SMART 2011 Team Reports (2010-2011 Academic Year)
(Copy this form into a word processing document, update it, and then submit it to Project SMART)

Team Members:
Gregory J. Bailey

<table>
<thead>
<tr>
<th>Team Name (For example, Delaware Elementary):</th>
<th>Write the number of Teacher participants for each period.</th>
<th>Academic Year number(s)</th>
<th>Summer Institute number(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hannibal Central School</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Kenney Middle School</td>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Team location and focus (For example, Delaware—ESL literacy):
Kenney Middle School; Technology Education

Data collected and analyzed on teacher learning (For example, faculty surveys, and teacher reflective journals).

I learned last year that using clickers to collect data makes analyzing much quicker and easier than doing it by hand. So this year I started my grant data collection by using the survey function with the clickers. I informally asked my five 7th grade classes and three 8th grade classes what type of projects that they would like to try this year that we currently do have in our curriculum. The list was pared down to eight based on curriculum compatibility. I then used the clickers to survey my students on what project ideas that they wanted to work on most. What I learned from the data collected that students favored working on projects that allow them to take projects home. My students currently do not understand the intrinsic value of doing things just to learn.
Using the survey results, the projects were narrowed down to vinyl cutter for sandblasting and screen printing. I then used pre and post test to evaluate student learning.
Data collected and analyzed on student learning (For example, annual literacy assessments/NYS report card disaggregated data for 4th grade ELA, analysis of rubric scores on students writing samples each quarter for students in versus not in the program).

I used clicker in my five 7th grade technology education classes collect pre and post date about sandblasting on glass and screen printing t-shirts. Pretest scores did not indicate much of a difference in scores:

<table>
<thead>
<tr>
<th>Class</th>
<th># of Students</th>
<th>Sandblast</th>
<th>Screen Printing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-test</td>
<td>Post-test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average</td>
<td>Average</td>
</tr>
<tr>
<td>Period 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day B</td>
<td>16</td>
<td>41.60</td>
<td>88.80</td>
</tr>
<tr>
<td>Period 2</td>
<td>23</td>
<td>44.72</td>
<td>88.12</td>
</tr>
<tr>
<td>Day A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period 3</td>
<td>14</td>
<td>41.67</td>
<td>89.39</td>
</tr>
<tr>
<td>Day A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period 7</td>
<td>23</td>
<td>44.66</td>
<td>85.44</td>
</tr>
<tr>
<td>Day A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period 7</td>
<td>23</td>
<td>38.96</td>
<td>83.56</td>
</tr>
<tr>
<td>Day B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>19.80</td>
<td>42.32</td>
<td>87.06</td>
</tr>
</tbody>
</table>

The pre-test data indicated that students had a little better general knowledge about screen printing compared to sandblasting.

The sandblasting process begins with brainstorming ideas, drawing thumbnail sketches and then developing the ideas using Craft ROBO Master software. Before using the software students were required to measure the blasting surface area of their glass. Once designs were approved, the Silhouette vinyl cutter was used to cut the design. Students were then required to weed the desired blast design out of the vinyl. The design is then transferred to the glass and is masked off with tape. The glass is then placed into the sandblast glass unit, the compressor is set to the correct pressure and the glass is blasted using the correct technique. Once the blasting is complete, the masking and vinyl is removed and the glass in cleaned with hot water and soap. This is a multi step process that does not work unless each step is followed.

Once a student was able to successfully complete the sandblast process most were able to assist other students complete the process. This was a pleasant surprise for me. I have never had this many students eager to help each other. This truly was nice to see.

Students needed to be taught several computer skills before the screen printing unit could be taught. The screen printing process begins with brainstorming ideas, drawing thumbnail sketches and then developing the ideas using Microsoft Photo Draw software. After the designs were complete students voted on the design that they wanted to screen print. A screen was burnt by a private company because of complications. The screen was then used to print purple and white ink.

A total of five 7th grade technology education classes were used to collect data on the effectiveness of learning that occurred during these two units. The average pre-test score for sandblasting was 42.32 with a range of 5.76 points. The average pre-test score for screen printing was 45.85 with a range 8.01.
This data indicated that more students in general know more about screen printing than sandblasting.

The average post-test score for sandblasting was 87.06 for an increase of 44.74 points.  
The average post-test score for screen printing was 88.75 for an increase of 42.90 points.  
Although the post-test score were higher for screen printing the scores indicated a greater improvement for the sandblast unit.  This might due to the fact that more students completed the process as compared to the screen printing.

I was not anticipating doing research on class size but the data table indicated a trend.  
The average pre-test score for sandblasting in my two classes with 16 or less students was 41.64.  
The average pre-test score for sandblasting in my three classes with 23 students was 43.90.  
The average post-test score for sandblasting in my two classes with 16 or less students was 89.10 for an increase of 47.46.  
The average post-test score for sandblasting in my three classes with 16 or 23 students was 86.87 for an increase of 42.97.  
The pre-test score for the smaller class size was 2.26 points lower than the larger classes.  
The post-test score for the smaller class was 4.49 high than the larger class.  
These results indicted that more learning occurred in the smaller classes.

I was not anticipating doing research on class size but the data table indicated a trend.  
The average pre-test score for screen printing in my two classes with 16 or less students was 44.31.  
The average pre-test score for screen printing in my three classes with 23 students was 45.50.  
The average post-test score for screen printing in my two classes with 16 or less students was 88.70 for an increase of 44.39.  
The average post-test score for screen printing in my three classes with 16 or 23 students was 88.78 for an increase of 43.28.  
The pre-test score for the smaller class size was 1.19 points lower than the larger classes.  
The post-test score for the smaller class was 1.11 high than the larger class.  
These results also indicted that more learning occurred in the smaller classes.

Although the scores are not that too significant they do indicate that more learning occurred in the smaller classes.

The following is a summary of the data collected from this project.

- The process of sandblasting is not as well known as screen printing
- Students learned more about the sandblasting unit.
- The students with the smaller class size had the most improvement in scores for both units
- Students in general had higher post test score this year as compared to last year’s results.  This could be because they played a part in the project selection.
- The use of the clickers actively engages all students
- The clickers provides prompt feedback to student questions
- The clickers accommodates students with test mods