

# ROCKWOOD

## ENGINEERING & TECHNOLOGY

### Foundations of Technology 9<sup>th</sup> Grade

Lesson Plans Mr. Kush



**August 31**

### Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to comply with the set expectations and procedures for this class.  
Students will be able to use a ruler and measure to the nearest 1/2" inch.
- ACTIVITIES:** Introduction discussion of course  
Procedure / Policy Handout  
Distribute folder & Engineering Design Journal  
"Giant Inch" measuring review activity  
Begin "Measuring Practice" handout
- EVALUATION:** Procedure / Policy / Student Expectation signature form is due tomorrow  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of measuring
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10C, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**September 2**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to use a ruler and measure to the nearest 1/16" inch.  
**Students will be able to complete the measuring assessment.**
- ACTIVITIES:** Completion of the following measuring activities:  
"Measuring Practice" handout  
"Measuring Practice 1" handout  
"Measuring Practice 2" handout
- EVALUATION:** Informal assessment of completion of the measuring practice guides  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of measuring
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T / F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**September 7**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to use a ruler and proficiently and accurately measure to the nearest 1/16" inch.  
**Students will be able to complete the measuring assessment.**
- UNIT 1 – History of Technology**  
Students will complete the Unit 1 Pre Test  
Complete Unit 1 Pre Test and review the answers (no points)  
Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.
- ACTIVITIES:** Completion of the following measuring activities:  
"Measuring Practice 2" handout – review of answers  
Review measuring activity on the white board  
**Measuring Test 17 points**
- Presentation - **History of Technology**

Discuss the light bulb as an invention and technological advancement that became a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.

**EVALUATION:** Informal assessment of completion of the measuring practice guide and measuring review activity  
Formal assessment of 17 point measuring test  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement

**ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**September 9**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Students will be able to conduct basic research using “Wikipedia” and group discussion to construct answers to technological advancements concepts in preparation for a presentation.  
Students will develop a poster to communicate their selected technological advancement topic for their presentation.

**ACTIVITIES:** Small group activity – Students will select a technological device of their choice, research and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Groups will develop a poster with graphics and text for their topic presentation.

**EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement

**ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments

T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**September 13**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Students will be able to conduct basic research using “Wikipedia” and group discussion to construct answers to technological advancements concepts in preparation for a presentation.  
Students will develop a poster to communicate their selected technological advancement topic for their presentation.
- ACTIVITIES:** **CONTINUED:** Small group activity – Students will select a technological device of their choice, research and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Groups will develop a poster with graphics and text for their topic presentation.
- EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement
- ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**September 15**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Students will be able to conduct basic research using “Wikipedia” and group discussion to construct answers to technological advancements concepts in preparation for a presentation.  
Students will develop a poster to communicate their selected technological advancement topic for their presentation.
- ACTIVITIES:** **CONTINUED:** Small group activity – Students will select a technological device of their choice, research and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Groups will develop a poster with graphics and text for their topic presentation.
- EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement
- ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
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Verbal presentation of reading material by aid when present  
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**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**September 19**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Students will be able to conduct basic research using “Wikipedia” and group discussion to construct answers to technological advancements concepts in preparation for a presentation.  
Students will develop a poster to communicate their selected technological advancement topic for their presentation.
- ACTIVITIES:** **CONTINUED:** Small group activity – Students will select a technological device of their choice, research and discuss six reasons for why it became a turning point in history via how it

influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.

Groups will develop a poster with graphics and text for their topic presentation.

**EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement

**ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
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**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**September 21**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to conduct a presentation on how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.

**ACTIVITIES:** Small group activity – Students will present a technological device of their choice and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Groups will also present the topic using their poster as a visual aid.

**EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement

**ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room

Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**September 23**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:**
- Students will be able to identify that technological development has been evolutionary, the result of a series of refinements to a basic invention and provide concrete examples of this.
  - Students will be able to identify that the evolution of civilization has been directly affected by, and has in turn affected the development of tools and materials and provide concrete examples of this.
  - Students will be able to identify that throughout history, technology has been a powerful force in reshaping the social, cultural, political, and economic landscape and provide concrete examples of this.
  - Students will be able to identify that early in the history of technology, the development of many tools and machines was not based on scientific knowledge but on technological know-how and provide examples of this.
  - Students will be able to identify that the study of history is defined by chronological periods and provide an example of this.
- ACTIVITIES:**
- Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout
  - View video on controlling video games with your mind:  
[http://www.youtube.com/watch?v=wNr3yGcl\\_V8](http://www.youtube.com/watch?v=wNr3yGcl_V8)
  - View video on project "epoch"  
<http://gizmodo.com/240760/project-epoc-lets-you-control-video-games-with-your-noggin>
  - Read article about "Mindflex" game  
[http://mindflexgames.com/what\\_is\\_mindflex.php](http://mindflexgames.com/what_is_mindflex.php)  
<http://en.wikipedia.org/wiki/Mindflex>
  - Discuss "Mind Wave" as the future for education.
- EVALUATION:**
- Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:**
- Independent exploration of technological evolution of game controllers
- ACCOMMODATIONS:**
- Additional time to complete tasks / tests / quizzes / assignments
  - T / F Safety tests read to all students
  - Option for students to take formal assessments taken in the Learning Support room
  - Option for preferential seating
  - Option for individual guidance
  - Verbal presentation of reading material by aid when present
  - Additional time to complete assignments as necessary
  - Modified Tests & Quizzes

Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**September 27**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to identify that technology is how humans modify the world around them to meet their needs and wants or to solve practical problems  
Students will be able to describe and develop examples of technology as human innovation in action.  
Students will be able to define the definition of ***Technological Literacy*** as the ability to use, manage, and evaluate technology and compare it to Rockwood School Districts mission statement.  
Students will be able to develop examples of technology affecting human comfort and safety.

**ACTIVITIES:** **CONTINUED:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout

**EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of technological literacy

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**September 29**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to identify that technology is how humans modify the world around them to meet their needs and wants or to solve practical problems  
Students will be able to describe and develop examples of technology as human innovation in action.  
Students will be able to define the definition of ***Technological Literacy*** as the ability to use,



manage, and evaluate technology and compare it to Rockwood School Districts mission statement.

Students will be able to develop examples of technology affecting human comfort and safety.

- ACTIVITIES:** **CONTINUED:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of technological literacy
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**October 3**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to identify our examination of history as a chronological record of significant events, often including an explanation of their *causes*.  
Students will be able to identify that periods of history are associated with technological evolution, major technological advancements, and their impact on history.  
Students will be able to research a selected historical period and report on its description, technological artifacts, and the impact of technology on history.
- ACTIVITIES:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout  
Select a small group for the research activity  
Review the criteria, constraints, and rubric for the presentation activity  
Begin research using Internet resources such as Wikipedia  
Select an appropriate video that supports the selected historical age that is less than 5 minutes in length
- EVALUATION:** Formal rubric evaluation o the PowerPoint presentation on the selected historical age
- ENRICHMENT:** Independent exploration of technology's influence on history
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating

Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**October 5**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to identify our examination of history as a chronological record of significant events, often including an explanation of their *causes*.  
Students will be able to identify that periods of history are associated with technological evolution, major technological advancements, and their impact on history.  
Students will be able to research a selected historical period and report on its description, technological artifacts, and the impact of technology on history.
- ACTIVITIES:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout  
Select a small group for the research activity  
Review the criteria, constraints, and rubric for the presentation activity  
Begin research using Internet resources such as Wikipedia  
Select an appropriate video that supports the selected historical age that is less than 5 minutes in length
- EVALUATION:** Formal rubric evaluation of the PowerPoint presentation on the selected historical age
- ENRICHMENT:** Independent exploration of technology's influence on history
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T / F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**October 7**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to identify our examination of history as a chronological record of significant events, often including an explanation of their *causes*.

Students will be able to identify that periods of history are associated with technological evolution, major technological advancements, and their impact on history.

Students will be able to research a selected historical period and report on its description, technological artifacts, and the impact of technology on history.

**ACTIVITIES:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout  
Select a small group for the research activity  
Review the criteria, constraints, and rubric for the presentation activity  
Begin research using Internet resources such as Wikipedia  
Select an appropriate video that supports the selected historical age that is less than 5 minutes in length

**EVALUATION:** Formal rubric evaluation o the PowerPoint presentation on the selected historical age

**ENRICHMENT:** Independent exploration of technology's influence on history

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**October 12**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** **CONTINUED:** Students will be able to identify our examination of history as a chronological record of significant events, often including an explanation of their *causes*.  
Students will be able to identify that periods of history are associated with technological evolution, major technological advancements, and their impact on history.  
Students will be able to research a selected historical period and report on its description, technological artifacts, and the impact of technology on history.

**ACTIVITIES:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout  
Select a small group for the research activity  
Review the criteria, constraints, and rubric for the presentation activity  
Begin research using Internet resources such as Wikipedia  
Select an appropriate video that supports the selected historical age that is less than 5 minutes in length

**EVALUATION:** Formal rubric evaluation o the PowerPoint presentation on the selected historical age

**ENRICHMENT:** Independent exploration of technology's influence on history

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
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Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**October 14**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** **CONTINUED:** Students will be able to identify our examination of history as a chronological record of significant events, often including an explanation of their *causes*.  
Students will be able to identify that periods of history are associated with technological evolution, major technological advancements, and their impact on history.  
Students will be able to research a selected historical period and report on its description, technological artifacts, and the impact of technology on history.

**ACTIVITIES:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout  
Select a small group for the research activity  
Review the criteria, constraints, and rubric for the presentation activity  
Begin research using Internet resources such as Wikipedia  
Select an appropriate video that supports the selected historical age that is less than 5 minutes in length

**EVALUATION:** Formal rubric evaluation o the PowerPoint presentation on the selected historical age

**ENRICHMENT:** Independent exploration of technology's influence on history

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
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**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**October 18**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to present on their group selected historical technology item based its influence, and impacts of the way people, lived, worked, produced things and how it changed history forever.
- ACTIVITIES:** Five minutes at the start of class to refine the presentation  
Group presentation based on rubric criteria
- EVALUATION:** Rubric based evaluation of presentation techniques, content of information, organization, neatness, and participation of the group presentation
- ENRICHMENT:** Independent exploration of technological advancements and their influences on society
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces
- PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C – **3.2.10B**

**October 20**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to present on their group selected historical technology item based its influence, and impacts of the way people, lived, worked, produced things and how it changed history forever.
- ACTIVITIES:** Five minutes at the start of class to refine the presentation  
Group presentation based on rubric criteria
- EVALUATION:** Rubric based evaluation of presentation techniques, content of information, organization, neatness, and participation of the group presentation
- ENRICHMENT:** Independent exploration of technological advancements and their influences on society
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
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Verbal presentation of reading material by aid when present  
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- PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C – **3.2.10B**

**October 24**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to present on their group selected historical technology item based its influence, and impacts of the way people, lived, worked, produced things and how it changed history forever.
- ACTIVITIES:** Five minutes at the start of class to refine the presentation  
Group presentation based on rubric criteria
- EVALUATION:** Rubric based evaluation of presentation techniques, content of information, organization, neatness, and participation of the group presentation
- ENRICHMENT:** Independent exploration of technological advancements and their influences on society
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
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**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C – **3.2.10B**

**October 26**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to identify technological eras with their associated technological tools  
Students will be able to compare and contrast the information age with another technological era
- ACTIVITIES:** Note taking activity on Paleolithic, Mesolithic & Neolithic technological eras  
Students will use the Unit 1 Note guide and fill in the blanks during the lesson  
Neolithic – discussion on focus groups  
Watch video segment “The Wheel Focus Group”  
Watch humorous video segment on the “stone age”
- EVALUATION:** Evaluation of class participation and note taking
- ENRICHMENT:** Independent exploration of technological eras
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating

Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**October 28**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to identify technological eras with their associated technological tools.  
Students will be able to compare and contrast the information age with another technological era.

**ACTIVITIES:** Review from previous ages

Note taking activity on the Bronze, Iron, Middle, and Renaissance technological eras  
Middle Ages – discussion on Black Death and its impact on technology  
Watch video segment – “Black Death”  
Renaissance - discussion on small and large viewing technology  
Watch video segment – “Renaissance Man”  
Students will use the Unit 1 Note guide and fill in the blanks during the lesson

**EVALUATION:** Evaluation of class participation and note taking

**ENRICHMENT:** Independent exploration of technological eras

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**November 1**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to identify technological eras with their associated technological tools  
Students will be able to compare and contrast the information age with another technological era  
Students will be able to determine how a technological advancement will impact their future life and how will it influence/change the world around them

- ACTIVITIES:** Note taking activity on the Industrial and Information and Ages technological eras  
Students will use the Unit 1 Note guide and fill in the blanks during the lesson  
Students will select a future technology article to read and then respond to the article with an open-ended PSSA style written response
- EVALUATION:** Evaluation of class participation and note taking  
Completion of “The Cutting Edge of Technology” article and response question
- ENRICHMENT:** Independent exploration of technological eras and impacts of cutting edge technologies
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**November 3**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able apply facts and concepts from discussed historical ages to develop reasons for employment sector shifting.  
Students will be able to read a bar graph chart and develop answers to questions based on employment by sectors for historical time periods.
- ACTIVITIES:** Students will complete the handout, “Historical Analysis of Employment by Sectors”
- EVALUATION:** Evaluation of class participation and note taking  
Completion of “Historical Analysis of Employment by Sectors” handout
- ENRICHMENT:** Independent exploration of technological era employment factor shifts
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room



Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**November 7**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to determine that required physical labor has declined however the knowledge required has increased.  
Students will be able to note that modern science is based on traditions of thought that came together in Europe about 500 years ago.  
Students will be able to recognize the function of the scientific method.  
Students will be able to compare and contrast the scientific method with the engineering design process.  
Students will be able to identify the constraints and criteria for the paper table design brief.
- ACTIVITIES:** Students will use the Unit 1 Note guide and fill in the blanks during the lesson.  
Students will watch the introductory video from PBS's "Design Squad" on the paper table design brief.  
Students will review the paper table design brief instructions and rubric.
- EVALUATION:** Evaluation of class participation and note taking  
Formal assessment via rubric at the completion of the paper table design brief
- ENRICHMENT:** Independent exploration of the engineering design process
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T / F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**November 9**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to identify and distinguish between compression, tension, torsion, shear, and bending.  
Students will be able to plan and sketch a preliminary design for their paper table.  
In small groups of two, students will be able to use the engineering design process, materials, and basic information on forces to construct their paper table to hold eight pounds for a minimum of three minutes.
- ACTIVITIES:** Watch two videos from you tube on basic forces: [http://www.youtube.com/watch?v=c-V\\_8\\_qmJbE](http://www.youtube.com/watch?v=c-V_8_qmJbE)  
<http://www.youtube.com/watch?v=gqldBnxl32w>  
Select groups of two, discuss the directions, parameters, and design constraints o  
Brainstorm, sketch preliminary designs, receive building materials and begin construction
- EVALUATION:** Evaluation of class participation and note taking  
Formal assessment via rubric at the completion of the paper table design brief
- ENRICHMENT:** Independent exploration of the engineering design process and basic forces
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.4.7C, 3.4.10C, 3.6.10C, 3.6.12C

**November 14**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to apply the design process to construct a paper table capable of supporting 8 lbs for 3 minutes.  
Students will be able to construct the paper table according to their sketched designs that meet specific criteria and constraints.
- ACTIVITIES:** Continue construction
- EVALUATION:** Informal evaluation of class participation and team work  
Formal evaluation of finalized design – rubric based 50 points
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance

Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

**November 16**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** **CONTINUED:** Students will be able to apply the design process to construct a paper table capable of supporting 7lbs for 3 minutes.  
Students will be able to construct the paper table according to their sketched designs that meet specific criteria and constraints.
- ACTIVITIES:** Continue construction
- EVALUATION:** Informal evaluation of class participation and team work  
Formal evaluation of finalized design – rubric based 50 points
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

**November 18**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to apply the design process to construct a paper table capable of supporting 7lbs for 3 minutes.  
Students will be able to construct the paper table according to their sketched designs that meet specific criteria and constraints.
- ACTIVITIES:** Continue construction
- EVALUATION:** Informal evaluation of class participation and team work  
Formal evaluation of finalized design – rubric based 50 points
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

**November 22**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to test their 6" paper "table" design.  
Students will be able to refine their designs to complete the "table" test  
Students will be able to present their design

**ACTIVITIES:** Use a digital scale to weigh their completed design in pounds and kilograms.  
Test their paper "table" design with an 8lb book.  
Revise their design to pass the weight test  
Present and test their final design to the class  
Students with failing designs may start over and be tested again outside of class

**EVALUATION:** Informal evaluation of class participation and team work  
Formal evaluation of finalized design – rubric based 60 points  
Formal evaluation of presentation assessment subjective – 10 points

**ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.4.7C, 3.4.10C, 3.6.10C, 3.6.12C - **3.2.10B**

**November 30**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to analyze and discuss the causes and effects of the first Industrial Revolution.  
Students will relate the first Industrial Revolution to the current revolution in China and India.  
Students will be able to recall information for the Unit 1 test.
- ACTIVITIES:** Notes, participation, and discussion points from the presentation  
“Pros and Cons of Technological Impacts”  
Review for test - Chronological order activity for technological ages
- EVALUATION:** Informal assessment of note taking and class participation
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces
- PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.10B, 3.8.10C

**December 2**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to recall and review for the Unit I test tomorrow  
Students will be able to chronologically arrange the periods of technology and their impacts.  
Students will be able to chronologically arrange technological artifacts.
- ACTIVITIES:** Students will review by placing the descriptions, artifacts, and impacts of technological ages with the correct groups.  
Informal review for the test.
- EVALUATION:** Informal assessment of class participation
- ENRICHMENT:** Independent exploration of technological ages.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

**December 6**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to complete the Unit 1 Test.
- ACTIVITIES:** Completion of Unit 1 Test
- EVALUATION:** Formal evaluation of **Unit 1 test – 68 points**
- ENRICHMENT:** Independent exploration of technological impacts on history
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

**December 8**

## **Foundation of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to understand and follow basic laboratory safety rules.  
Students will be aware and know the appropriate behaviors and expectations for laboratory activities.
- ACTIVITIES:** Students will take a tour of the lab facilities to review locations of safety equipment  
“Basic Safety Rules”- Handout  
Students will read and discuss the handout.  
Quiz 28 points “Engineering & Technology Basic Safety Rules Test”
- EVALUATION:** Formal assessment on the completion of the 28 point quiz “Engineering & Technology Basic Safety Rules Test”  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of laboratory safety practices
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating

Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology : 3.7.10A**

**December 12**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to safely and accurately operate the band saw and the jig saw.

**ACTIVITIES:** Safety practices for the band saw and jig saw  
Participation in safety features & demonstration  
Explanation & set-up of machines  
Completion of PA safety test for both machines

**EVALUATION:** Formal evaluation of safety tests  
Informal assessment of cutting accuracy and safety practices of machine set-up  
Informal evaluation of handout, note completion, and participation  
Formal evaluation of safety tests

**ENRICHMENT:** Independent exploration of the band saw and jig saw

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology: 3.2.7B, 3.7.10A, 3.7.12A**

**December 14**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** **CONTINUED:** Students will be able to safely and accurately operate the band saw and the jig saw

**ACTIVITIES:** **CONTINUED:** Safety practices for the band saw and jig saw  
Participation in safety features & demonstration  
Explanation & set-up of machines  
Completion of PA safety test for both machines  
Student application samples of using the band saw and the drill press

**EVALUATION:** Informal assessment of cutting accuracy and safety practices of machine set-up  
Informal evaluation of handout, note completion, and participation  
Formal evaluation of safety tests

**ENRICHMENT:** Independent exploration of the band saw and jig saw

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.2.7B, 3.7.10A, 3.7.12A

**December 16**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to identify the basic criteria, constraints, approved materials, and key points for the design brief.  
Students will be able to use a calculator to calculate English dimension parameters from the metric that are provided.  
Students will be able to define and distinguish the difference between the key terms on pg 2  
Students will be able to identify the design challenge and identify the product or service that the device will help solve.  
Students will be able to examine the general background of chair design and function.

**ACTIVITIES:** **Cardboard Chair Design Brief**  
Calculate English dimension parameters from metric  
Sketch a brief diagram using the dimension parameters  
Answer the questions on pg 4 concerning the design brief  
Read the background information on page 5 and answer the 5 questions at the top of the page

**EVALUATION:** Informal evaluation of class participation and note taking

**ENRICHMENT:** Independent exploration of potential solutions for the cardboard chair design brief

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary



Modified Tests & Quizzes

Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**December 20**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to create and sketch six different possible design solutions.  
Students will be able to evaluate their preliminary designs based on specific criteria inventory.  
Students will be able to evaluate the value of a trade-off from a selected design.  
Students will be able to analyze their design for possible building challenges.  
Students will be able to create an orthographic sketch of their select design

**ACTIVITIES:** **Cardboard Chair Design Brief**  
Use the Internet (Google Images) to research possible chair designs  
Sketch six different designs - page 6  
Read definition of "Trade-Offs" - page 7  
Use the framework on page 7 to evaluate the six possible designs  
Answer the questions on page 7 using complete sentences  
Discuss orthographic drawings - page 8  
Select a design and complete and orthographic sketch of it - page 9

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points

**ENRICHMENT:** Independent exploration of potential solutions for the cardboard chair design brief

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**December 22**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to create a materials list for the prototype.  
Students will be able to relate structural terminology to the materials for their prototype.  
Students will be able to create a Universal Systems Model to plan their prototype.  
Students will be able to identify common scales/ratios  
Students will be able to identify reasons that prototypes are necessary for problem solutions  
Students will be able to select a scale for their prototype

**ACTIVITIES:** **Cardboard Chair Design Brief**  
List all of the necessary materials including the adhesive for the prototype – page 10  
Use the chart on page 10 and identify the properties of their selected materials  
Read the sample Universal Systems Model on page 11  
Complete the Universal Systems Model for the prototype – page 12  
Read page 13 – “Building Scale Models” / select a scale / answer scale questions

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points

**ENRICHMENT:** Independent exploration of potential solutions for the cardboard chair design brief

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**  
3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**December 24 – January 2**

# Merry Christmas!

**January 3**

**Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to create a materials list for the prototype.  
Students will be able to relate structural terminology to the materials for their prototype.  
Students will be able to create a Universal Systems Model to plan their prototype.

Students will be able to identify common scales/ratios  
Students will be able to identify reasons that prototypes are necessary for problem solutions  
Students will be able to select a scale for their prototype

**ACTIVITIES:**                   **Cardboard Chair Design Brief**  
List all of the necessary materials including the adhesive for the prototype – page 10  
Use the chart on page 10 and identify the properties of their selected materials  
Read the sample Universal Systems Model on page 11  
Complete the Universal Systems Model for the prototype – page 12  
Read page 13 – “Building Scale Models” / select a scale / answer scale questions

**EVALUATION:**               Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points

**ENRICHMENT:**               Independent exploration of potential solutions for the cardboard chair design brief

**ACCOMMODATIONS:**   Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**  
3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**January 5**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:**               Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to develop measurements for the orthographic sketch views.  
Students will be able to develop a six step building plan.  
Students design the scale cardboard chair using the guidance of the design brief constraints and criteria and the provided materials of cardboard and white glue.  
Students will be able to record daily progress, tools used, problems faced/solved, and a daily progress sketch of their chair in the Engineering Design Journal.

**ACTIVITIES:**                   **Cardboard Chair Design Brief**  
Develop measurements for the orthographic prototype sketches – page 9  
Develop a six step building plan – page 14  
Begin to measure, cut, build, test, and construct t the scale model according to the specific constraints and criteria

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points  
Formal assessment of daily progress and charting in the Engineering Design Journal

**ENRICHMENT:** Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
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Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**January 9**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** CONTINUED: Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to develop measurements for the orthographic sketch views.  
Students will be able to utilize their six step building plan.  
Students design the scale cardboard chair using the guidance of the design brief constraints and criteria and the provided materials of cardboard and white glue.  
Students will be able to record daily progress, tools used, problems faced/solved, and a daily progress sketch of their chair in the Engineering Design Journal.

**ACTIVITIES:** **Cardboard Chair Design Brief**  
Use the measurements form the orthographic prototype sketches – page 9  
Use the six step building plan – page 14  
Measure, cut, build, test, and construct the scale model according to the specific constraints and criteria

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points  
Formal assessment of daily progress and charting in the Engineering Design Journal

**ENRICHMENT:** Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance

Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**January 11**

**Foundations of Technology 9<sup>th</sup> Grade**

**Diarrhea**

**OBJECTIVES:**

CONTINUED: Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to use the measurements form the orthographic sketch views.  
Students will be able to utilize their six step building plan.  
Students design the scale cardboard chair using the guidance of the design brief constraints and criteria and the provided materials of cardboard and white glue.  
Students will be able to record daily progress, tools used, problems faced/solved, and a daily progress sketch of their chair in the Engineering Design Journal.

**COMPLETION/SUBMISSION of SCALE MODEL**

**ACTIVITIES:**

**Cardboard Chair Design Brief**

Use the measurements form the orthographic prototype sketches – page 9  
Use the six step building plan – page 14  
Measure, cut, build, test, and construct the scale model according to the specific constraints and criteria

**EVALUATION:**

Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points  
Formal assessment of daily progress and charting in the Engineering Design Journal

**ENRICHMENT:**

Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:**

Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**January 13**

# Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** CONTINUED: Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to utilize their six step building plan.  
Students design the scale cardboard chair using the guidance of the design brief constraints and criteria and the provided materials of cardboard and white glue.  
Students will be able to record daily progress, tools used, problems faced/solved, and a daily progress sketch of their chair in the Engineering Design Journal.

**ACTIVITIES:** **Cardboard Chair Design Brief**  
Use the measurements form the orthographic prototype sketches – page 9  
Use the six step building plan – page 14  
Measure, cut, build, test, and construct the scale model according to the specific constraints and criteria

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points  
Formal assessment of daily progress and charting in the Engineering Design Journal  
**Formal assessment of the scale model according to the assessment rubric – Scale model must be near to the initial concept design drawings**

**ENRICHMENT:** Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

## PA STANDARDS for Science, Engineering, and Technology:

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**January 18**

# Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Student groups will present their design solution according to the criteria and grading rubric.

**ACTIVITIES:** Group presentations

**EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities  
Formal assessment of daily progress and charting in the Engineering Design Journal  
Formal assessment via rubric for the presentation

**ENRICHMENT:** Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:**

3.1.4A, 3.1.4B, 3.1.4D-3.1.12D, 3.2.4D, 3.2.10D, 3.6.10C, 3.7.10C, 3.7.10D, 3.8.12B

# 2<sup>nd</sup> SEMESTER

**ORDER IS REVERSED WITH PAPER TABLE AND CHAIR PROJECT FIRST FOR END OF YEAR COMPLETION**

**January 20**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to comply with the set expectations and procedures for this class.  
Students will be able to use a ruler and measure to the nearest 1/2" inch.

**ACTIVITIES:** Introduction discussion of course  
Procedure / Policy Handout

Distribute folder & Engineering Design Journal  
"Giant Inch" measuring review activity  
Begin "Measuring Practice" handout

**EVALUATION:** Procedure / Policy / Student Expectation signature form is due tomorrow  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration and application of measuring

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10C, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**January 24**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to use a ruler and measure to the nearest 1/16" inch.  
**Students will be able to complete the measuring assessment.**

**ACTIVITIES:** Completion of the following measuring activities:  
"Measuring Practice" handout  
"Measuring Practice 1" handout  
"Measuring Practice 2" handout

**EVALUATION:** Informal assessment of completion of the measuring practice guides  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration and application of measuring

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A



**January 26**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to identify and distinguish between compression, tension, torsion, shear, and bending.  
Students will be able to identify the constraints and criteria for the paper table design brief.  
Students will be able to plan and sketch a preliminary design for their paper table.  
In small groups of two, students will be able to use the engineering design process, materials, and basic information on forces to construct their paper table to hold eight pounds for a minimum of three minutes.
- ACTIVITIES:** Watch two videos from you tube on basic forces: [http://www.youtube.com/watch?v=c-V\\_8\\_qmJbE](http://www.youtube.com/watch?v=c-V_8_qmJbE)  
<http://www.youtube.com/watch?v=gqldBnxI32w>  
Students will watch the introductory video from PBS's "Design Squad" on the paper table design brief.  
Students will review the paper table design brief instructions and rubric.  
Select groups of two, discuss the directions, parameters, and design constraints o  
Brainstorm, sketch preliminary designs, receive building materials and begin construction
- EVALUATION:** Evaluation of class participation and note taking  
Formal assessment via rubric at the completion of the paper table design brief
- ENRICHMENT:** Independent exploration of the engineering design process and basic forces
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.4.7C, 3.4.10C, 3.6.10C, 3.6.12C

**January 30**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to apply the design process to construct a paper table capable of supporting 8 lbs for 3 minutes.  
Students will be able to construct the paper table according to their sketched designs that meet specific criteria and constraints.
- ACTIVITIES:** Continue construction

- EVALUATION:** Informal evaluation of class participation and team work  
Formal evaluation of finalized design – rubric based 50 points
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

## February 1

### Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to apply the design process to construct a paper table capable of supporting 7lbs for 3 minutes.  
Students will be able to construct the paper table according to their sketched designs that meet specific criteria and constraints.
- ACTIVITIES:** Continue construction
- EVALUATION:** Informal evaluation of class participation and team work  
Formal evaluation of finalized design – rubric based 50 points
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

## February 3

### Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to apply the design process to construct a paper table capable of supporting 7lbs for 3 minutes.  
Students will be able to construct the paper table according to their sketched designs that meet specific criteria and constraints.
- ACTIVITIES:** Continue construction
- EVALUATION:** Informal evaluation of class participation and team work  
Formal evaluation of finalized design – rubric based 50 points
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces
- PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

**February 7**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to test their 6” paper “table” design.  
Students will be able to refine their designs to complete the “table” test  
Students will be able to present their design
- ACTIVITIES:** Use a digital scale to weigh their completed design in pounds and kilograms.  
Test their paper “table” design with an 8lb book.  
Revise their design to pass the weight test  
Present and test their final design to the class  
Students with failing designs may start over and be tested again outside of class
- EVALUATION:** Informal evaluation of class participation and team work  
Formal evaluation of finalized design – rubric based 60 points  
Formal evaluation of presentation assessment subjective – 10 points
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary

Modified Tests & Quizzes

Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.4.7C, 3.4.10C, 3.6.10C, 3.6.12C - **3.2.10B**

**February 9**

## **Foundation of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to understand and follow basic laboratory safety rules.  
Students will be aware and know the appropriate behaviors and expectations for laboratory activities.
- ACTIVITIES:** Students will take a tour of the lab facilities to review locations of safety equipment  
“Basic Safety Rules”- Handout  
Students will read and discuss the handout.  
Quiz 28 points “Engineering & Technology Basic Safety Rules Test”
- EVALUATION:** Formal assessment on the completion of the 28 point quiz “Engineering & Technology Basic Safety Rules Test”  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of laboratory safety practices
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology :** 3.7.10A

**February 13**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to safely and accurately operate the band saw and the jig saw.
- ACTIVITIES:** Safety practices for the band saw and jig saw  
Participation in safety features & demonstration  
Explanation & set-up of machines  
Completion of PA safety test for both machines
- EVALUATION:** Formal evaluation of safety tests  
Informal assessment of cutting accuracy and safety practices of machine set-up

Informal evaluation of handout, note completion, and participation  
Formal evaluation of safety tests

**ENRICHMENT:** Independent exploration of the band saw and jig saw

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.2.7B, 3.7.10A, 3.7.12A

**February 15**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** **CONTINUED:** Students will be able to safely and accurately operate the band saw and the jig saw

**ACTIVITIES:** **CONTINUED:** Safety practices for the band saw and jig saw  
Participation in safety features & demonstration  
Explanation & set-up of machines  
Completion of PA safety test for both machines  
Student application samples of using the band saw and the drill press

**EVALUATION:** Informal assessment of cutting accuracy and safety practices of machine set-up  
Informal evaluation of handout, note completion, and participation  
Formal evaluation of safety tests

**ENRICHMENT:** Independent exploration of the band saw and jig saw

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.2.7B, 3.7.10A, 3.7.12A

**February 17**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to identify the basic criteria, constraints, approved materials, and key points for the design brief.  
Students will be able to use a calculator to calculate English dimension parameters from the metric that are provided.  
Students will be able to define and distinguish the difference between the key terms on pg 2  
Students will be able to identify the design challenge and identify the product or service that the device will help solve.  
Students will be able to examine the general background of chair design and function.

**ACTIVITIES:** **Cardboard Chair Design Brief**  
Calculate English dimension parameters from metric  
Sketch a brief diagram using the dimension parameters  
Answer the questions on pg 4 concerning the design brief  
Read the background information on page 5 and answer the 5 questions at the top of the page

**EVALUATION:** Informal evaluation of class participation and note taking

**ENRICHMENT:** Independent exploration of potential solutions for the cardboard chair design brief

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

### PA STANDARDS for Science, Engineering, and Technology:

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**February 22**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to create and sketch six different possible design solutions.  
Students will be able to evaluate their preliminary designs based on specific criteria inventory.  
Students will be able to evaluate the value of a trade-off from a selected design.  
Students will be able to analyze their design for possible building challenges.  
Students will be able to create an orthographic sketch of their select design

**ACTIVITIES:** **Cardboard Chair Design Brief**  
Use the Internet (Google Images) to research possible chair designs

Sketch six different designs - page 6  
Read definition of "Trade-Offs" - page 7  
Use the framework on page 7 to evaluate the six possible designs  
Answer the questions on page 7 using complete sentences  
Discuss orthographic drawings - page 8  
Select a design and complete and orthographic sketch of it - page 9

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points

**ENRICHMENT:** Independent exploration of potential solutions for the cardboard chair design brief

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**  
3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**February 24**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to create a materials list for the prototype.  
Students will be able to relate structural terminology to the materials for their prototype.  
Students will be able to create a Universal Systems Model to plan their prototype.  
Students will be able to identify common scales/ratios  
Students will be able to identify reasons that prototypes are necessary for problem solutions  
Students will be able to select a scale for their prototype

**ACTIVITIES:** **Cardboard Chair Design Brief**  
List all of the necessary materials including the adhesive for the prototype – page 10  
Use the chart on page 10 and identify the properties of their selected materials  
Read the sample Universal Systems Model on page 11  
Complete the Universal Systems Model for the prototype – page 12  
Read page 13 – "Building Scale Models" / select a scale / answer scale questions

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points

**ENRICHMENT:** Independent exploration of potential solutions for the cardboard chair design brief

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students

Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**February 28**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:**

- Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)
- Students will be able to create a materials list for the prototype.
- Students will be able to relate structural terminology to the materials for their prototype.
- Students will be able to create a Universal Systems Model to plan their prototype.
- Students will be able to identify common scales/ratios
- Students will be able to identify reasons that prototypes are necessary for problem solutions
- Students will be able to select a scale for their prototype

**ACTIVITIES:**

**Cardboard Chair Design Brief**

- List all of the necessary materials including the adhesive for the prototype – page 10
- Use the chart on page 10 and identify the properties of their selected materials
- Read the sample Universal Systems Model on page 11
- Complete the Universal Systems Model for the prototype – page 12
- Read page 13 – “Building Scale Models” / select a scale / answer scale questions

**EVALUATION:**

- Informal evaluation of class participation and completion of scheduled activities
- Formal evaluation on the completion of written activities from design brief – 20 points

**ENRICHMENT:** Independent exploration of potential solutions for the cardboard chair design brief

**ACCOMMODATIONS:**

- Additional time to complete tasks / tests / quizzes / assignments
- T /F Safety tests read to all students
- Option for students to take formal assessments taken in the Learning Support room
- Option for preferential seating
- Option for individual guidance
- Verbal presentation of reading material by aid when present
- Additional time to complete assignments as necessary
- Modified Tests & Quizzes
- Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E



**March 2**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to develop measurements for the orthographic sketch views.  
Students will be able to develop a six step building plan.  
Students design the scale cardboard chair using the guidance of the design brief constraints and criteria and the provided materials of cardboard and white glue.  
Students will be able to record daily progress, tools used, problems faced/solved, and a daily progress sketch of their chair in the Engineering Design Journal.

**ACTIVITIES:** **Cardboard Chair Design Brief**  
Develop measurements for the orthographic prototype sketches – page 9  
Develop a six step building plan – page 14  
Begin to measure, cut, build, test, and construct the scale model according to the specific constraints and criteria

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points  
Formal assessment of daily progress and charting in the Engineering Design Journal

**ENRICHMENT:** Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**  
3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**March 6**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** CONTINUED: Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to develop measurements for the orthographic sketch views.  
Students will be able to utilize their six step building plan.  
Students design the scale cardboard chair using the guidance of the design brief constraints and criteria and the provided materials of cardboard and white glue.

Students will be able to record daily progress, tools used, problems faced/solved, and a daily progress sketch of their chair in the Engineering Design Journal.

**ACTIVITIES:**

**Cardboard Chair Design Brief**

Use the measurements form the orthographic prototype sketches – page 9

Use the six step building plan – page 14

Measure, cut, build, test, and construct the scale model according to the specific constraints and criteria

**EVALUATION:**

Informal evaluation of class participation and completion of scheduled activities

Formal evaluation on the completion of written activities from design brief – 20 points

Formal assessment of daily progress and charting in the Engineering Design Journal

**ENRICHMENT:**

Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:**

Additional time to complete tasks / tests / quizzes / assignments

T /F Safety tests read to all students

Option for students to take formal assessments taken in the Learning Support room

Option for preferential seating

Option for individual guidance

Verbal presentation of reading material by aid when present

Additional time to complete assignments as necessary

Modified Tests & Quizzes

Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**March 8**

**Foundations of Technology 9<sup>th</sup> Grade**

**Diarrhea**

**OBJECTIVES:**

CONTINUED: Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)

Students will be able to use the measurements form the orthographic sketch views.

Students will be able to utilize their six step building plan.

Students design the scale cardboard chair using the guidance of the design brief constraints and criteria and the provided materials of cardboard and white glue.

Students will be able to record daily progress, tools used, problems faced/solved, and a daily progress sketch of their chair in the Engineering Design Journal.

**COMPLETION/SUBMISSION of SCALE MODEL**

**ACTIVITIES:**

**Cardboard Chair Design Brief**

Use the measurements form the orthographic prototype sketches – page 9

Use the six step building plan – page 14

Measure, cut, build, test, and construct the scale model according to the specific constraints and criteria

**EVALUATION:**

Informal evaluation of class participation and completion of scheduled activities

Formal evaluation on the completion of written activities from design brief – 20 points  
Formal assessment of daily progress and charting in the Engineering Design Journal

**ENRICHMENT:** Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**March 10**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** CONTINUED: Students will be able to use the engineering design process to develop a solution to the cardboard chair design brief. (Big Picture)  
Students will be able to utilize their six step building plan.  
Students design the scale cardboard chair using the guidance of the design brief constraints and criteria and the provided materials of cardboard and white glue.  
Students will be able to record daily progress, tools used, problems faced/solved, and a daily progress sketch of their chair in the Engineering Design Journal.

**ACTIVITIES:** **Cardboard Chair Design Brief**  
Use the measurements form the orthographic prototype sketches – page 9  
Use the six step building plan – page 14  
Measure, cut, build, test, and construct the scale model according to the specific constraints and criteria

**EVALUATION:** Informal evaluation of class participation and completion of scheduled activities  
Formal evaluation on the completion of written activities from design brief – 20 points  
Formal assessment of daily progress and charting in the Engineering Design Journal  
**Formal assessment of the scale model according to the assessment rubric – Scale model must be near to the initial concept design drawings**

**ENRICHMENT:** Independent exploration and application of design / problem solving using the engineering design process

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present

Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:**

3.1.10A, 3.1.10E, 3.2.7A, 3.2.10D, 3.4.7C, 3.4.10C, 3.6.7C, 3.6.10C, 3.7.7E

**March 14**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Student groups will present their design solution according to the criteria and grading rubric.
- ACTIVITIES:** Group presentations
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities  
Formal assessment of daily progress and charting in the Engineering Design Journal  
Formal assessment via rubric for the presentation
- ENRICHMENT:** Independent exploration and application of design / problem solving using the engineering design process
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T / F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:**

3.1.4A, 3.1.4B, 3.1.4D-3.1.12D, 3.2.4D, 3.2.10D, 3.6.10C, 3.7.10C, 3.7.10D, 3.8.12B

**March 16**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **UNIT 1 – History of Technology**  
Students will complete the Unit 1 Pre Test  
Complete Unit 1 Pre Test and review the answers (no points)  
Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.
- ACTIVITIES:** Completion of the following measuring activities:

“Measuring Practice 2” handout – review of answers

Review measuring activity on the white board

**Measuring Test 17 points**

Presentation - **History of Technology**

Discuss the light bulb as an invention and technological advancement that became a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.

**EVALUATION:** Informal assessment of completion of the measuring practice guide and measuring review activity  
Formal assessment of 17 point measuring test  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement

**ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**March 20**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Students will be able to conduct basic research using “Wikipedia” and group discussion to construct answers to technological advancements concepts in preparation for a presentation.  
Students will develop a poster to communicate their selected technological advancement topic for their presentation.

**ACTIVITIES:** Small group activity – Students will select a technological device of their choice, research and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Groups will develop a poster with graphics and text for their topic presentation.

**EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement

**ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**March 22**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Students will be able to conduct basic research using “Wikipedia” and group discussion to construct answers to technological advancements concepts in preparation for a presentation.  
Students will develop a poster to communicate their selected technological advancement topic for their presentation.

**ACTIVITIES:** **CONTINUED:** Small group activity – Students will select a technological device of their choice, research and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Groups will develop a poster with graphics and text for their topic presentation.

**EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement

**ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

March 24

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever. Students will be able to conduct basic research using “Wikipedia” and group discussion to construct answers to technological advancements concepts in preparation for a presentation. Students will develop a poster to communicate their selected technological advancement topic for their presentation.
- ACTIVITIES:** **CONTINUED:** Small group activity – Students will select a technological device of their choice, research and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever. Groups will develop a poster with graphics and text for their topic presentation.
- EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement
- ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**March 28**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Students will be able to conduct basic research using “Wikipedia” and group discussion to construct answers to technological advancements concepts in preparation for a presentation. Students will develop a poster to communicate their selected technological advancement topic for their presentation.
- ACTIVITIES:** **CONTINUED:** Small group activity – Students will select a technological device of their choice, research and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.  
Groups will develop a poster with graphics and text for their topic presentation.
- EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement
- ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces
- PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**March 30**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** Students will be able to conduct a presentation on how a technological advancement becomes a turning point in history via how it influence the lives of the people who first used it, impacted the way people lived, worked, produced things, and changed history forever.
- ACTIVITIES:** Small group activity – Students will present a technological device of their choice and discuss six reasons for why it became a turning point in history via how it influenced the lives of the people



who first used it, impacted the way people lived, worked, produced things, and changed history forever.

Groups will also present the topic using their poster as a visual aid.

**EVALUATION:** Formal rubric assessment on the presentation of their topic, quality of their poster, and the quality of their presentation  
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of historical turning points caused by a technological advancement

**ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time  
Additional time to complete tasks / tests / quizzes / assignments  
T / F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

**April 3**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to identify that technological development has been evolutionary, the result of a series of refinements to a basic invention and provide concrete examples of this.  
Students will be able to identify that the evolution of civilization has been directly affected by, and has in turn affected the development of tools and materials and provide concrete examples of this.  
Students will be able to identify that throughout history, technology has been a powerful force in reshaping the social, cultural, political, and economic landscape and provide concrete examples of this.  
Students will be able to identify that early in the history of technology, the development of many tools and machines was not based on scientific knowledge but on technological know-how and provide examples of this.  
Students will be able to identify that the study of history is defined by chronological periods and provide an example of this.

**ACTIVITIES:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout  
View video on controlling video games with your mind:  
[http://www.youtube.com/watch?v=wNr3yGcl\\_V8](http://www.youtube.com/watch?v=wNr3yGcl_V8)  
View video on project "epoch"  
<http://gizmodo.com/240760/project-epoch-lets-you-control-video-games-with-your-noggin>  
Read article about "Mindflex" game  
[http://mindflexgames.com/what\\_is\\_mindflex.php](http://mindflexgames.com/what_is_mindflex.php)

<http://en.wikipedia.org/wiki/Mindflex>

Discuss "Mind Wave" as the future for education.

**EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of technological evolution of game controllers

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**April 5**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to identify that technology is how humans modify the world around them to meet their needs and wants or to solve practical problems  
Students will be able to describe and develop examples of technology as human innovation in action.  
Students will be able to define the definition of ***Technological Literacy*** as the ability to use, manage, and evaluate technology and compare it to Rockwood School Districts mission statement.  
Students will be able to develop examples of technology affecting human comfort and safety.

**ACTIVITIES:** **CONTINUED:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout

**EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of technological literacy

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**April 7**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to identify that technology is how humans modify the world around them to meet their needs and wants or to solve practical problems  
Students will be able to describe and develop examples of technology as human innovation in action.  
Students will be able to define the definition of ***Technological Literacy*** as the ability to use, manage, and evaluate technology and compare it to Rockwood School Districts mission statement.  
Students will be able to develop examples of technology affecting human comfort and safety.

**ACTIVITIES:** **CONTINUED:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout

**EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

**ENRICHMENT:** Independent exploration of technological literacy

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T / F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**April 11**

## Foundations of Technology 9<sup>th</sup> Grade

**OBJECTIVES:** Students will be able to identify our examination of history as a chronological record of significant events, often including an explanation of their *causes*.  
Students will be able to identify that periods of history are associated with technological evolution, major technological advancements, and their impact on history.  
Students will be able to research a selected historical period and report on its description, technological artifacts, and the impact of technology on history.

**ACTIVITIES:** Participation in civilized class discussion and note taking / fill in the blanks on the chapter notes handout  
Select a small group for the research activity  
Review the criteria, constraints, and rubric for the presentation activity  
Begin research using Internet resources such as Wikipedia  
Select an appropriate video that supports the selected historical age that is less than 5 minutes in length

**EVALUATION:** Formal rubric evaluation of the PowerPoint presentation on the selected historical age

**ENRICHMENT:** Independent exploration of technology's influence on history

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T / F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**April 19**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to present on their group selected historical technology item based its influence, and impacts of the way people, lived, worked, produced things and how it changed history forever.

**ACTIVITIES:** Five minutes at the start of class to refine the presentation  
Group presentation based on rubric criteria

**EVALUATION:** Rubric based evaluation of presentation techniques, content of information, organization, neatness, and participation of the group presentation

**ENRICHMENT:** Independent exploration of technological advancements and their influences on society

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T / F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C – **3.2.10B**

**April 21**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to present on their group selected historical technology item based its influence, and impacts of the way people, lived, worked, produced things and how it changed history forever.
- ACTIVITIES:** Five minutes at the start of class to refine the presentation  
Group presentation based on rubric criteria
- EVALUATION:** Rubric based evaluation of presentation techniques, content of information, organization, neatness, and participation of the group presentation
- ENRICHMENT:** Independent exploration of technological advancements and their influences on society
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C – **3.2.10B**

**April 25**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to present on their group selected historical technology item based its influence, and impacts of the way people, lived, worked, produced things and how it changed history forever.
- ACTIVITIES:** Five minutes at the start of class to refine the presentation  
Group presentation based on rubric criteria
- EVALUATION:** Rubric based evaluation of presentation techniques, content of information, organization, neatness, and participation of the group presentation
- ENRICHMENT:** Independent exploration of technological advancements and their influences on society
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present

Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C – **3.2.10B**

**April 27**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to identify technological eras with their associated technological tools  
Students will be able to compare and contrast the information age with another technological era
- ACTIVITIES:** Note taking activity on Paleolithic, Mesolithic & Neolithic technological eras  
Students will use the Unit 1 Note guide and fill in the blanks during the lesson  
Neolithic – discussion on focus groups  
Watch video segment “The Wheel Focus Group”  
Watch humorous video segment on the “stone age”
- EVALUATION:** Evaluation of class participation and note taking
- ENRICHMENT:** Independent exploration of technological eras
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**May 1**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to identify technological eras with their associated technological tools.  
Students will be able to compare and contrast the information age with another technological era.
- ACTIVITIES:** Review from previous ages
- Note taking activity on the Bronze, Iron, Middle, and Renaissance technological eras  
Middle Ages – discussion on Black Death and its impact on technology  
Watch video segment – “Black Death”

Renaissance - discussion on small and large viewing technology  
Watch video segment – “Renaissance Man”  
Students will use the Unit 1 Note guide and fill in the blanks during the lesson

**EVALUATION:** Evaluation of class participation and note taking

**ENRICHMENT:** Independent exploration of technological eras

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**May 3**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to identify technological eras with their associated technological tools  
Students will be able to compare and contrast the information age with another technological era  
Students will be able to determine how a technological advancement will impact their future life and how will it influence/change the world around them

**ACTIVITIES:** Note taking activity on the Industrial and Information and Ages technological eras  
Students will use the Unit 1 Note guide and fill in the blanks during the lesson  
Students will select a future technology article to read and then respond to the article with an open-ended PSSA style written response

**EVALUATION:** Evaluation of class participation and note taking  
Completion of “The Cutting Edge of Technology” article and response question

**ENRICHMENT:** Independent exploration of technological eras and impacts of cutting edge technologies

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**May 5**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able apply facts and concepts from discussed historical ages to develop reasons for employment sector shifting.  
Students will be able to read a bar graph chart and develop answers to questions based on employment by sectors for historical time periods.

**ACTIVITIES:** Students will complete the handout, “Historical Analysis of Employment by Sectors”

**EVALUATION:** Evaluation of class participation and note taking  
Completion of “Historical Analysis of Employment by Sectors” handout

**ENRICHMENT:** Independent exploration of technological era employment factor shifts

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**May 9**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** **CONTINUED:** Students will be able apply facts and concepts from discussed historical ages to develop reasons for employment sector shifting.  
Students will be able to read a bar graph chart and develop answers to questions based on employment by sectors for historical time periods.

**ACTIVITIES:** Students will complete the handout, “Historical Analysis of Employment by Sectors”

**EVALUATION:** Evaluation of class participation and note taking  
Completion of “Historical Analysis of Employment by Sectors” handout

**ENRICHMENT:** Independent exploration of technological era employment factor shifts

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students



Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**May 11**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:**
- Students will be able to determine that required physical labor has declined however the knowledge required has increased.
  - Students will be able to note that modern science is based on traditions of thought that came together in Europe about 500 years ago.
  - Students will be able to recognize the function of the scientific method.
  - Students will be able to compare and contrast the scientific method with the engineering design process.
  - Students will be able to identify the constraints and criteria for the paper table design brief.
- ACTIVITIES:**
- Students will use the Unit 1 Note guide and fill in the blanks during the lesson.
  - Students will watch the introductory video from PBS's "Design Squad" on the paper table design brief.
  - Students will review the paper table design brief instructions and rubric.
- EVALUATION:**
- Evaluation of class participation and note taking
  - Formal assessment via rubric at the completion of the paper table design brief
- ENRICHMENT:**
- Independent exploration of the engineering design process
- ACCOMMODATIONS:**
- Additional time to complete tasks / tests / quizzes / assignments
  - T /F Safety tests read to all students
  - Option for students to take formal assessments taken in the Learning Support room
  - Option for preferential seating
  - Option for individual guidance
  - Verbal presentation of reading material by aid when present
  - Additional time to complete assignments as necessary
  - Modified Tests & Quizzes
  - Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**May 15**

## Foundations of Technology 9<sup>th</sup> Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to determine that required physical labor has declined however the knowledge required has increased.  
 Students will be able to note that modern science is based on traditions of thought that came together in Europe about 500 years ago.  
 Students will be able to recognize the function of the scientific method.  
 Students will be able to compare and contrast the scientific method with the engineering design process.  
 Students will be able to identify the constraints and criteria for the paper table design brief.
- ACTIVITIES:** Students will use the Unit 1 Note guide and fill in the blanks during the lesson.  
 Students will watch the introductory video from PBS's "Design Squad" on the paper table design brief.  
 Students will review the paper table design brief instructions and rubric.
- EVALUATION:** Evaluation of class participation and note taking  
 Formal assessment via rubric at the completion of the paper table design brief
- ENRICHMENT:** Independent exploration of the engineering design process
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
 T /F Safety tests read to all students  
 Option for students to take formal assessments taken in the Learning Support room  
 Option for preferential seating  
 Option for individual guidance  
 Verbal presentation of reading material by aid when present  
 Additional time to complete assignments as necessary  
 Modified Tests & Quizzes  
 Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.1.12E, 3.8.10A, 3.8.10B, 3.8.10C, 3.8.12A, 3.8.10B, 3.8.10C

**May 17**

## **Foundations of Technology 9<sup>th</sup> Grade**

- OBJECTIVES:** Students will be able to analyze and discuss the causes and effects of the first Industrial Revolution.  
 Students will relate the first Industrial Revolution to the current revolution in China and India.  
 Students will be able to recall information for the Unit 1 test.
- ACTIVITIES:** Notes, participation, and discussion points from the presentation  
 "Pros and Cons of Technological Impacts"  
 Review for test - Chronological order activity for technological ages
- EVALUATION:** Informal assessment of note taking and class participation
- ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
 T /F Safety tests read to all students

Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.10B, 3.8.10C

**May 19**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** **CONTINUED:** Students will be able to analyze and discuss the causes and effects of the first Industrial Revolution.  
Students will relate the first Industrial Revolution to the current revolution in China and India.  
Students will be able to recall information for the Unit 1 test.

**ACTIVITIES:** Notes, participation, and discussion points from the presentation  
“Pros and Cons of Technological Impacts”  
Review for test - Chronological order activity for technological ages

**EVALUATION:** Informal assessment of note taking and class participation

**ENRICHMENT:** Independent exploration of building techniques using basic geometric shapes

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.10B, 3.8.10C

**May 23**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to recall and review for the Unit I test tomorrow  
Students will be able to chronologically arrange the periods of technology and their impacts.  
Students will be able to chronologically arrange technological artifacts.

**ACTIVITIES:** Students will review by placing the descriptions, artifacts, and impacts of technological ages with the correct groups.

Informal review for the test.

**EVALUATION:** Informal assessment of class participation

**ENRICHMENT:** Independent exploration of technological ages.

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C

**May 25**

## **Foundations of Technology 9<sup>th</sup> Grade**

**OBJECTIVES:** Students will be able to complete the Unit 1 Test.

**ACTIVITIES:** Completion of Unit 1 Test

**EVALUATION:** Formal evaluation of **Unit 1 test – 68 points**

**ENRICHMENT:** Independent exploration of technological impacts on history

**ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments  
T /F Safety tests read to all students  
Option for students to take formal assessments taken in the Learning Support room  
Option for preferential seating  
Option for individual guidance  
Verbal presentation of reading material by aid when present  
Additional time to complete assignments as necessary  
Modified Tests & Quizzes  
Breaking up larger assignments into smaller manageable pieces

**PA STANDARDS for Science and Technology:** 3.8.10A, 3.8.4B, 3.8.10C