http://www.tsaweb.org), TSA official competitive event guide. Additional information may be found through the “The TECH know project” (from centre point learning).

#### Rationale

To give the student exposure to the design process and give them an opportunity to engineer a product according to list of specifications.

#### Teaching Content

Unit	Mechanical Design Challenge
Lessons	Introduction to Simple Machines Calculations for Mechanical Advantage Design Prototype Test Redesign Build Model

**Academic Expectations:** 1.5-1.9, 1.16, 2.3, 2.9, 2.10, 5.1, 5.5, 6.1

Core Content	Standards for Technological Literacy
MA-07-5.1.1, SC-07-1.2.1	8,9,10,11,12,13

#### Building Interest:

In the classroom, students are introduced to each station or unit and given a brief description of the event. Often a demonstration of the previous year or pictures of the event are shown.

#### Connecting the Activity to Content

This activity gives students the opportunity to apply what they know about simple machines and design process and incorporate their knowledge into a real life project.

#### Taking the Activity to Next Level

Two teams with the best design and interview will compete at the next level.

**Benefits of this Activity**

The students gain an awareness of simple machines and how to calculate mechanical advantage. They learn how to use the simple machines to achieve a given task. The students gain a heightened awareness of the design process and how to complete drawings and produce an item to complete a certain task.

The students will receive a ribbon at the regional level and a plaque at the state level and the top 10 at the national level receive a finalist lapel pin and the top 3 receive a trophy.

**Integration of TSA into Technology Education  
2007**

**Digital Embroidery**

**Background**

Digital Embroidery is a business oriented project that we use to raise money for TSA throughout the year. Students are able to learn how to digitize images and use the customized embroidery machine.

**Rationale**

Digital Embroidery allows the students to have an entrepreneurial experience while using tools and software to create a product for a customer. Students learn how to create invoices, bill customers and utilize basic accounting skills.

**Teaching Content**

Unit	Digital Embroidery
Lessons	Introduction Video on How to Use Machine Digitizing Software Practice Business Designs Embroider Items Create Invoice and Bill Customer

**Academic Expectations:** 1.16 ,2.37, 6.1

Core Content	Standards for Technological Literacy
PL-08-4.1.3, PL-08-4.3.2	3,8,12

**Building Interest**

In the classroom students are introduced to each station or unit and given a brief description of the project. Often demonstrations of the machine and previous examples are shown.

**Connecting the Activity to Content**

This activity gives the student a chance to learn about customized embroidery machines and digitizing software. It gives the student real world experience in working with customers to meet their demands.

**Taking the Activity to Next Level**

This project is used as a fundraiser for our organization. We embroider items for the school such as team sport apparel, dress code items, etc.

**Benefits of this Activity**

Students are exposed to the world of work and giving them training on new equipment and software. Creating products for customers teaches students the skills they need to survive in today's business. This project benefits the school and the chapter by making embroidery costs reasonable and supplying TSA with operating funds.