ROCKWOOD

ENGINEERING & TECHNOLOGY

Foundations of Technology 9th Grade

Lesson Plans Mr. Kush

Day 1

Foundations of Technology 9th 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

Day 2

Foundations of Technology 9th 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

Day 3

Foundations of Technology 9th 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

Day 4

Foundations of Technology 9th 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

Day 5

Foundations of Technology 9th 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

Day 6

Foundations of Technology 9th 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

Day 7

Foundations of Technology 9th 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

Day 8

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to conduct a presentation on how a technological advancement becomes 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.

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

Day 9

Foundations of Technology 9th 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 vdeo on controlling video games with your mind:
http://www.youtube.com/watch?v=wNr3yGcI_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://en.wikipedia.org/wiki/Mindflex
Discuss "Mind Wave" as the future of education.

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

ENRICHMENT: Independent exploration of the 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

Day 10

Foundations of Technology 9th 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 District's 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

Day 11

Foundations of Technology 9th 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 District's 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

Day 12

Foundations of Technology 9th 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

Day 13

Foundations of Technology 9th 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

Day 14

Foundations of Technology 9th 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

Day 15

Foundations of Technology 9th 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

Day 16

Foundations of Technology 9th 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
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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

Day 17

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to present their group's selected historical technology item based on its influence, and impact on 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, the 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**

Day 18

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to present their group's selected historical technology item based on its influence, and impact on 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, the 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**

Day 19

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to present their group's selected historical technology item based on its influence, and impact on 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**

Day 20

Foundations of Technology 9th 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 the video segment “The Wheel Focus Group”
Watch a 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
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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

Day 21

Foundations of Technology 9th 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 the Black Death and its impact on technology
Watch the video segment – "Black Death"
Renaissance - discussion on small and large viewing technology
Watch the 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

Day 22

Foundations of Technology 9th 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 lives 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

Day 23

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to 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 the "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

Day 24

Foundations of Technology 9th 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

Day 25

Foundations of Technology 9th 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=gqIdBnxl32w

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

Day 26

Foundations of Technology 9th 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

Day 27

Foundations of Technology 9th 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

Day 28

Foundations of Technology 9th 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

Day 29

Foundations of Technology 9th 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**

Day 30

Foundations of Technology 9th 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

Day 31

Foundations of Technology 9th 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

Day 32

Foundations of Technology 9th 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

Day 33

Foundation of Technology 9th Grade

OBJECTIVES: Students will be able to understand and follow basic laboratory safety rules.
Students will be aware of and know the appropriate behaviors and expectations for laboratory activities.

ACTIVITIES: Students will take a tour of the lab facilities to review the 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

Day 34

Foundations of Technology 9th 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

Day 35

Foundations of Technology 9th 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

Day 36

Foundations of Technology 9th 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 measurements 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

Day 37

Foundations of Technology 9th 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 the 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

Day 38

Foundations of Technology 9th 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

Day 39

Foundations of Technology 9th 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

Day 40

Foundations of Technology 9th 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
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

Day 41

Foundations of Technology 9th 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
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

Day 42

Foundations of Technology 9th 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

Day 43

Foundations of Technology 9th 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

Day 44

Foundations of Technology 9th 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

Day 45

Foundations of Technology 9th 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

2nd SEMESTER

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

Day 1

Foundations of Technology 9th 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

Day 2

Foundations of Technology 9th 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

Day 3

Foundations of Technology 9th 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 YouTube on basic forces: http://www.youtube.com/watch?v=c-V_8_qmJbE
http://www.youtube.com/watch?v=gqIdBnxl32w
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

Day 4

Foundations of Technology 9th 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 teamwork
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

Day 5

Foundations of Technology 9th 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 teamwork
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

Day 6

Foundations of Technology 9th 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 teamwork
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

Day 7

Foundations of Technology 9th 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 teamwork

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**

Day 8

Foundation of Technology 9th Grade

OBJECTIVES: Students will be able to understand and follow basic laboratory safety rules.
Students will be aware of and know the appropriate behaviors and expectations for laboratory activities.

ACTIVITIES: Students will take a tour of the lab facilities to review the 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

Day 9

Foundations of Technology 9th 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

Day 10

Foundations of Technology 9th 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

Day 11

Foundations of Technology 9th 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 measurements 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

Day 12

Foundations of Technology 9th 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 selected design

ACTIVITIES: **Cardboard Chair Design Brief**
Use the Internet (Google Images) to research possible chair designs
Sketch six different designs - page 6
Read the 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 an 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

Day 13

Foundations of Technology 9th 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

Day 14

Foundations of Technology 9th 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

Day 15

Foundations of Technology 9th 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
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

Day 16

Foundations of Technology 9th 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 from 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

Day 17

Foundations of Technology 9th 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 from 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 from 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

Day 18

Foundations of Technology 9th 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 from 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 – The scale model must be near 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

Day 19

Foundations of Technology 9th 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

Day 20

Foundations of Technology 9th 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 influences the lives of the people who first used it, impacts the way people live, work, produce things, and changes history forever.

ACTIVITIES: Completion of the following measuring activities:
"Measuring Practice 2" handout – review of answers
Review measuring activity on the whiteboard
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 influenced 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 who 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

Day 21

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to examine how a technological advancement becomes a turning point in history via how it influences the lives of the people who first used it, impacts the way people live, work, produce things, and changes 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 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

Day 22

Foundations of Technology 9th Grade

OBJECTIVES: **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influences 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 who 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

Day 23

Foundations of Technology 9th Grade

OBJECTIVES: **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influences 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

Day 24

Foundations of Technology 9th Grade

OBJECTIVES: **CONTINUED:** Students will be able to examine how a technological advancement becomes a turning point in history via how it influences 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

Day 25

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to conduct a presentation on how a technological advancement becomes a turning point in history via how it influences the lives of the people who first used it, impacts the way people live, work, produce things, and change history forever.

ACTIVITIES: Small group activity – Students will present a technological device of their choice and discuss six reasons 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 who 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

Day 26

Foundations of Technology 9th 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 vdeo on controlling video games with your mind:
http://www.youtube.com/watch?v=wNr3yGcI_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://en.wikipedia.org/wiki/Mindflex
Discuss "Mind Wave" as the future of education.

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

ENRICHMENT: Independent exploration of the 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

Day 27

Foundations of Technology 9th 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 District's 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

Day 28

Foundations of Technology 9th 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 District's 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

Day 29

Foundations of Technology 9th 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

Day 30

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to present their group selected historical technology item based on its influence, and impact on the way people, lived, worked, and 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**

Day 31

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to present their group selected historical technology item based on its influence, and impact on the way people, lived, worked, and 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**

Day 32

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to present their group selected historical technology item based on its influence, and impact on the way people, lived, worked, and 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**

Day 33

Foundations of Technology 9th 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 the video segment "The Wheel Focus Group"
Watch a 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

Day 34

Foundations of Technology 9th 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 the Black Death and its impact on technology
Watch the video segment – "Black Death"
Renaissance - discussion on small and large viewing technology
Watch the 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

Day 35

Foundations of Technology 9th 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 lives 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

Day 36

Foundations of Technology 9th Grade

OBJECTIVES: Students will be able to 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 the "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

Day 37

Foundations of Technology 9th Grade

OBJECTIVES: **CONTINUED:** Students will be able to 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 the "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

Day 38

Foundations of Technology 9th 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

Day 39

Foundations of Technology 9th 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

Day 40

Foundations of Technology 9th 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

Day 41

Foundations of Technology 9th 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

Day 42

Foundations of Technology 9th 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

Day 43

Foundations of Technology 9th 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