# BRIGANTINE PUBLIC SCHOOLS

TECHNOLOGY CURRICULUM

GRADE SIX

**Date Revised:  August 2015**
**Board Approved:  August 27, 2015**

**SUBJECT: Technology - STEM**
**GRADE LEVEL: Sixth Grade**
**UNIT: Introduction to Engineering**

## PACING GUIDE/STANDARDS
### Four to Six Weeks

**8.2.8.B.1** – Evaluate the history and impact of sustainability on the development of a designed product or system over time and present results to peers.

**8.2.8.B.2** – Identify the desired and undesired consequences for the use of a product or system

**8.2.8.B.3** – Research and analyze the ethical issues of a product or system on the environment and report findings for review by peers and/or experts.

**8.2.8.B.4** – Research examples of how humans can devise technologies to reduce the negative consequences of other technologies and present your findings

**8.2.8.B.5** – Identify new technologies resulting form the demands, values, and interests of individuals, businesses, industries and societies

## Interdisciplinary Connections:
**CCSS.ELA-LITERACY.W.6.2**
Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

### 21st Century Themes and Skills (Life and Careers):
**CRP2 –** Apply appropriate academic and technical skills.
**CRP6 –** Demonstrate creativity and innovation.
**CRP7 –** Employ valid and reliable research strategies.
**CRP8 –** Utilize critical thinking to make sense of problems and preserve in solving them.
**CRP11 -** Use technology to enhance productivity.

| Instructional Activities | Materials | Modifications | Assessment/Benchmarks |
|---|---|---|---|
| • Design a portfolio and notebook for students to keep daily activities and completed projects.<br>• Explain the relationship among STEM, science, technology, engineering, and mathematics, and discuss application to real world examples.<br>• Demonstrate the importance of teamwork through a group activity.<br>• Research a technological artifact of the past and present.<br>• Differentiate between invention and innovation. Describe engineering and explain how engineers participate in or contribute to the invention and innovation of products. Describe the impacts that technology has had on society.<br>• Describe the design process and how it is used to aid in problem solving.<br>• Use the design process to solve a technical problem or an environmental problem. Presentation showing this problem and solution<br>• Review the design of an invention and apply the design elements to the invention.<br>• Discuss orthographic drawing and how engineers use it.<br>• Communicate ideas for a design using various sketching methods, notes and drafting views.<br>• Students will research an invention that is used today. They will list its impact both positive and negative on the environment. Students will then try to take this invention and innovate it in such a way that the positive impacts on society, environment, and value outweigh the negative impacts.<br>• They will put this in a presentation tool (PowerPoint, Google docs, video) showing their findings. | Internet Research<br><br>Computers<br><br>Portfolio<br><br>Notebook<br><br>Presentation Tools | Allow students to work with a partner<br><br>Chunk information into small parts<br><br>Choice Board<br><br>Provide extra time to complete assignments<br><br>Handouts | Oral Questioning<br><br>Final Presentations<br><br>Rubrics<br><br>Notebook |

## PACING GUIDE/STANDARDS

### Half Marking Period

**8.1.8.A.1 –** Demonstrate knowledge of a real word problem using digital tools.

### Interdisciplinary Connections:
CCSS.ELA-LITERACY.W.6.1
Write arguments to support claims with clear reasons and relevant evidence.

### 21st Century Themes and Skills (Life and Careers):
**CRP2 –** Apply appropriate academic and technical skills.
**CRP6 –** Demonstrate creativity and innovation.
**CRP7 –** Employ valid and reliable research strategies.
**CRP8 –** Utilize critical thinking to make sense of problems and preserve in solving them.
**CRP11 -** Use technology to enhance productivity.

| Instructional Activities | Materials | Modifications | Assessment/Benchmarks |
|---|---|---|---|
| Discuss problems in the World today<br>Have students choose a problem and research it on the internet.<br>Taking notes from Internet.<br>Students will create a document about the problem that they researched.<br>Document will contain facts and pictures to support their stance on this problem.<br>Final document will be shared and put on their portfolio. | Internet Research<br><br>Word<br><br>Google Docs<br><br>Portfolio | Break task down into manageable steps<br><br>Provide graphic organizer to assist with process<br><br>Work with partner<br><br>Written Tutorial<br><br>Choice Board | Final Document<br><br>Rubrics<br><br>Class Discussion |

| SUBJECT: Technology |
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| **SUBJECT: Technology**<br>**GRADE LEVEL: Sixth Grade**<br>**UNIT: Spreadsheet – Collecting Data and Graphing** |

## PACING GUIDE/STANDARDS

### One Marking Period

**8.1.8.A.4 –** Graph and calculate data within a spreadsheet and present a summary of the results.

**8.1.8.A.5 –** Create a database query, sort and create a report and describe the process, and explain the report results.

## Interdisciplinary Connections:

CCSS.ELA-LITERACY.RST.6-8.7
Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

### 21st Century Themes and Skills (Life and Careers):

**CRP2 -** Apply appropriate academic and technical skills.
**CRP11 -** Use technology to enhance productivity.

| Instructional Activities | Materials | Modifications | Assessment/Benchmarks |
|---|---|---|---|
| Introduce spreadsheet software or utilize Google Docs to demonstrate how to compile data from a quick class survey of a topic of interest to the students. After model data has been compiled, show students how to create a graph and assess which graphic representation is the best way in which to present information. Evaluate the best representation of information by creating multiple graphs using the same information to select best representation of data.<br><br>Have students find or collect their own data. Students will use the data that they collected to create two graphs. They will then present the information that they found and post their graphs to their online portfolios. | Internet Research<br><br>Word<br><br>Excel<br><br>Google Docs<br><br>Online Portfolio | Break task down into manageable steps<br><br>Provide graphic organizer to assist with process<br><br>Work with partner<br><br>Written Tutorial | Spreadsheet<br><br>Final Graphs |

## PACING GUIDE/STANDARDS

### One Marking Period

**8.1.8.A.1 –** Demonstrate knowledge of a real world problem using digital tools.

**8.1.8.A.2 –** Create a document using one or more digital applications to be critiqued by professionals for usability.

**8.1.8.A.3 –** Use and/or develop a simulation that provides an environment to solve a real world problem or theory.

### Interdisciplinary Connections:

CCSS.ELA-LITERACY.W.6.2
Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

CCSS.ELA-LITERACY.RST.6-8.7
Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

### 21st Century Themes and Skills (Life and Careers):

**CRP2 -** Apply appropriate academic and technical skills.

**CRP11 -** Use technology to enhance productivity.

| Instructional Activities | Materials | Modifications | Assessment/Benchmarks |
|---|---|---|---|
| Using Excel or Google Docs, students will follow direct lessons on using formulas and setting up tables.  Sample formula charts will be used.<br><br>Utilize the skills of a Word Processing Applications (Google Docs, MS Word, Blog, Wiki or Desktop Publishing app.) to:<br>• Create want ad or poster that demonstrates how career choices relate to income, skills relate to earning power, or earning power relates to the quality of life.<br>• Discuss and relate concepts of savings vs. deferring of financial goals (i.e.: allowance).<br>• Create a cartoon/story that demonstrates the use of financial products/services and how to safeguard personal information.<br>Utilize Spreadsheet skills to:<br>• Construct a business/personal model that demonstrates proper budget management skills (e.g., checkbook, online banking account). (I.e.: Google Docs or Excel)<br>Utilize the Internet to:<br>• Create debit/credit balance sheet & cash flow statements<br>• Evaluate financial Institutions as they relate to personal or business goals. (Utilize spreadsheets to compare results)<br>• Analyze articles that demonstrate the effects of the economy on personal income, individual and family security, as well as consumer decisions. | Internet Research<br><br>Word<br><br>Excel<br><br>Google Docs<br><br>Online Portfolio | Break task down into manageable steps<br><br>Provide graphic organizer to assist with process<br><br>Work with partner<br><br>Written Tutorial | Spreadsheet<br><br>Final Graphs |

## PACING GUIDE/STANDARDS

### Half Marking Period

**8.1.8.D.1 –** Understand and model appropriate online behaviors related to cyber safety, cyber bullying, cyber security, and cyber ethics including appropriate use of social media.
**8.1.8.D.5 –** Understand appropriate uses for social media and the negative consequences of misuse

### Interdisciplinary Connections:
CCSS.ELA-LITERACY.W.6.1
Write arguments to support claims with clear reasons and relevant evidence.

### 21st Century Themes and Skills (Life and Careers):
**CRP2 -** Apply appropriate academic and technical skills.
**CRP4 –** Communicate clearly and effectively and with reason.
**CRP5 –** Consider the environmental, social and economic impacts of decisions.
**CRP11 -** Use technology to enhance productivity.

| Instructional Activities | Materials | Modifications | Assessment/Benchmarks |
|---|---|---|---|
| Determine how to maintain cyber security and cyber ethics using appropriate online behaviors. Introduce cyber safety with the video links listed. Discuss content of videos with students. Present scenarios to students and discuss appropriate ways to maintain cyber security and appropriate online behaviors Create a comic illustrating two or three of the rules regarding Internet etiquette. Introduce concept of cyber bullying with the video clips listed. Create a presentation that demonstrates appropriate behavior when faced with situations that deal with issues of cyber safety, cyber bullying, cyber security and cyber ethics to share with younger students or parents. | Internet Research  Power Point  Brain Pop  Google Docs  http://mediasmarts.ca/sites/default/files/ games/privacy_playground/flash/privac y_playground_en/start.html  http://www.to14.com/games/game - 1255516144.swf | Break task down into manageable steps  Provide graphic organizer to assist with process  Work with partner  Written Tutorial | Presentations  Correct citations  Rubrics  Class Discussion |

SUBJECT: Technology
GRADE LEVEL: Sixth Grade
UNIT: Presentation Tools – Using Correct Citations

## PACING GUIDE/STANDARDS

**One Marking Period**
**8.1.8.D.2 –** Demonstrate the application of appropriate citations to digital content.
**8.1.8.D.3 –** Demonstrate an understanding of fair use and Creative Commons to intellectual property**.**
**8.1.8.D.4-** Assess the credibility and accuracy of digital content

## Interdisciplinary Connections:
CCSS.ELA-LITERACY.RH.6-8.7
Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
**21st Century Themes and Skills (Life and Careers):**
**CRP2 –** Apply appropriate academic and technical skills.
**CRP4 –** Communicate clearly and effectively and with reason.
**CRP6 –** Demonstrate creativity and innovation.
**CRP7 –** Employ valid and reliable research strategies.
**CRP11 -** Use technology to enhance productivity.

| Instructional Activities | Materials | Modifications | Assessment/Benchmarks |
|---|---|---|---|
| Students will create a 5-slide presentation using photos from the internet. Discuss Creative Commons using photos from the internet Discuss how to use citations on digital content Discuss presentations and what is good and what needs to improve on presentations. Have students research a person from history and create a presentation on that person. Students will use correct citation on all photos and any facts that they use from the internet. Students will show and present presentations to the class Students then will choose a topic on a society problem and create a persuasive presentation on that event supporting their idea. Students will present to the class. Presentations will be uploaded to Portfolios | Internet Research Power Point Google Docs Online Portfolio | Break task down into manageable steps Provide graphic organizer to assist with process Work with partner Written Tutorial | Presentations Correct citations Rubrics |